

Artisanal and Small-Scale Mining in Ecuador— Building and Implementing an Effective Legal Framework

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Abstract

Mining industries in Latin America and across the world are often dominated by artisanal and small-scale mining (“ASM”) operations, which are marred by myriad health, social, economic, and environmental problems. Even with significant economic and social contributions, these operations are often considered illegal because they operate informally, outside legal frameworks. While approaches to addressing problems resulting from ASM have varied, scholars recognize that legalization of ASM is a fundamental condition for a legitimate, stable and responsible ASM sector.

New mining legislation in Ecuador provides for the regularization of ASM in an attempt to combat illegal mining in the country and solve many of the resultant problems. The impact of the new law on illegal mining, however, has been limited. With respect to gold laundering, the law may actually be contributing to this illegal activity rather than reducing it.

This paper provides an overview of the prevalence of illegal mining in Latin America and discusses the attendant problems, with a focus on Ecuador. Ecuador’s law formalizing ASM is then presented and analyzed in the contexts of its contribution to gold laundering in the country and degradation of a popular river in Ecuador’s “whitewater capital.” The law’s effects on mercury reduction and the coexistence between ASM and large-scale mining in Ecuador are also discussed. Based on these analyses, recommendations are made to improve the effectiveness of Ecuador’s new mining law, both to reduce illegal mining activity in the country and to better protect Ecuador’s natural environment. Overall, enhancement of Ecuador’s legal framework for ASM is intended to contribute to the advancement of ASM as a formalized, socially and environmentally responsible means of livelihood in the country.

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² This paper was written as part of a 2016-2017 Fulbright U.S. Scholar program award to Ecuador, but the views expressed herein are solely those of the author, and not those of the Fulbright program.

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I. Introduction

A. The Prevalence and Problems of Illegal Mining in Latin America

Illegal mining has been described as the “new cocaine” of Latin America in terms of illicit trading, as countries such as Colombia, Peru, Ecuador, Venezuela, and Bolivia are said to be obtaining higher profits from the unauthorized activity than from drug trafficking.⁴ As with the illegal drug trade, illegal mining is associated with violence, other criminal activity and human rights violations.⁵ The ecological consequences are even greater as illegal mining has led to pollution, silting of rivers and destruction of precious rainforest, particularly in the Amazon, the so-called “lungs of the planet.”⁶

In addition, illegal mine workers run great risks, from landslides and mine collapse, to poisoning from the mercury and cyanide used to process ore.⁷ Mercury dumped in rivers has entered the food chain in many mine areas, resulting in high concentrations of mercury and associated health impacts in local populations.⁸ Despite the enormous

⁴ See Cecilia Jamasmie, *Illegal Mining is Latin America’s New Cocaine*, MINING.com (Dec. 23, 2013), <http://www.mining.com/illegal-mining-is-latin-americas-new-cocaine-73332/> (visited Mar. 11, 2017); See also The Global Initiative Against Transnational Organized Crime (hereinafter “Global Initiative”), *Organized Crime and Illegally Mined Gold in Latin America*, The Global Initiative Against Transnational Organized Crime, at 7, 60 (April 2016), <http://globalinitiative.net/wp-content/uploads/2016/03/TGIATOC-OC-and-Illegally-Mined-Gold-in-Latin-America-Report-1718-digital.pdf> (visited Mar. 11, 2017) (citation omitted).

⁵ *Id.*; see also J. A., *Illegal Mining in Latin America: Minecraft*, The Economist (Sept. 16, 2014), <http://www.economist.com/blogs/americasview/2014/09/illegal-mining-latin-america> (visited Mar. 11, 2017); Brandon Nichols, Marcello Viega, Dirk van Zyl, and Andre Moura Xavier (hereinafter “Brandon Nichols, et al.”), *Closure of Artisanal Small Scale Gold Mining Processing Plants in Ecuador*, Journal of Sustainability, Vol. 5, No. 2, 41-47, at 41 (2015), <http://dx.doi.org/10.5539/jms.v5n2p41> (discussing general cycle of ASM operations leading to negative cultural, economic, environmental, and social impacts) (citations omitted).

⁶ See Simeon Tegel, *Gold Rush Sparked by Global Financial Crisis Devastates Amazon*, NBC News (Oct. 29, 2013), <http://www.nbcnews.com/news/other/gold-rush-sparked-global-financial-crisis-devastates-amazon-f8C11490920> (visited Mar. 11, 2017); Nora L. Alvarez-Berríos and T. Mitchell Aide, *Global Demand for Gold is Another Threat for Tropical Rainforests*, 2015 Environ. Res. Lett. 10, No. 1 (Jan. 13, 2015), <http://iopscience.iop.org/article/10.1088/1748-9326/10/1/014006> (visited Mar. 11, 2017).

⁷ See J. A., *Illegal Mining in Latin America: Minecraft*.

⁸ See *id.*; C. J. Passas and D. Mergler, *Human Mercury Exposure and Adverse Health Effects in the Amazon: A Review*, 24 Cad. Saúde Pública Ad. 503-20 (2008), <https://www.ncbi.nlm.nih.gov/pubmed/18797727> (visited Mar. 11, 2017); see also N.

dangers, the potential rewards from illicit mining are irresistible, particularly in countries with high rates of poverty, as workers can earn significantly more than they might expect in other trades.⁹ Illegal mining provides one of the few paths out of poverty in rural Latin America.¹⁰

Despite a recent decrease in global gold prices, an increasing trend of illegal gold mining has continued.¹¹ In several Latin American countries, unregulated illegal and informal mines account for over 75 percent of gold produced (see Chart 1 below).¹² Over the last 15 years, factors that have contributed to the increase of illegal mining include: first and foremost, soaring gold prices that greatly increased the profitability of gold mining, and second, reduced profitability of drug trafficking from Latin America to the United States.¹³ Criminal groups controlling the drug trade were incentivized to move into gold mining, where many were able to exploit artisanal gold mining and generate larger profits with lower risk.¹⁴ Illegal mining is now more important to organized crime in many countries of Latin America than narcotics and is reported to be the easiest and most

Collins and L. Lawson, *Investigating Approaches to Working with Artisanal and Small-Scale Miners: A Compendium of Strategies and Reports From the Field*, International Mining for Development Centre (2014), <http://im4dc.org> (outlining the broad range of negative impacts from illegal mining).

⁹ See Felix Hruschka and Cristina Echavarría, *Rock-Solid Chances for Responsible Artisanal Mining*, Alliance for Responsible Mining (Jan. 2011), https://www.researchgate.net/publication/287194516_Rock-Solid_Chances_for_Responsible_Artisanal_Mining (visited Mar. 11, 2017); J. A., *Illegal Mining in Latin America: Minecraft*.

¹⁰ The Wharton School, *Tense Times: Addressing South America's Illegal and Informal Mining*, The Wharton School, University of Pennsylvania (Jan. 2, 2012), <http://knowledge.wharton.upenn.edu/article/tense-times-addressing-south-americas-illegal-and-informal-mining/> (miners defend illegal mining as one of the only paths out of poverty in South America).

¹¹ See Global Initiative at 4.

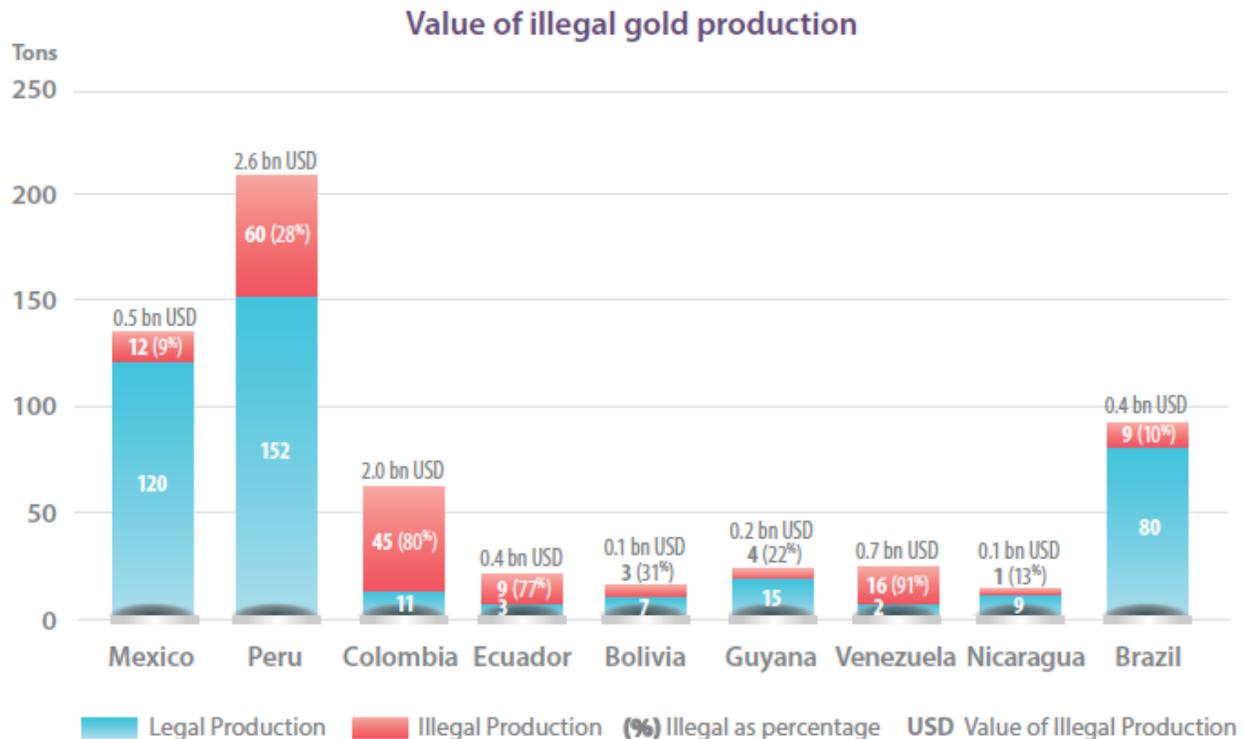
¹² See Verité, *The Nexus of Illegal Gold Mining and Human Trafficking in Global Supply Chains: Lessons from Latin America*, Verité, at 3 (July 2016), https://www.verite.org/wp-content/uploads/2016/11/Verite-Report-Illegal_Gold_Mining-2.pdf (visited Mar. 19, 2017).

¹³ Brandon Nichols, et al., at 41 (ASM operations “have increased dramatically over the last 15 years in direct correlation with the rise in gold price”); Global Initiative at 7 (noting that the U.S.-led “War on Drugs” reduced the profitability of drug trafficking, particularly in Colombia and Mexico) (citations omitted).

¹⁴ Global Initiative at 7; see also Verité, at 4 (Verité research has found that organized criminal groups, paramilitaries, and guerrillas are heavily involved in illegal gold mining in Peru and Colombia, including the Fuerzas Armadas Revolucionarias de Colombia (“FARC”), the Ejército Nacional de Liberación (“ELN”) guerrilla groups, and the Urabeños and Rastrajos criminal bands (“BACRIM”) in Colombia, and familial mining clans and drug trafficking organizations in Peru.).

profitable way to launder money in the history of Colombia drug trafficking.¹⁵ International organized crime groups, not only in Colombia and Peru, but also across the world, are known to directly control, invest in, and/or use illegal gold mining for money laundering.¹⁶

Chart 1: Value of Illegal Gold Production.¹⁷



The growth of illegal mining and increased presence of criminal groups in mining areas in Latin America also affects large-scale mining. For example, Mexico’s Attorney General’s Office reported that mining companies in Mexico are regularly extorted by criminal groups for between USD 11,000 and USD 37,000 per month for the right to mine in

¹⁵ *Id.* at 7, 60; *see also id.* (citing James Bargent, *Colombia: From Coca Cultivation to Gold Mining and Back*, Insight Crime (Sept. 23, 2015), <http://www.insightcrime.org/news-analysis/colombia-bajo-cauca-region-from-illicit-coca-cultivation-gold-mining-back-again> (visited Mar. 11, 2017) (In Peru and Colombia, specifically—the largest cocaine producers in the world—the value of illegal gold exports now exceeds the value of cocaine exports.).

¹⁶ *See Verité*, at 4 (July 2016) (noting worldwide organized crime groups known to be involved in illegal gold mining) (citations omitted).

¹⁷ *Global Initiative* at 8 (citing appendices of data); *see also Verité*, at 3 (providing similar chart on the estimated percentages of gold not produced legally).

criminal groups' territories.¹⁸ If these payments are not made, the companies' directors, family members and the miners themselves may be threatened.¹⁹ In March of 2015, there was a violent attack at a town near Goldcorp Inc.'s Los Filos mine, which was reported to serve as a "reminder" for miners to pay so-called "cooperation taxes."²⁰ The attack resulted in the death of three of four Goldcorp employees who had been kidnapped, and appeared to have been tortured.²¹

B. Environmental and Social Impacts of Illegal Mining in Latin America

Beyond the financial element, artisanal mining in general and illegal mining in particular can be far more destructive, both environmentally and socially, than certain mid-scale and large-scale gold mining.²² Responsible gold mining companies take great care to minimize the impact of their operations on the environment and are generally subject to strict policies and standards for managing cyanide (used to extract gold from ore), for maintaining water quality, for protecting biodiversity, and minimizing their impact on the landscape.²³ Illegal mining, on the other hand, can be catastrophic for the environment and people as it ignores legal requirements and restrictions.²⁴ Illegal mining displaces communities, contaminates drinking water and destroys pristine environments.²⁵ It pollutes water and land with mercury and cyanide, endangering the health of ecosystems and people.²⁶ Further, most artisanal miners work on a subsistence level, without access to personal protective equipment or safety training.²⁷ Accidents are common and rarely reported, and workers lack support in the event of injury.²⁸

¹⁸ See Global Initiative at 14 (citing Edward Fox, *Mexico Mining Ops Pay Hefty Extortion Fees to Cartels*, InSight Crime (May 8, 2012), <http://www.insightcrime.org/news-briefs/mexico-mining-ops-pay-hefty-extortion-fees-to-cartels> (visited Mar. 11, 2017)).

¹⁹ *Id.* (Criminal groups not only extort the mining companies, but also the miners, who may have to individually pay so-called "cooperation taxes" to work at the mine.); see also Mica Rosenberg, *Drug Gangs Clash with Dogged Miners in Mexico*, Reuters (Apr. 14, 2011), <http://www.reuters.com/article/us-mexico-drugs-mining-idUSTRE73D5FH20110414> (visited Mar. 11, 2017).

²⁰ See Nathaniel Janowitz and Benjamin Fernandez, *Mexican Workers at Canadian Mines are Under Constant Threat of Cartel Kidnappings, Killings*, Vice News (Apr. 13, 2015), <https://news.vice.com/article/mexican-workers-at-canadian-mines-are-under-constant-threat-of-cartel-kidnappings-killings> (visited Mar. 11, 2017).

²¹ *Id.*

²² See Global Initiative at 22.

²³ *Id.*

²⁴ *Id.* at 22, 60.

²⁵ *Id.* (Colombia has the largest population of displaced persons in the world, of which 87% come from areas with a heavy presence of illegal mining.).

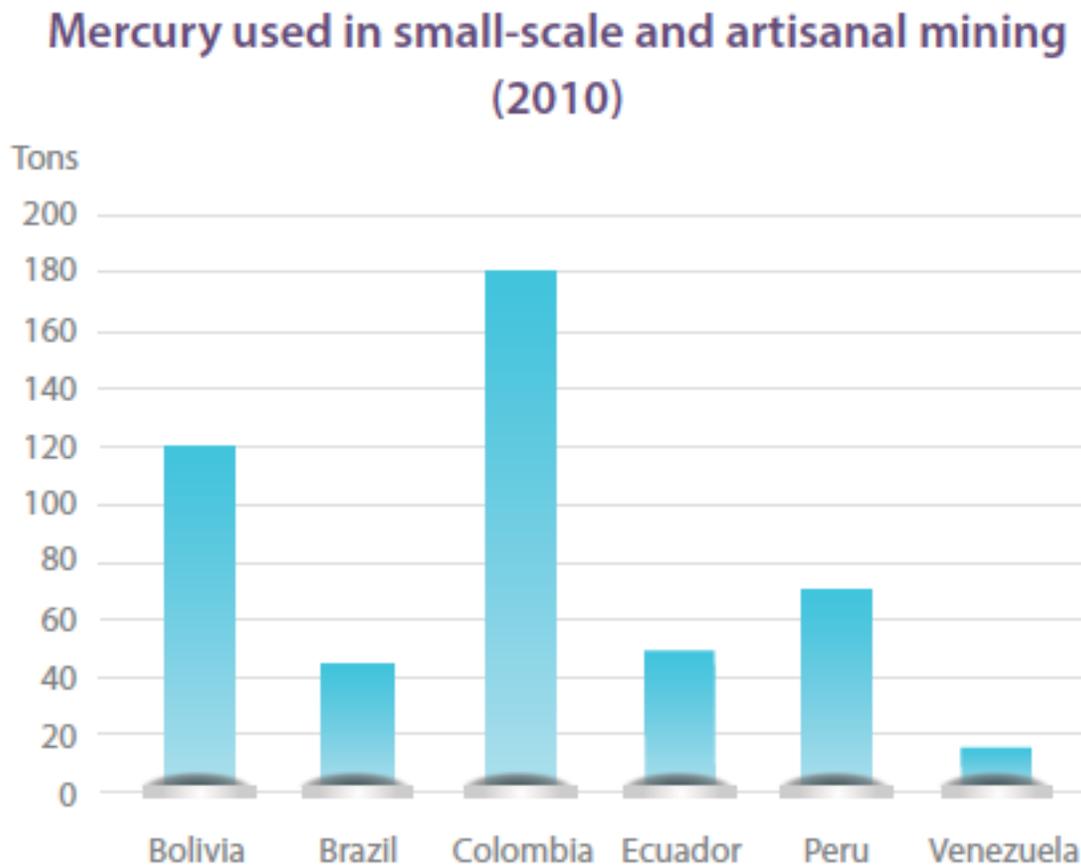
²⁶ *Id.*

²⁷ *Id.* at 28 (citing Thomas Hentschel, Felix Hruschka, Michael Priester, *Artisanal and Small-Scale Mining – Challenges and Opportunities*, International Institute for Environment and Development, World Business Council for Sustainable Development (2003)).

²⁸ *Id.*

Mercury is used in several industrial processes, but in Latin America its main use is to extract gold and silver from ore (see Chart 2 below concerning mercury use in artisanal and small-scale gold mining). Artisanal and small-scale mining activities are “the largest source of anthropogenic mercury emissions in the world, totaling 37% of inorganic mercury emissions,” and such emissions from mining activities are steadily increasing.²⁹ Inhaled inorganic mercury enters the lungs and the blood stream; damages the nervous system, lungs, kidneys, and liver; and builds up in the brain.³⁰

Chart 2: Mercury Used in Artisanal and Small-Scale Mining.³¹



²⁹ See Brandon Nichols, et al., at 42 (citing M. M. Veiga, G. Angeloci, M. Hitch, and P. Colon Velásquez-López, *Processing Centres in Artisanal Gold Mining*, *Journal of Cleaner Production* 64, 535-44 (2014), <http://dx.doi.org/10.1016/j.jclepro.2013.08.015>). In 2010, it was estimated that 1,960 tons of mercury were emitted annually into the air from all human activities, 727 tons of which resulted from artisanal and small-scale mining activity. *Id.*

³⁰ *Id.* (citation omitted).

³¹ Global Initiative at 46.

Once mercury enters the environment it is extremely harmful to both the environment and human health.³² The Carnegie Amazon Mercury Project found in a study that artisanal gold miners dump more than 30 tons of mercury in rivers and lakes in the Amazon region every year, poisoning fish and causing brain damage to humans living as far as 400 km downstream.³³ This has generated levels as high as 34 times the safe limit for women of childbearing age, whose unborn children could suffer from permanent brain damage from the mercury.³⁴ The highest risk of mercury exposure and associated health effects was connected to high consumption of local, contaminated fish (mercury accumulates in the tissues of fish), to experience in gold mining, and to inhalation of airborne mercury from gold buying shops.³⁵

In addition to the effects of mercury, the general adverse impacts of mining affect traditional livelihoods such as agriculture and fishing in many areas. In particular, the expansion of illegal mining has resulted in severe adverse social impacts. Illegal mining is strongly linked to human trafficking and other labor abuses.³⁶ Mines in areas controlled by criminal groups or organized crime experience a high risk of human trafficking.³⁷ In Colombia and Peru in particular, and to a lesser extent in Ecuador and other Latin American countries, numerous instances of labor trafficking and exploitation, sex trafficking, and child labor have been reported.³⁸

While many workers flock to mining areas on their own in search of riches, others are recruited, particularly where conditions are hazardous or otherwise undesirable.³⁹ Recruiters sell the opportunity to strike it rich, while tricking workers into taking up-front “gifts” which the workers must later work-off (debt-bondage).⁴⁰ Some workers are even

³² *Id.* at 46 (citing Virginia Santana, Gabriela Medina, and Alejandra Torre, *The Minamata Convention on Mercury and its implementation in the Latin and Caribbean Region*, United Nations Environment Program, at 6 (April 2014), http://mercuryconvention.org/Portals/11/documents/publications/report_Minamata_LAC_EN_FINAL.pdf (visited Mar. 11, 2017)).

³³ *Id.* at 46, 60 (citing Carnegie Amazon Mercury Ecosystem Project, *Mercury in Madre de Dios: Mercury Concentrations in Fish and Humans in Puerto Maldonado*, Carnegie Institution for Science (Mar. 2013), <https://dgc.carnegiescience.edu/research/CAMEP/CAMEP%20Research%20Brief%20-%20Puerto%20Maldonado%20English%20-%20FINAL.pdf> (visited Mar. 11, 2017)).

³⁴ *Id.*

³⁵ *Id.*

³⁶ Verité, at 6-11 (discussing evidence of human trafficking and labor exploitation at illegal gold mines across Latin America).

³⁷ *See id.*; *see also* Global Initiative at 27. The United Nations Palermo Protocol defines “human trafficking” as “the recruitment, transportation, transfer, harbouring or receipt of persons by improper means (such as force, abduction, fraud, or coercion) for an improper purpose including forced labour or sexual exploitation.” *Id.*

³⁸ *Id.*

³⁹ *See* Verité, at 6-11.

⁴⁰ *Id.*

sold by family members and are then required to work-off the payment made.⁴¹ Self-employed miners may also become victims of debt-bondage as they are at the mercy of middlemen to borrow to pay for basic living expenses, to buy supplies (at inflated prices) and to sell their goods (for which they may be forced to accept below-market prices).⁴²

C. Distinguishing Between “Illegal” and “Informal” Mining

Distinguishing between illegal and informal mining is important. Although some illegal mining operations are associated with criminal activity, the majority of such operations are simply “artisanal” or “small-scale” mining operations that operate informally, outside of legal frameworks. Artisanal and small-scale mining (“ASM”) encompasses the lower segments of mining (non-mechanized and mechanized) that are not conventional, industrial mining operations.⁴³ There is often confusion about the differences between illegal and informal mining, and a large number of countries lack legislation that clearly delineates the line between illegal and informal mining.⁴⁴

In general, “informal” mining is conducted by miners who operate on a small-scale and have begun the process of formalization (compliance with the law—operating in permitted zones, etc.), but have not been able to meet all the legal requirements for formalization.⁴⁵ On the other hand and also in general, “illegal” mining involves criminal groups or is carried out in blatant violation of the law—in protected areas and/or with disregard and failure to comply with environmental, tax and labor laws. Illegal mines may vary in size and employ heavy equipment and machinery not normally associated with artisanal mining.⁴⁶ The amount of gold produced by illegal mines is difficult to calculate and may be greatly underestimated, as these mines operate outside government control.⁴⁷ Because illegal mines operate clandestinely and fail to abide by the law, “the workers

⁴¹ *Id.*

⁴² See Global Initiative at 28 (citing Bannock Consulting Ltd., *Vulnerability of Artisanal and Small Scale Mining to Commodity Price Fluctuation – PAPER 5: The Impact of Price Fluctuations on Livelihood Strategies in Artisanal and Small-Scale Mining Communities Compared with other Non-Financial Shocks*, United Kingdom, Department for International Development (Jan. 1, 2005), <https://www.gov.uk/dfid-research-outputs/the-impact-of-price-fluctuations-on-livelihood-strategies-in-artisanal-and-small-scale-mining-communities-compared-with-other-non-financial-shocks> (visited Mar. 11, 2017)).

⁴³ See Felix Hruschka and Cristina Echavarría at 2; N. Collins and L. Lawson at 7-9.

⁴⁴ See Global Initiative at 5.

⁴⁵ *Id.*

⁴⁶ *Id.* (citations omitted); see also Verité, at 4 (“Verité’s research has found that while illegal and informal mining are often lumped together under the auspices of artisanal small-scale mining (ASM), many of the illegal mining operations in Latin America investigated by Verité were far from artisanal or small-scale, involving millions of dollars of investment and revenue, heavy machinery, and workforces of hundreds of migrant workers.”).

⁴⁷ Global Initiative at 6.

employed in these mines are generally poorer, more marginalized, and more vulnerable to extreme forms of labour exploitation, including forced labour and human trafficking.”⁴⁸

D. The Importance of Artisanal and Small-Scale Mining

Overall, and although tainted by illegal mining, ASM is an important economic sector in many developing countries, providing employment and foreign exchange, supporting livelihoods and local economies and promoting community cohesion.⁴⁹ It is estimated that, worldwide, more than 300 million people benefit directly and indirectly from ASM.⁵⁰ Of these, more than 30 million directly engage in ASM operations, extracting more than 30 different minerals, including gold, which is the most common target as a result of its high market value, its process of extraction from accessible ore bodies and its liquidity.⁵¹ Approximately 15 million artisanal miners produce over 25% of the world’s gold.⁵²

Though often ASM operations are peaceful and contribute tangibly to household incomes, workers and operators at such operations remain vulnerable, often lacking legal recourse on important issues of commercial disagreements, mineral title and social protection.⁵³ Miners are unable to receive government assistance or credit from legitimate

⁴⁸ *Id.* (citing Jennifer J. Swensen, et al., *Gold Mining in the Peruvian Amazon: Global Prices, Deforestation, and Mercury Imports*, PLoS One 6(4) (Apr. 19, 2011), <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0018875#pone.0018875---Veiga1> (visited Mar. 11, 2017)); *see also* Verité, at 3 (citation omitted).

⁴⁹ *See* S. Tibbett, *A Golden Opportunity: Recasting the Debate on the Economic and Development Benefit of Small-Scale and Artisanal Gold Mining*, The CRED Foundation, at 3 (2009), <http://www.cred.org.uk/data/credfoundation/downloads/resources/research/goldenopportunity.pdf> (visited Mar. 20, 2017).

⁵⁰ *See* Brandon Nichols, et al., at 41 (citation omitted); *see also* Felix Hruschka and Cristina Echavarría at 9 (Experts estimate that a current extrapolation of 25 million ASM workers and 150-170 million people dependent on ASM activities worldwide is on the conservative side.).

⁵¹ *Id.*; *see also* Felix Hruschka and Cristina Echavarría at 8 (Well over 10 years ago, with figures likely to be considerably higher now, ASM was estimated to produce 12% of metallic minerals, 31% of industrial minerals, 20% of coal, 10% of diamonds, and 75% of gemstones worldwide.).

⁵² Brook Lamar, *The Real Price of Gold*, National Geographic (2009), <http://ngm.nationalgeographic.com/2009/01/gold/larmer-text> (visited Mar. 11, 2017) (The United Nations reported in 2009 that artisanal mining directly and indirectly employed a total of 100 million people worldwide, including 10-15 million miners, and produced 25% of the world’s gold); Brandon Nichols, et al., at 41 (estimating that half of the artisanal miners in the world—approximately 15 million—mine for gold) (citation omitted).

⁵³ *See* Felix Hruschka and Cristina Echavarría at 1, 3; P. De Sa, *Beyond Illegality: Concepts and Approaches Towards Improved Governance of Informal Mining*, Int’l Mining & Oil & Gas L. Dev. & Investment 18A, Rocky Mtn. Min. L. Fdn., at 4 (2013).

sources, and are forced to operate in black markets and at the mercy of unscrupulous middlemen.⁵⁴ As a result, such operations do not provide governments with optimal revenue contributions.⁵⁵ Further, without formal legal rights, ASM workers have little incentive to comply with safety, health and environmental legislation, or they lack sufficient education and training on safety, health and environment concerns to comply.⁵⁶ Because of such informality, some posit that “illegal and informal” mines are a much larger problem than people realize and are more dangerous for workers and do more environmental harm than large mines, because unlike a large-scale mine where risks are localized and standards are easy to enforce, illegal mines are widely dispersed, can remain undetected for weeks or even months, and do not often adhere to environmental standards.⁵⁷

II. Formalizing Informal Artisanal and Small-Scale Mining

Governments and nongovernmental organizations have tried a variety of approaches to solve the problems of illegal mining, from military intervention to confiscate and destroy mining equipment used in illegal operations, to programs teaching ASM workers about safe handling and disposal of chemicals used to process ore.⁵⁸ Despite the success of some of these efforts to temporarily halt illegal mining in areas or to address certain health or environmental aspects of illegal mining, the majority of scholars agree that creation of a legal framework to regulate ASM is the key step to a sustainable and responsible ASM economy.⁵⁹ Maria Barreto of the Alliance for Responsible Mining stated, “[l]egalization, as a process to obtain the necessary regulatory authorizations to conduct a

⁵⁴ See Felix Hruschka and Cristina Echavarría at 6; W. Willden, *Health Over Efficiency: Abandoning Mercury Use in Small-Scale Mining*, 573 Mich. St. Int’l L. Rev. 23.2, at 592 (2015).

⁵⁵ P. De Sa, Int’l Mining & Oil & Gas L. Dev. & Investment 18A, Rocky Mtn. Min. L. Fdn., at 4.

⁵⁶ Felix Hruschka and Cristina Echavarría at 13-16; W. Willden, 573 Mich. St. Int’l L. Rev. 23.2, at 592.

⁵⁷ Wharton School at 2, 3.

⁵⁸ Maria L. Barreto, *Analysis of Formalization Approaches in the Artisanal and Small-Scale Gold Mining Sector Based on Experiences in Ecuador, Mongolia, Peru, Tanzania and Uganda: Ecuador Case Study*, United Nations Environment Program, at 8-9 (June 2012) https://wedocs.unep.org/bitstream/handle/20.500.11822/11635/Case_Study_Ecuador_June_2012.pdf?sequence=1&isAllowed=y (visited Mar. 11, 2017); P. J. Viteri and C. Kraul, *Ecuador Official Denounces Illegal Mining After Deadly Conflict*, Los Angeles Times, at 1 (2013), <http://articles.latimes.com/2013/nov/08/world/la-fg-ecuador-illegal-mining-20131109> (visited Mar. 11, 2107); J. A., *Illegal Mining in Latin America: Minecraft*.

⁵⁹ See, e.g., Felix Hruschka and Cristina Echavarría at 6, 17-18; Maria L. Barreto, *Legalization Guide for Artisanal and Small Scale Mining (ASM)—Draft for Discussion*, Alliance for Responsible Mining, at 3 (Mar. 17, 2011), <http://www.responsiblemines.org>; N. Collins and L. Lawson at 15-16; W. Willden, 573 Mich. St. Int’l L. Rev. 23.2, at 592-93.

mining operation, is a precondition for the legitimacy and stability of ASM.”⁶⁰ Ms. Barreto further indicated, “[m]any of the problematic characteristics commonly associated with ASM are in fact rooted in the marginalization of this sector as a result of the existing barriers associated with legalization.”⁶¹

In recognition of this need for legalization, and with the intent to promote ASM as an economic sector and generate employment, Ecuador, for the first time in 2009, established a legal framework to address the ASM sector in an integrated way.⁶² The new mining law declared that the “State shall define the mechanisms for promotion, technical assistance, training and financing for the sustainable development of artisanal mining and small-scale mining. Furthermore, it shall devise incentive systems for environmental protection and the creation of more efficient production units”⁶³ The new mining law specifically defined and addressed ASM and was viewed as a comprehensive approach supporting ASM as a means to promote employment and address some of the development problems of the rural areas in Ecuador.⁶⁴

Despite this progressive new law establishing ASM in Ecuador as a legitimate and sustainable economic sector, the law has had limited impact on illegal mining. Illegal mining appears to have increased and the problems resulting from such mining have become more acute.⁶⁵ The Los Angeles Times reported that “[a]s the prices of gold, silver and other precious metals have skyrocketed in recent years, illegal mining has become an increasing environmental, health and organized-crime problem for Ecuador.”⁶⁶ For example, and largely as a result of illegal mining, Ecuador has the highest deforestation rate in South America, losing another 2.3 percent of its forests every year.⁶⁷ Ecuador’s vice president, Jorge Glas, has described illegal mining as a “growing scourge” in Ecuador and referred to illegal miners as “armed and dangerous delinquents in organized mafias who are ready to kill to continue their illegal activities”⁶⁸ Clashes between Ecuadorian soldiers and illegal miners have resulted in casualty and wounding.⁶⁹

⁶⁰ Maria L. Barreto, *Analysis for Stakeholders on Formalization in the Artisanal and Small-Scale Gold Mining Sector Based on Experiences in Latin America, Africa, and Asia*, Alliance for Responsible Mining, at 3 (Sept. 2011), <http://www.responsiblemines.org>.

⁶¹ *Id.*

⁶² See M. A. Flor, *Translation of the Mining Law of Ecuador*, Bustamante & Bustamante Law Firm (Feb. 2009), <http://www.infomine.com/publications/docs/Flor2009.pdf> (visited Mar. 11, 2017); Maria L. Barreto, at 9 (Sept. 2011).

⁶³ M. A. Flor at 5.

⁶⁴ Maria L. Barreto at 9-10, 22-23 (Sept. 2011).

⁶⁵ C. Zorrilla, *Anti-Mining in Ecuador: A National Issue*, Decoin.com (Mar. 15, 2012), <http://www.decoin.org/2012/03/anti-mining-in-ecuador-a-national-issue/> (visited Mar. 11, 2017); P. J. Viteri and C. Kraul at 1.

⁶⁶ P. J. Viteri and C. Kraul at 1.

⁶⁷ C. Zorrilla, *Anti-Mining in Ecuador: A National Issue*.

⁶⁸ P. J. Viteri and C. Kraul at 1; Cecilia Jamasmie at 2 (Dec. 13, 2013).

⁶⁹ P. J. Viteri and C. Kraul at 1.

Certainly, the Government of Ecuador recognizes the issues posed by illegal mining and the benefits of a formalized ASM sector, as it enacted a law to curb illegal mining and promote ASM. Rural communities in Ecuador affected by illegal mining likewise recognize the importance of a formalized ASM sector. In response to government action to shut down illegal mining in southeastern Ecuador, an organization of Amazonian indigenous communities known as GONOAIE stated: “We aren’t defending illegality. We have reiterated on numerous occasions the need to legalize small-scale mining and that any government intervention on indigenous territory should be coordinated . . . to look for solutions and avoid the spilling of blood.”⁷⁰ Thus, the push for a formalized ASM sector comes from both sides of the aisle; unfortunately, the Government’s approach to formalizing ASM has had limited success to date.

To complicate matters, Ecuador has gone through a series of amendments to its mining law, first in 2012, and again in 2014, to offer tax incentives designed to attract foreign investors and advance large-scaling mining in the country.⁷¹ The Financial Press described the change as perhaps “the biggest resource policy shift in modern history not triggered by an election.”⁷² The change was met with fierce resistance in rural areas where ASM is prevalent, with public protests and indigenous communities vowing to fight to the death to safeguard their homeland.⁷³ Thus, there is potential for conflicts between ASM and large-scale mining as more large-scale miners enter the country.

III. Investigating the Impact of Ecuador’s New Mining Law

The purpose of this paper is to analyze and determine the reasons why Ecuador’s new law formalizing ASM has had limited success in stopping illegal mining and alleviating the associated economic, social, health, and environmental problems of illegal mining in the country. Despite the new law, Ecuador has experienced an increase in illegal activity, particularly involving gold laundering in the country. In many areas, miners see little reason to formalize their operations, while in other areas, miners appear to be abusing the system to avoid taxation of their production. Many ASM operations are shunning

⁷⁰ *Id.*

⁷¹ See Cecilia Jamasmie, *Ecuador to ‘Make it Easier’ for Mining Companies*, Mining.com, at 1 (July 13, 2012), <http://www.mining.com/ecuador-to-make-it-easier-for-mining-companies/> (visited Mar. 11, 2017); Financial Press, *Ecuador Gives Mining Industry a Big Wet Kiss*, FinancialPress.com, at 1 (June 16, 2014), <http://financialpress.com/2014/06/16/ecuador-gives-mining-industry-a-big-wet-kiss/> (visited Mar. 11, 2017).

⁷² Financial Press at 1.

⁷³ C Zorrilla, *Anti-Mining in Ecuador: A National Issue*; A. Zaitchik, *‘To get the gold, they will have to kill every one of us:’ The Most-Storied Warrior Tribe in Ecuador Prepares to Fight as the Government Sells Gold-Laden Land to China*, Salon.com (Feb. 10, 2013), http://www.salon.com/2013/02/10/to_get_the_gold_they_will_have_to_kill_every_one_of_us/ (visited Mar. 11, 2017).

environmental regulations without facing consequences from authorities, resulting in significant environmental and health problems. And, with more large-scale mining operations entering the country, there is a need to find ways for ASM and large-scale operations to avoid conflicts and coexist in the same areas.

In an effort to address these issues, and those previously mentioned, Ecuador's new mining law formalizing ASM was studied, first from an academic standpoint to assess its structure and feasibility, and then from the standpoint of its implementation to determine how it has been implemented and what obstacles have prevented more successful implementation. Research was designed to (1) gain the perspectives of the stakeholders in Ecuador's new law, (2) identify reasons implementation of the law has been unsuccessful, (3) promote educational exchange between academics, professionals and the various stakeholders, and (4) develop appropriate recommendations.

Following this research plan, the following agencies and institutions were consulted and/or interviewed: Ecuador Ministry of Mining; Ecuador Chamber of Mines; University of San Francisco Quito; Particular Technical University of Loja ("UTPL"); and the Canadian International Resources and Development Institute ("CIRDI"), among others. In addition, numerous Ecuadorian attorneys were consulted regarding the applicable mining and environmental laws. Also, representatives of several large-scale mining companies operating in Ecuador were interviewed, along with representatives of several medium-scale/small-scale mining companies and representatives of nongovernmental organizations with interests affected by mining. Finally, the viewpoints of ASM miners at several areas across Ecuador were collected, and site visits to various artisanal and small-scale mines were conducted, along with site visits to several processing plants.⁷⁴

IV. Status of Illegal and Informal Mining in Ecuador

A. Levels of Employment and Production

The mining industry in Ecuador is slightly different than those in surrounding Latin American nations because Ecuador's large-scale mining industry is undeveloped. Although mining in Ecuador has taken place since pre-Hispanic times, the only operation that could be characterized as a larger-scale operation would be the mine operated by the Mining South American Development Company ("SADCO") near Portovelo in the El Oro province, which operated from 1897 to 1950.⁷⁵ In the latter half of the 20th century, mining in Ecuador was characterized by disorderly developments, lacking any formality, that operated primarily in the main mining districts in the south of Ecuador, in the provinces of

⁷⁴ Special thanks is given to these entities and individuals who helped with research for this paper by providing their time and sharing their knowledge on ASM issues in Ecuador.

⁷⁵ Lenin Valencia (General Coordinator) (hereinafter "SPDA"), *The Routes of Illegal Gold: Case Studies in Five Amazonian Countries*, Sociedad Peruana de Derecho Ambiental, at 189 (July 2015), <http://www.spda.org.pe/wpfb-file/larutadeloro-completo-final-doblecara-pdf/> (visited Mar. 12, 2017).

El Oro and Zamora-Chinchipec.⁷⁶ For example, in the Zaruma/Portovelo area of El Oro, mining was characterized by rudimentary hardrock gold mining using tunnels and heavy use of mercury for gold processing.⁷⁷ Informal mining (without permits) and illegal mining (in protected areas, for example) were commonplace in many regions of the country.⁷⁸ Perhaps the most emblematic example of this was the illegal gold mines in Nambija (Zamora-Chinchipec province) during the 1980s.⁷⁹ Uncontrolled and non-technical extraction of gold ore from the large underground site there resulted in the mine's collapse and the death of numerous miners.⁸⁰

Still, the bulk of Ecuador's gold production comes from ASM activities, although this trend may soon change. Earlier this decade, it was estimated that ASM activities were responsible for over 75% of Ecuador's annual gold production, which ranged between 3 and 5 tons.⁸¹ These operations were estimated to employ over 100,000 workers, with an estimated 500,000 people depending on such ASM activities.⁸²

After operating for decades without rules or State control, mining reform in 2009 changed the situation and required miners to become registered with the State in order to operate. With the new controls, gold production has remained steady, but gold exports have increased rapidly this decade.⁸³ For example, in 2012, 10 tons of gold were exported—double the historical average, followed by 15 tons in 2013 and over 30 tons in 2014.⁸⁴ Yet, Ecuador's Central Bank recorded as national gold production less than half of all exports in the same period.⁸⁵ These statistics indicate that most of the metal that leaves the country is either not declared or has illegal origins.⁸⁶

Estimates suggest that only 30% of the gold produced in Ecuador in the last five years originated from legal gold mines.⁸⁷ The remaining 70% came from illegal and

⁷⁶ *Id.*

⁷⁷ *Id.*

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ Maria L. Barreto, at 5 (June 2012).

⁸² *Id.* Other estimates indicate that there are approximately 40,000 artisanal and small-scale miners in Ecuador. See Fabiola Torres López (Ojo Público), *Ecuador's dirty gold is transported to the US on commercial flights*, Ecuador Review (Sept. 1, 2015), <http://www.ecuadorreview.com/in-depth-ecuador/investigations/ecuadors-dirty-gold-is-transported-to-the-us-on-commercial-flights/> (visited Mar. 12, 2017).

⁸³ See Fabiola Torres López (Ojo Público), *Ecuador's dirty gold is transported to the US on commercial flights*.

⁸⁴ *Id.*

⁸⁵ *Id.*

⁸⁶ *Id.*

⁸⁷ Global Initiative at 13 (citing Óscar Castilla C., Nelly Luna Amancio and Fabiola Torres López, *Dirty Gold: Chasing the Trace of the London Bullion Market*, Ojo Público (June 9,

oftentimes violent mining areas.⁸⁸ Of the number of ASM workers in Ecuador, approximately 10,000 of these are considered illegal.⁸⁹ Although armed forces have occasionally destroyed equipment and the inputs of illegal mining camps in an effort to enforce the mining law against unregistered miners, new mining camps quickly open up and there do not appear to be any controls on gold of suspicious origin leaving the country without being declared to the authorities, or even less, paying royalties to the State.⁹⁰

B. Environmental and Social Conditions

With regard to working conditions and human rights for ASM workers in Ecuador, the United Nations Special Rapporteur on Contemporary Forms of Slavery highlighted illegal gold mining as one of the four sections in which slavery was most prevalent in Ecuador.⁹¹ According to the Special Rapporteur, Colombian migrants to Ecuador were subjected to sex and labor trafficking by transnational organized crime groups.⁹² During a country visit to Ecuador, the Special Rapporteur interviewed experts and workers, and found “slavery-like labour exploitation” in the illegal gold-mining sector.⁹³ She received reports of labor exploitation, debt bondage and workers being forced to engage in dangerous work due to extreme poverty.⁹⁴ Workers in illegal gold mines were reportedly subjected to dangerous working conditions without personal protective equipment and were exposed to chemicals that pose risk to their lives and the environment.⁹⁵ The Special Rapporteur highlighted the need for government enforcement to combat these abuses.⁹⁶

With regard to illegal mining activity, reports indicate that the FARC (Revolutionary Armed Forces of Colombia) has moved into the border region between Colombia and Ecuador and is controlling a number of the illegal gold mines within Ecuador.⁹⁷ In August

2015), <http://ojo-publico.com/dirty-gold-chasing-the-trace-of-the-london-bullion-market/> (visited Mar. 12, 2017)).

⁸⁸ *Id.*

⁸⁹ *Id.*

⁹⁰ Fabiola Torres López (Ojo Público), *Ecuador’s dirty gold is transported to the US on commercial flights.*”

⁹¹ Global Initiative at 35 (citation omitted); see also Gulnara Shahinian, *Report of the Special Rapporteur on Contemporary Forms of Slavery, Including its Causes and Consequences*, Office of the High Commissioner, United Nations Human Rights, at 4, 5, 11, 12, 15, 19, 20 (July 5, 2010), <https://documents-dds-ny.un.org/doc/UNDOC/GEN/G10/149/21/PDF/G1014921.pdf?OpenElement> (visited Mar. 12, 2017).

⁹² *Id.*

⁹³ *Id.*

⁹⁴ *Id.*

⁹⁵ *Id.*

⁹⁶ *Id.*

⁹⁷ See Global Initiative at 13 (citing James Bargent, *FARC Presence in Ecuador Border Region Diminished: Military*, InSight Crime (Mar. 15, 2013); Hannah Stone, *Colombian Gangs Use Illegal Gold Mining in Ecuador to Launder Cash*, InSight Crime (July 19, 2012)).

2013, Ecuadorian troops fought a Colombian group believed to be the FARC, resulting in the deaths of one Ecuadorian officer and five Colombians.⁹⁸ Also in 2013, a member of the Shuar, a tribe dating back to pre-Inca times, was killed and nine soldiers were injured while military forces were attempting to conduct an operation to combat illegal gold mining activities in the Cordillera del Condor in the Zamora-Chinchi province.⁹⁹ There have also been reports of other Colombian criminal groups operating in Ecuador, with activity concentrated in the northern border area of Esmeraldas.¹⁰⁰ The presence of these criminal groups in and around the mines in Ecuador has led to elevated rates of homicide and violence in surrounding areas.¹⁰¹ Ecuadorian forces have also conducted recent enforcement actions in El Oro to expel illegal miners and seize their mining equipment.¹⁰²

The contamination and human health issues in the Zaruma/Portovelo area in the El Oro province underscore the problems resulting from ASM activities in Ecuador. There, ASM workers use explosives and hand tools to extract underground sulfide-rich quartz ore and to crush, grind and recover gold using gravity concentration methods.¹⁰³ In 1999, it

⁹⁸ *Id.* at 13 (citing Jeremy McDermott, *Shootout on Colombia-Ecuador Border Claims 6 Lives*, InSight Crime (Aug. 9 2013)).

⁹⁹ *Id.* at 13 (citation omitted); see also Alexander Zaitchik, *To get the gold, they will have to kill everyone of us*.

¹⁰⁰ Global Initiative at 13 (citing Tatiana Farmazi, *Colombian Rastrojos Dominate Ecuador Drug Trade*, InSight Crime (Apr. 16, 2012)).

¹⁰¹ *Id.* (citation omitted).

¹⁰² See Confirmado.net, “27 People Charged with Alleged Illegal Mining in Zaruma,” www.confirmado.net/nacionales (Oct. 14, 2016) (In October 2016, the Ministries of Mining and of the Environment carried out an illegal mining control operation in the Zaruma canton, charging 27 of 30 detainees for conducting mining work without proper authorizations. Occupational safety measures were not being followed and explosives were being used without authorization. The illegal miners face potential prison sentences of up to 3 years for illegal mining and up to 10 years for damage to the environment. Miners also face confiscation of their machinery and tools for up to 5 years.); see also Ministry of the Interior, *Operation Against Illegal Mining Completed in El Oro* (Sept. 13, 2013), <http://www.ministeriointerior.gob.ec/operativo-contra-mineria-ilegal-se-cumplio-en-el-oro/> (visited Mar. 20, 2017) (In September 2016 the State conducted an operation against illegal mining in El Oro, which resulted in the arrest of 13 people and the seizure of 12 excavators, 8 dredges and 3 sorters. After reports from the local community, the Ministry of the Environment sought to verify the existence of environmental crimes. The Ministry found clear mercury contamination as well as “craters that look like a stadium . . .” from the mining activity. Although miners in the area indicated they had permits, the Ministry stated they were not exempt from environmental damage they were causing. The sanction for such damage is imprisonment, confiscation and destruction of equipment.).

¹⁰³ See Brandon Nichols, et al., at 43 (citing N. H. Tarras-Wahlberg, A. Flachier, S. N. Lane, and O. Sangfors, *Environmental Impacts and Metal Exposure of Aquatic Ecosystems in Rivers Contaminated by Small Scale Gold Mining: The Puyango River Basin, Southern Ecuador*, *The Science of the Total Environment* 278(1-3), 239-261 (2001), [http://dx.doi.org/10.1016/S0048-9697\(01\)00655-6](http://dx.doi.org/10.1016/S0048-9697(01)00655-6)).

was estimated that 400 mines existed in the Zaruma/Portovelo region, serviced by 66 processing plants.¹⁰⁴ Today, 87 gold processing facilities line the banks of the Puyango-Tumbes River, reportedly processing 3,000 tons of ore per day and producing nine tons of gold per year.¹⁰⁵ Generally, miners pay a nominal fee to private processing plant owners to crush their ore, concentrate it, and finally extract the gold using mercury amalgamation to recover 30-40% of the gold in the ore.¹⁰⁶ The processing plant owner in agitation tanks with cyanide later extracts the remaining gold in the tailings.¹⁰⁷

These processing plants have discharged tailings containing mercury, cyanide and arsenic into the Puyango-Tumbes River, which flows into Peru.¹⁰⁸ The plants release an estimated 0.65 tons of mercury and 6,000 tons of cyanide into the watershed per year.¹⁰⁹ The waste discharge has devastated aquatic life for 160 km downstream, creating an international dispute between Ecuador and Peru over the ecological damage and health effects estimated to be up to USD 35 billion.¹¹⁰ In the town of Portovelo, and more so in the processing centers near the town, extremely high levels of metallic atmospheric mercury have been found—well above the maximum allowable inhalation standard of inorganic mercury according to the Agency for Toxic Substances and Disease Registry.¹¹¹

Spurred by the international conflict with Peru over contamination from the Zaruma/Portovelo region, the Ecuadorian Government decided earlier this decade to close the processing plants along the Puyango-Tumbes River and move them to a central processing plant, with a central tailings storage facility.¹¹² Site observation indicates the communal tailings facility, El Tablón, has been constructed and is being used to some

¹⁰⁴ *Id.*

¹⁰⁵ *Id.* at 43 (citing M. M. Veiga, G. Angeloci, M. Hitch, and P. Colon Velásquez-López, *Processing Centres in Artisanal Gold Mining*, *Journal of Cleaner Production* 64, 535-44 (2014), <http://dx.doi.org/10.1016/j.jclepro.2013.08.015>).

¹⁰⁶ *Id.* (citing P. C. Velásquez-López, M. M. Veiga, and K. Hall, *Mercury Balance in Amalgamation in Artisanal and Small-Scale Gold Mining: Identifying Strategies for Reducing Environmental Pollution in Portovelo-Zaruma, Ecuador*, *Journal of Cleaner Production* 18(3), 226-232 (2010), <http://dx.doi.org/10.1016/j.jclepro.2009.10.010>).

¹⁰⁷ *Id.*

¹⁰⁸ *Id.* at 41 (citing N. H. Tarras-Wahlberg, *Environmental Management of Small-Scale and Artisanal Mining: The Portovelo-Zaruma Goldmining Area, Southern Ecuador*, *Journal of Environmental Management* 65, 165-79 (2002), <http://dx.doi.org/10.1006/jema.2002.0542>).

¹⁰⁹ *Id.* at 43 (citations omitted).

¹¹⁰ *Id.* at 41, 43 (citations omitted).

¹¹¹ *Id.* at 42 (citing V. González-Carrasco, P. C. Velasquez-Lopez, J. Olivero-Verbel, and N. Pájaro-Castro, *Air Mercury Contamination in the Gold Mining Town of Portovelo, Ecuador*, *Bulletin of Environmental Contamination and Toxicology* 87 (3), 250-53 (2011), <http://dx.doi.org/10.1007/s00128-011-0345-5>; Agency for Toxic Substances and Disease Registry, *Minimal Risk Levels (MRLs) for Hazardous Substances* (2010), <http://www.atsdr.cdc.gov/mrls/mrllist.asp>).

¹¹² *Id.* at 41, 43.

extent, but few, if any, of the processing plants have been closed. It appears the majority of daily tailings production from the processing plants still enters the watersheds adjacent to the plants. The ASM sector in Zaruma/Portovelo directly supports 10,000 people.¹¹³

C. Current Outlook and Statistics from the Ministry of Mining

The Ministry of Mining indicates that artisanal mining has the largest number of operating units in the country, but notes that its economic impact is a fraction in relation to small-scale mining. According to ARCOM (the Agency of Regulation and Control of Mining in Ecuador), approximately 89% of Ecuadorian gold production, in terms of tons, comes from small-scale mining, while artisanal mining accounts for the remaining 11%.¹¹⁴ As of 2015, there were a total of 1821 artisanal mining permits for metal ores, with most of those concentrated in the southern provinces, including Zamora-Chinchipec, with 744 concessions; Loja, with 297 concessions; El Oro, with 226 concessions; Morona Santiago, with 219 concessions; and, Azuay, with 165 concessions (see Map 1 below). Other permits were issued in the eastern provinces.¹¹⁵

The State characterizes artisanal mining as an activity characterized by “low technology, precarious working conditions, lack of technical knowledge, poor production performance and lack of institutional formalization.”¹¹⁶ Although the State has enacted regulatory frameworks with the purpose of managing and promoting artisanal mining, and recognizes that “artisanal mining is in many cases a livelihood activity for thousands of people in Ecuador,” the State evidences a clear frustration with artisanal mining, indicating that the disadvantages for the State “can exceed the benefits obtained.”¹¹⁷

The State indicates the biggest advantage of having a productive artisanal mining sector is that it serves as a source of jobs and income for communities, especially those in remote and rural areas.¹¹⁸ The disadvantages include: working conditions that are often highly precarious in terms of health and safety; the reality that most miners do not use safety equipment such as helmets, face masks, and safety glasses; and the fact that artisanal mining, especially in the informal sector, causes damage to the environment through the illegal use of mercury.¹¹⁹ Further, the State recognizes it has been unable to effectively capitalize on the benefits of the artisanal mining sector, as the sector does not pay royalties, taxes on income or labor income. With these disadvantages, the State indicates its main challenge is to mitigate the risks and disadvantages inherent to its activity.¹²⁰

¹¹³ *Id.* at 43 (citing P. C. Velásquez-López, et al. (2010)).

¹¹⁴ See Ministry of Mining, *National Plan of Development for the Mining Sector*, at 90 (July 2016), <http://www.mineria.gob.ec/plan-nacional-de-desarrollo-del-sector-minero/> (visited Mar. 15, 2017).

¹¹⁵ *Id.* (Napo and Sucumbios).

¹¹⁶ *Id.* at 89.

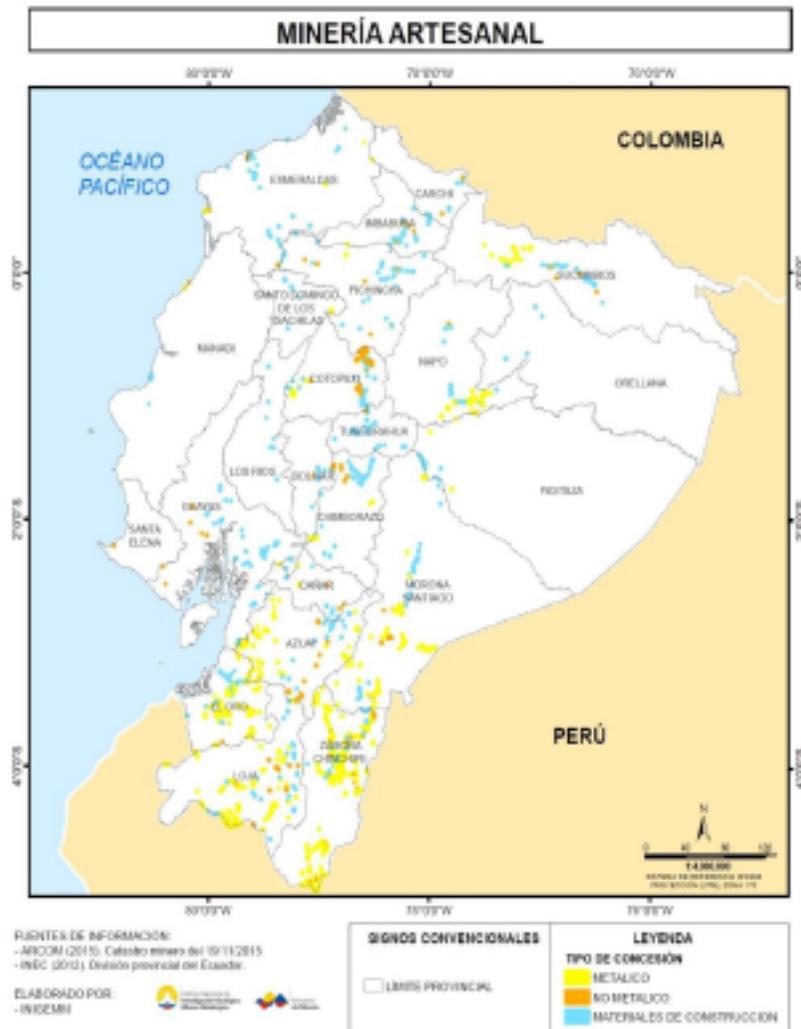
¹¹⁷ *Id.*

¹¹⁸ *Id.*

¹¹⁹ *Id.*

¹²⁰ *Id.* at 88-89.

Map 1: Artisanal Mining Concessions in Ecuador (yellow = metallic).¹²¹



The State sees small-scale mining as much more viable, but expresses concern with market forces affecting the sector, including the low price of gold in Ecuador in relation to international prices and the limited markets for small-scale gold.¹²² The State also notes that small-scale mining in the country exhibits low production scale and inefficiency in operations, which generates high production costs. This lack of productivity is attributed to limited access to modern technology and equipment, lack of capital and financing, and lack of advanced extraction and processing techniques, resulting in high operating costs and marginal profitability.¹²³

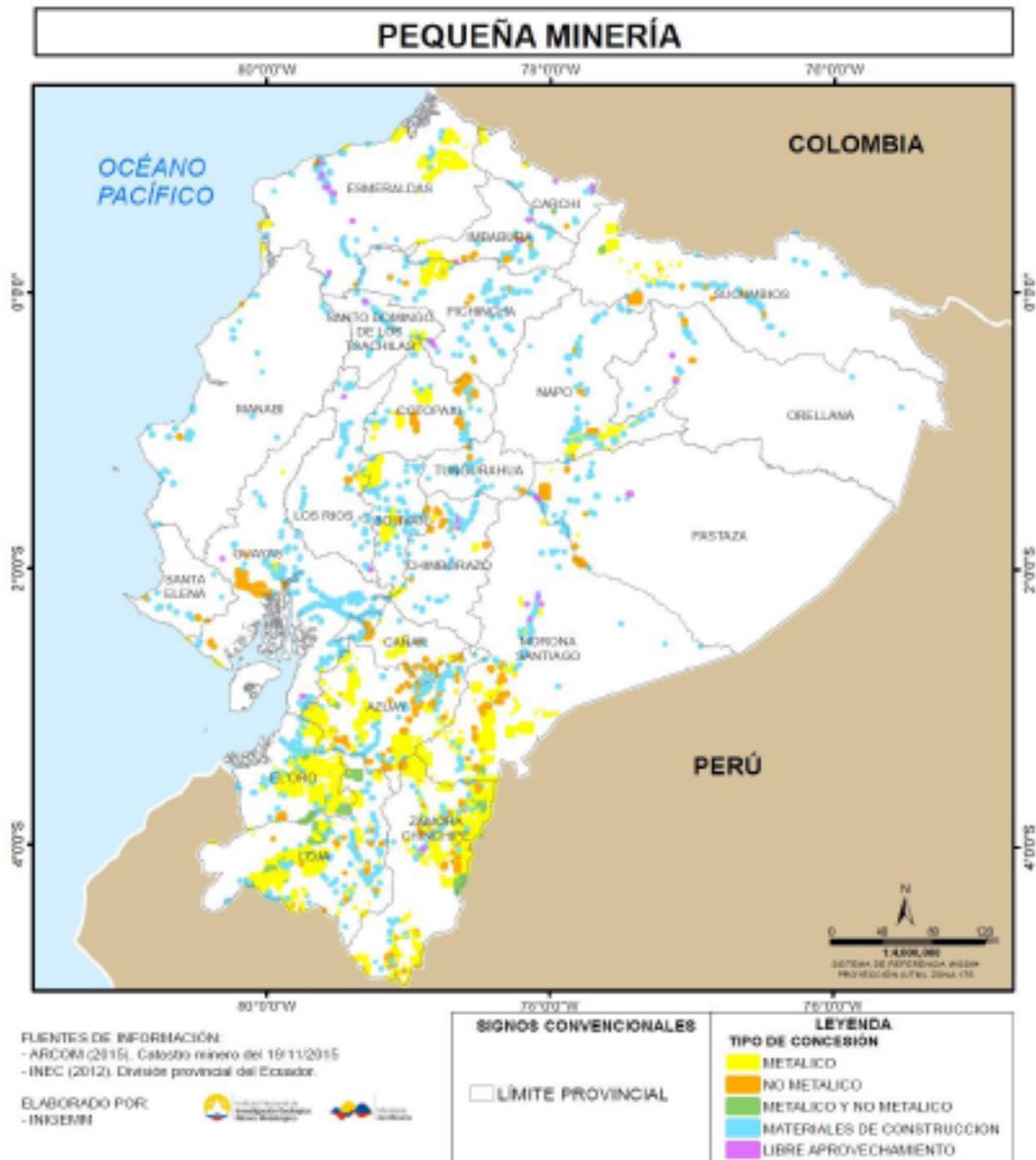
¹²¹ *Id.* at 91.

¹²² *Id.* at 90-91.

¹²³ *Id.*

Small-scale mining contributes approximately 90% of the gold production in Ecuador. Mining operations are mainly concentrated in the southern provinces such as El Oro, Azuay and Zamora-Chinchipe. For metallic minerals, there are 2411 small-scale concessions that are concentrated in the southern provinces of Azuay, El Oro, Loja, Zamora Chinchipe and Morona Santiago, and smaller in the provinces of Esmeraldas, Pichincha, Sucumbíos, Cotopaxi, Napo, Bolívar, Chimborazo and Cañar (see Map 2 below).¹²⁴

Map 2: Small-Scale Mining Concessions in Ecuador (yellow = metallic).¹²⁵



¹²⁴ *Id.* at 94.

¹²⁵ *Id.* at 93.

V. Overview of Ecuador’s Mining Law

Ecuador established a new constitution in 2008 that provided a strong mandate to encourage environmentally and socially responsible artisanal and small-scale mining as part of the country’s economy.¹²⁶ Following establishment of the Constitution, in January 2009, Ecuador promulgated a new “Mining Law” and, in November 2009, it issued new regulations implementing the Mining Law (the “General Mining Regulations,” the “Small-Scale Mining Regulations” and the “Environmental Mining Regulations”).¹²⁷ The new Mining Law and General Mining Regulations created a legal framework that, for the first time in Ecuador, addressed the artisanal and small-scale mining sector in the country.¹²⁸

A. Promotion of Artisanal and Small-Scale Mining

Not only did the new Mining Law address the sector, it promoted it. The Mining Law declares, “[t]he State shall establish and promote technical assistance, training, and financing mechanisms for the sustainable development of artisanal mining and small-scale mining.”¹²⁹ Specifically, with regard to artisanal mining, “[t]he [Ministry of Mining] shall promote special technical assistance, environmental management, mining safety and education, and professional training programs for artisanal mining, for which it may enlist the support of universities and polytechnic schools specializing in the corresponding areas.”¹³⁰ With regard to small-scale mining, and in order to provide employment and stimulate the economy, the Mining Law states, “the State shall . . . promote the development of national mining under the special small-scale mining regime and shall guarantee the

¹²⁶ See Official Register, *Constitution of the Republic of Ecuador* (Oct. 20, 2008), <http://pdba.georgetown.edu/Constitutions/Ecuador/english08.html> (visited Mar. 12, 2017) (English version); see also Maria L. Barreto, at 9 (June 2012) (noting that the Ecuadorian Constitution of 2008 introduced the concept of a “grassroots solidarity economy,” comprised of micro, small, and medium-size production units, and provided a strong mandate to promote economic sectors that generate employment, add value, and encourage locally produced goods, such as ASM).

¹²⁷ See Official Register, *Mining Law* (Jan. 29, 2009), <https://www.ilo.org/dyn/natlex/docs/ELECTRONIC/95758/112857/F-329526296/ECU95758.pdf> (visited Mar. 12, 2017) (Spanish version, hereinafter referred to as the “Mining Law”); Bustamante & Bustamante, *Mining Law of Ecuador* (Feb. 2009), <http://www.infomine.com/library/publications/docs/Flor2009.pdf> (visited Mar. 12, 2017) (English version, translated by the Bustamante & Bustamante law firm); General Mining Regulations, <http://www.mineria.gob.ec/wp-content/uploads/downloads/2015/08/Reglamento-General-a-la-Ley-de-Mineria.pdf> (visited Mar. 12, 2017) (Spanish version); Tobar & Bustamante, *Ecuadorian Mining Act and Regulations* (Mar. 2012) (English version, translated by the Tobar & Bustamante law firm, providing full set of regulations).

¹²⁸ *Id.*

¹²⁹ Mining Law, Art. 6.

¹³⁰ *Id.*, Art. 136.

right to carry out such activities either individually or collectively in accordance with the principles of solidarity and social responsibility.”¹³¹ As with artisanal mining, for small-scale mining, the Ministry of Mining “shall promote special technical assistance, environmental management, mining safety and education and professional training programs for small-scale mining.”¹³² Finally, the Ministry of the Environment is also directed to establish and promote special programs for environmental management of small-scale mining.¹³³ The Mining Law stressed that the State would be promoting ASM development and required support programs to be designed to achieve such development.

B. Reforms to the Mining Law

Following promulgation of the Mining Law in 2009, the Government of Ecuador started the process of “regularizing” the ASM sector by enforcing the law against several egregious illegal mining operations.¹³⁴ The government quickly realized, however, that changes were needed to the new law, both to spur economic growth and to adapt the law to the circumstances of most ASM operations in the country.¹³⁵ As a result, in July 2013, the Government issued reforms to the new Mining Law (hereinafter “Mining Law Reform of 2013”).¹³⁶ With regard to ASM operations, changes were made mainly to allow the use of certain types of machinery and to expand the production capacity of ASM operations.¹³⁷

¹³¹ *Id.*, Art. 137.

¹³² *Id.*, Art. 139; *see also* Official Register, *Reform of the Organic Mining Law, Reform of the Law for Tax Equity in Ecuador and of the Organic Law of the Internal Tax Regime*, Sixth General Provision (July 16, 2013) (Spanish version, hereinafter “Mining Law Reform of 2013”), <https://www.ilo.org/dyn/natlex/docs/ELECTRONIC/95760/112860/F-249283496/ECU95760.pdf> (visited Mar. 13, 2017) (“The State through the Sectorial Ministry, the National Institute for Geological, Mining and Metallurgical Research and the Ministry of the Environment, will develop periodic programs of training and technical assistance aimed at artisanal miners and small miners. Likewise, the State through the public banks will seek to create financial products for the acquisition of environmentally-friendly and modern technology.”).

¹³³ Mining Law, Art. 139.

¹³⁴ SPDA at 189 n.2, 191 (In 2010, the Ministry of Non-Renewable Natural Resources evicted illegal miners and seized mining equipment at several illegal mining operations—at San Luis in Podocarpus National Park and at Congüime in the province of Zamora-Chinchipe, in the south of the country, and at the canton of San Lorenzo in the province of Esmeraldas in the north of the country.).

¹³⁵ *Id.*

¹³⁶ *See* Official Register, *Reform of the Organic Mining Law, Reform of the Law for Tax Equity in Ecuador and of the Organic Law of the Internal Tax Regime* (July 16, 2013) (Spanish version, hereinafter “Mining Law Reform of 2013”), <https://www.ilo.org/dyn/natlex/docs/ELECTRONIC/95760/112860/F-249283496/ECU95760.pdf> (visited Mar. 13, 2017).

¹³⁷ SPDA at 191.

The Government again made changes to the law in February 2015, creating the Ministry of Mining to implement the country's mining law and policy in place of the former Ministry of Non-Renewable Natural Resources.¹³⁸ The Ministry of Mining is charged with formulating, planning, directing, managing, and coordinating the implementation of guidelines, plans, programs, and projects for the mining sector.¹³⁹ Most notably, the Ministry is the entity that grants, administers and extinguishes all mining rights in the country.¹⁴⁰ The Agency of Regulation and Control of Mining ("ARCOM") is the administrative entity responsible for supervising mining activities.¹⁴¹ The Government also created the National Institute of Geological, Mining and Metallurgical Research ("INIGEMM") and the National Mining Enterprise, which is an entity governed by public law that may carry out mining activities either by itself or under associations or strategic alliances.¹⁴² Provincial or municipal authorities do not overlap with national authorities, although they do have political influence on exploration and exploitation areas.¹⁴³ Concerning the new Ministry, President Correa explained that the shift was intended to encourage the country's mining sector in order to "responsibly take advantage of natural resources to overcome the poverty of the country."¹⁴⁴ To make these changes and others in the General Mining Regulations, the regulations were amended in November 2015.¹⁴⁵

¹³⁸ Official Register, *Creation of the Ministry of Mining* (Feb. 28, 2015), <http://www.mineria.gob.ec/wp-content/uploads/downloads/2015/10/MINERIA.pdf> (visited Mar. 13, 2017).

¹³⁹ *Id.*

¹⁴⁰ *Id.*

¹⁴¹ *Id.*

¹⁴² *Id.*

¹⁴³ See Raúl de la Torre and Jaime Zaldumbide (of Pérez Bustamante & Ponce), *Mining 2016—Ecuador*, LatinLawyer (July 13, 2016), <http://latinlawyer.com/reference/topics/46/jurisdictions/32/ecuador/> (visited Mar. 12, 2017).

¹⁴⁴ El Telégrafo, *New Ministry of Mining Created by Executive Decree* (Feb. 13, 2015), <http://www.eltelegrafo.com.ec/noticias/politica/2/nuevo-ministerio-de-minas-se-crea-por-decreto-ejecutivo> (visited Mar. 13, 2017).

¹⁴⁵ See Official Register, *Reforms to the General Rules of the Mining Law* (Nov. 25, 2015), <http://www.controlminero.gob.ec/wp-content/uploads/downloads/2016/03/Registro-Oficial-Nº-635-REFORMAS-AL-REGLAMENTO-GENERAL-A-LA-LEY-DE-MINERÍA.pdf> (visited Mar. 13, 2017); see also Pérez Bustamante & Ponce, *The General Regulations to the Mining Law were Amended* (Dec. 17, 2015), <http://www.pbplaw.com/general-regulations-mining-law-were-amended/> (visited Mar. 13, 2017) (discussing Decree 823, published in the Second Supplement of Official Register No. 635 on Nov. 25, 2015). The array of applicable laws, regulations, guidelines, and other information can be found on ARCOM's website at <http://www.controlminero.gob.ec/biblioteca/>. ARCOM also provides an internal manual for regulation of artisanal mining, available at <http://www.controlminero.gob.ec/wp-content/uploads/downloads/2017/01/GUÍA-UI-MAN-001-GUÍA-METODOLÓGICA-MINERÍA-ARTESANAL1.pdf>, as well as an internal manual for regulation of small-scale mining, available at

C. Differentiating Between Types of Mining Under the Mining Law

At the outset, the Mining Law, as amended, declares that all minerals and other non-renewable natural resources and subsurface products different than “soil” are owned by the State independent of surface ownership of the land.¹⁴⁶ The State has the right to authorize exploitation of these resources in accordance with “national interests” and following applicable plans and policies.¹⁴⁷ Under the Mining Law, the State—through the Ministry of Mines—issues a “mining title” (a formal document essentially equivalent to a concession), which enables its holder to carry out exploration activities, and, if certain exploration requirements are met, the holder may enter a service contract or exploitation contract to develop the minerals in the concession area.¹⁴⁸

The Mining Law differentiates between the following four types of mining for metallic minerals based on the volume of production and kinds of technology employed in mining operations:

- Artisanal Mining
- Small-Scale Mining
- Medium-Scale Mining
- Large-Scale Mining

The Mining Law also regulates the development of non-metallic minerals and construction materials.¹⁴⁹ Procedures for development of non-metallic minerals (not for construction)

<http://www.controlminero.gob.ec/wp-content/uploads/downloads/2016/11/GUIA-UI-SGM-002-GUÍA-METODOLÓGICA-PEQUEÑA-MINERÍA-NO-METÁLICA.pdf>.

¹⁴⁶ See Mining Law Reform of 2013, Art. 2 (replacing Art. 16 of the Mining Law).

¹⁴⁷ *Id.*

¹⁴⁸ See Raúl de la Torre and Jaime Zaldumbide, *Mining 2016—Ecuador*, LatinLawyer.

¹⁴⁹ See Daniel Pino and Paulette Ocampo Vélez (of Coronel & Pérez), *Mining Law 2017—Ecuador*, International Comparative Legal Guides (May 9, 2016), <http://iclg.com/practice-areas/mining-law/mining-law-2017/ecuador> (visited Mar. 13, 2017). Non-metallic minerals are understood as rocks and minerals that do not contain properties that transmit heat or electricity, that comprise natural raw material for industries and other economic activities. Rocks and derivatives of rocks that do not require industrial processing for final use that differ from crushing, grain-size distribution classification or cutting and polishing treatments are considered to be construction materials. See Pérez Bustamante & Ponce, *Concessions for Non-Metallic Minerals or Construction Materials are Subject to New Regulations* (Dec. 8, 2014), <http://www.pbplaw.com/concessions-non-metallic-minerals-construction-materials-new-regulations/> (visited Mar. 14, 2017) (discussing new regulations concerning concessions for non-metallic minerals and construction materials issued through Ministerial Decree No. MRNRR-DM-2014-0612-AM, published in Official Register No. 370, Nov. 7, 2014); see also Ministerial Decree No. MRNRR-DM-2014-0612-AM (Nov. 7, 2014), <http://www.mineria.gob.ec/wp->

are provided in the Mining Law, while, for construction materials, local municipal governments have the authority to grant concessions, and the procedures to obtain concessions are enacted by the respective municipal governments.¹⁵⁰

Mining concessionaires are required to pay the “conservation patent” for each mining hectare.¹⁵¹ Payment of the conservation patent differs according to the type and phase of mining activity.¹⁵² Artisanal mining is exempt from payment; while small-scale mining must pay two percent of one consolidated base remuneration (approximately USD 354) for both the exploration and exploitation phases.¹⁵³ Small-scale mining is also required to distribute 10 percent of profits to mine workers and deliver five percent to the State, which the State is supposed to invest in social projects in the area where the mining project is located.¹⁵⁴ In addition to the patents and taxes just outlined, the holder of a small-scale mining concession must pay to the State a royalty of three percent of the value of all sales, while artisanal mining is not subject to royalties.¹⁵⁵

In addition to the Mining Law and associated regulations, miners engaged in ASM activities must also meet other regulations and obtain appropriate permits for fuel for authorized machinery and vehicles from the Agency for Regulation and Control of Hydrocarbons.¹⁵⁶ In addition, primarily for miners working in hardrock gold operations, the miners must have permits for the possession and use of explosives and similar

content/uploads/downloads/2015/10/Instructivo_Otorgamiento_Concesiones_Mineras.pdf (visited Mar. 15, 2017).

¹⁵⁰ See Daniel Pino and Paulette Ocampo Vélez, *Mining Law 2017—Ecuador*; see also Mining Law Reform of 2013, Art. 3 (replacing Art. 26 of the Mining Law and indicating that “The Municipal and Metropolitan Governments, in the exercise of their powers, by ordinance, shall regulate, authorize and control the exploitation of arid and stony materials”). Regulations for non-metallic minerals and construction materials were promulgated in November of 2014. See Ministry of Non-Renewable Natural Resources, *Instructions for Non-Metallic Minerals and Construction Materials* (updated Nov. 7, 2014), http://www.mineria.gob.ec/wp-content/uploads/downloads/2015/10/Instructivo_Otorgamiento_Concesiones_Mineras.pdf (visited Mar. 14, 2017).

¹⁵¹ *Id.*

¹⁵² *Id.*

¹⁵³ See *id.* (note that the consolidated base remuneration changes over time); see also Mining Law Reform of 2013, Art. 5 (replacing Art. 34 of the Mining Law and stating that “[a]n annual conservation patent is established for simultaneous exploration and exploitation activities carried out under the special small-scale mining regime equivalent to 2% of the unified monthly remuneration per mining hectare”).

¹⁵⁴ *Id.*

¹⁵⁵ See Daniel Pino and Paulette Ocampo Vélez, *Mining Law 2017—Ecuador*; see also Mining Law Reform of 2013, Art. 18 (replacing Art. 93 of the Mining Law and providing “[m]ineral rights holders of small mining will pay royalties, 3% of sales of the main mineral”).

¹⁵⁶ See SPDA at 195.

hazardous materials, which are issued by the Joint Command of the Armed Forces.¹⁵⁷ Mining companies must also obtain authorization for the use of water, which is granted by the National Water Secretariat (“SENAGUA”).¹⁵⁸

The following table from the Ministry of Mining summarizes the characteristics of each of the four scales of metallic mining authorized under the Mining Law:

Table 1: Characteristics of Scales of Metallic Mining Authorized Under Mining Law.¹⁵⁹

Characteristics				
Scale	Artisanal Mining	Small Mining	Medium Mining	Large Mining
Type of right	Authorization	Concession	Concession	Concession
Capacity of Production	a) Metallic	a) Metallic	a) Metallic	Exceeds medium mining in all materials and volume.
	Up to 10 tons/day underground and 120 m ³ /day alluvial	Up to 300 tons/day underground and 1000 tons/day open pit; and up to 1500m ³ /day alluvial	301 up to 1000 tons/day underground; 1001 up to 2000 tons/day open pit; and 1501 up to 3000 m ³ /day alluvial	
	b) Non-metallic	b) Non-metallic	b) Non-metallic	
	Up to 50 tons/day	Up to 1000 tons/day	1001 up to 3000 tons/day	
	c) Construction Materials	c) Construction Materials	c) Construction Materials	
	Up to 100 m ³ /day in alluvial or unconsolidated materials	Up to 800 m ³ /day alluvial	801 up to 2000 m ³ /day in alluvial; and 501 up to 1000 TM/day in open hard rock (quarries)	
	50 TM/day open pit (quarries)	500 TM/day open pit (quarries)		
Sum of Investments	From 200 up to 400 RBUM	N/A	N/A	N/A
Origin of Investments	National	National and/or Foreign	National and/or Foreign	National and/or Foreign
Origin of Title	National	National and/or Foreign	National and/or Foreign	National and/or

¹⁵⁷ *Id.*

¹⁵⁸ See Raúl de la Torre and Jaime Zaldumbide, *Mining 2016—Ecuador*, LatinLawyer; see also Mining Law Reform of 2013, Art. 3 (replacing Art. 26 of the Mining Law and stating that the “Single Water Authority” is the agency responsible for granting surface water or groundwater for mining activities).

¹⁵⁹ Ministry of Mining, *National Plan of Development for the Mining Sector*, at 88-89.

				Foreign
Royalties	N/A	Royalties 3%	Royalties 4%	Royalties 5 and 8%
Conservation Patents	N/A	2% of patents of the RMU per mining hectare	Patents 2.5% Expl. 5% EA. 7.5% EYa. 10% Explot.	Patents 2.5% Expl. 5% EA. 7.5% EYa. 10% Explot.
Fiscal Obligations	Exceptions from obtaining RISE in metallic mining			
Environmental Obligations	Environmental Registration	Environmental License	Environmental License	Environmental License
Required Contract	N/A	N/A	N/A	Mining Exploitation or Service
Consent of License	N/A	Petition up to 300 mining hectares or bid on more than 300 hectares	Auction	Auction
Industrial Net Earnings	N/A	10% workers	5% worker	3% worker
		5% State	10% State	12% State
Commercialization	Central Bank	Central Bank / Public Bank; Tax rate 0% (since 2018)	Tax rate 0% (since 2018) mineral of concession	Tax rate 0% (since 2018) mineral of concession
Period of Operation	10 years	25 years	25 years	25 years
Area	Up to 4 hectares (underground) and up to 6 hectares (open pit)	Up to 300 hectares	Up to 5000 hectares	Up to 5000 hectares
Presentation of Reports	N/A	Biannual – Exploration / Annual - Exploitation	Biannual – Exploration / Annual - Exploitation	Biannual – Exploration / Annual - Exploitation

VI. Ecuador’s Legal Framework Formalizing the ASM Sector

A. Structure of the Artisanal and Small Mining Regimes

1. The Artisanal Mining Regime

The Mining Law enacted in 2009 defined an “artisanal and subsistence mining” regime at Article 134 under which such mining was considered a manual activity, limited to individuals with simple hand tools (pick, shovel and bowl).¹⁶⁰ Following observation of artisanal mining activities in the field, the Government of Ecuador realized that modern artisanal mining activities were often performed by groups of people using more than hand

¹⁶⁰ See Mining Law, Art. 134; SPDA at 192 (discussing Mining Law of 2009).

tools.¹⁶¹ As a result, the Government supplanted the former regime through the Mining Law Reform of 2013, which provided a wholesale replacement of former Article 134.¹⁶² The changes in 2013 recognized that artisanal mining, primarily for gold, was frequently performed by groups of people, requiring the use of drills, explosives, trucks, and other equipment; and that activities took place in rivers and alluvial banks, using dredges, hydraulic pumps and diving equipment.¹⁶³ To account for these types of operations, with their increased outputs, and in an effort to allow artisanal miners to engage in commercial operations and produce profits, the Government adapted the allowable production capacities under the law.¹⁶⁴

The Mining Law of 2009 provided that, based on a 2010 census, the State would “regularize” existing artisanal mining operations according to certain legal and technical parameters.¹⁶⁵ The Mining Law originally set a deadline of 180 days for regularization, but the process faced numerous issues and took several years to complete.¹⁶⁶ Following this “regularization” process, the formalization of artisanal mining in Ecuador is now possible only in two cases: when the artisanal miners operate in no-concession areas (“free areas”) and when within concessions, if permitted by the concessionaire. These situations are discussed further below. No authorizations are granted in protected areas, or drinking water catchments, or in other cases where they interfere with other productive or strategic activities of the state.¹⁶⁷ In the case of “free areas,” although there are a number of miners who work in these areas, the areas are generally of marginal productivity as most of the areas with good gold values are already subject to concessions.¹⁶⁸

The updated Article 134 defines an “artisanal mining” regime, which comprises and applies to “popular economic units, single-person enterprises, family and domestic enterprises that work in free areas.”¹⁶⁹ Artisanal mining “activities” are “characterized by the use of machinery and equipment with loading and production capacity limited in accordance with the instructions approved by [ARCOM]” and the development and sale of minerals which generally covers the needs of the community, or of the people or family group engaging the mining activities, within the local area where permission for such activities has been granted.¹⁷⁰

¹⁶¹ SPDA at 192.

¹⁶² Compare Mining Law, Art. 134 to Mining Law Reform of 2013, Art. 24 (replacing Art. 134 of the Mining Law).

¹⁶³ SPDA at 192.

¹⁶⁴ *Id.*

¹⁶⁵ See SPDA at 196.

¹⁶⁶ *Id.*; see also *id.* at 214 (discussing problems faced by artisanal miners in the regularization process).

¹⁶⁷ *Id.* at 195.

¹⁶⁸ *Id.* at 196.

¹⁶⁹ Mining Law Reform of 2013, Art. 24 (replacing Art. 134 of the Mining Law).

¹⁷⁰ *Id.*

The updated Article 134 also provides that artisanal mining activities “are not subject to the payment of patents or royalties, but are subject to the tax regime, to guarantee income that corresponds to the State.”¹⁷¹ The Ministry of Mining may grant permits for artisanal mining for a period up to 10 years that are renewable for additional 10-year periods upon written request before expiration and based on a favorable report from ARCOM and the Ministry of the Environment.¹⁷²

The updated Mining Law states that artisanal mining permits may not affect the rights of mining concessionaires with valid title, but mining concessionaires may authorize artisanal mining activities within their concessions through the use of operating contracts regulated by the Ministry of Mining.¹⁷³ In such situations, the Mining Law makes clear that artisanal miners will be exclusively responsible for compliance with all environmental, mining, labor, social, tax, and other obligations provided in the regulations for ASM, and neither violations thereof, nor the effects of non-compliance, can be imputed on the holders of the mining concessions.¹⁷⁴

Permits for underground artisanal mining may be granted for up to 4 hectares, while permits for open pit artisanal mining may be granted for up to 6 hectares.¹⁷⁵ Only one artisanal mining permit may be granted per person.¹⁷⁶ The law also provides that the permits will be provided at no cost to the applicant.¹⁷⁷

To help the State control such operations and ensure adequate environment management, artisanal mining permits for the exploitation of metallic minerals, except for exploitation of alluvial deposits, are limited to extraction work.¹⁷⁸ Processing must be carried out in properly authorized and licensed processing plants.¹⁷⁹

The Mining Law Reform of 2013 also added limits on production and processing capacities of artisanal mining operations.¹⁸⁰ The State imposed the following production capacities according to mineral type:

- For metallic minerals: up to 10 tons per day in underground mining and 120 cubic meters per day in alluvial mining;
- For non-metallic minerals: up to 50 tons per day;

¹⁷¹ *Id.*

¹⁷² *Id.*

¹⁷³ *Id.*

¹⁷⁴ *Id.*

¹⁷⁵ *Id.*

¹⁷⁶ *Id.*

¹⁷⁷ *Id.*

¹⁷⁸ *Id.*

¹⁷⁹ *Id.*

¹⁸⁰ *See id.*, Art. 25 (adding a section following Article 134).

- For building materials: up to 100 cubic meters per day for alluvial or unconsolidated mining, and 50 tons per day in open pit mining in hard rock (quarry).¹⁸¹

The reforms also allowed artisanal miners to use backhoes/excavators, with a limit of 90 HP and shovels up to a maximum capacity of 0.6 cubic meters.¹⁸² More specific instructions specifying the types of machinery and equipment that can be used in artisanal mining operations, as well as limits on the capacities of such machinery and equipment were provided by ARCOM following the Mining Law Reform of 2013.¹⁸³ The Mining Law Reform of 2013 also indicates that the Ministry of Mining can promulgate additional instructions and regulations to implement and modify the artisanal mining regime, as needed.¹⁸⁴

Finally, the reforms allowed artisanal miners to undertake artisanal mining activities by a group of people under a permit issued to an “individual.”¹⁸⁵ When the mining activities for artisanal miners exceed the constraints for such activities, such miners may become registered as small-scale miners, either upon their own request or following verification by ARCOM.¹⁸⁶ As allowed by the Mining Law Reform of 2013, there is a push by the Ministry of Mining for artisanal miners to band together and grow their operations. Indeed, the Ministry’s National Plan of Development for the artisanal mining sector is to transform artisanal mining activities into small-scale mining activities, which are believed to use more modern equipment and operate with better industry practices.¹⁸⁷

In simple form, the Ministry of Mining presents the basic “Instructions for Granting Permissions for Artisanal Mining Work” as follows:

1. Request addressed to the Ministry of Mining, which specifies the location of the area, the coordinates of the area and the form of exploitation;
2. Qualification as subject of mining right;
3. Affidavit of the materials to be exploited, investment amounts, volumes, and other data that prove status as an artisanal miner;

¹⁸¹ *Id.*; see also SPDA at 191.

¹⁸² See SPDA at 191.

¹⁸³ See ARCOM, *Instructions for the Characterization of Machines and Equipment with Limited Capacities of Load and Production for Artisanal Mining*, Resolution No. 001-INS-DIR-ARCOM-2013, CONV 06- ACT 03 (Oct. 8, 2013), <http://www.controlminero.gob.ec/wp-content/uploads/downloads/2016/08/Instructivo-para-Characterización-de-Maquinarias-y-Equipos-con-Capacidades-Limitadas-de-Carga-y-Producción-para-la-Miner%C3%ADa-Artesanal.pdf> (visited Mar. 16, 2017).

¹⁸⁴ Mining Law Reform of 2013, Art. 25 (adding a section following Article 134).

¹⁸⁵ SPDA at 191.

¹⁸⁶ General Mining Regulations, Chpt. IV, Art. 16.

¹⁸⁷ Ministry of Mining, *National Plan of Development for the Mining Sector*, at 5.

4. If applicable, identification of the processing, smelting and refining plant in which the material produced from the holding is to be processed;
5. Single Taxpayer Registration (RUC) and certificate of compliance with tax obligations.¹⁸⁸

These requirements are also presented and expanded upon in the General Mining Regulations.¹⁸⁹ If the request complies with the Mining Law and if ARCOM provides a favorable report concerning the proposed mining activities, the Ministry of Mining “shall issue a certificate authorizing the applicant” as an artisanal miner.¹⁹⁰

2. The Small Mining Regime

As with the artisanal mining regime, the Mining Law Reform of 2013 largely supplanted the small-scale mining regime from the Mining Law of 2009. The new Article 138, replacing the former article governing small-scale mining, defines “small mining” as mining “that, due to the geological characteristics and mining conditions of deposits of metallic and non-metallic mineral substances, and construction materials, as well as their technical and economic parameters, their direct exploitation becomes rational and viable, notwithstanding the fact the exploitation is preceded by exploration work, or that exploration and exploitation are carried out simultaneously.”¹⁹¹ The updated Article 138 also explains that the characteristics of these deposits are suitable for small-scale mining development in terms of the area of the concession, the amount of investment, operating volume, installed capacity for processing, and technological conditions, in accordance with the regulations for small-scale mining.¹⁹²

The Mining Law Reform of 2013 also added limits on the production capacity for small-scale mining operations. Based on mineral type, the law imposes the following limits:

¹⁸⁸ Ministry of Mining, *Permits for Artisanal Mining* (July 28, 2015), <http://www.mineria.gob.ec/permisos-de-mineria/> (visited Mar. 17, 2017); *see also* Ministry of Mining, *Instructions for Granting Permits for Artisanal Mining Work* (Sept. 9, 2011), <http://www.mineria.gob.ec/wp-content/uploads/downloads/2015/08/Instructivo-Otorgamiento-Permisos-para-Labores-de-Mineria-Artesanal.pdf> (visited Mar. 17, 2017).

¹⁸⁹ General Mining Regulations, Chpt. IV, Art. 15(a)-(h).

¹⁹⁰ *Id.*, Art. 15.

¹⁹¹ Mining Law Reform of 2013, Art. 26 (replacing Art. 138 of the Mining Law). Former Article 138 defined small-scale metallic mining as that which, “[d]epending on the size of the concession, processing production and volume, investment amounts, capital and technological conditions,” have “[a]n installed exploitation and/or processing capacity of 300 metric tons per day.” Mining Law, Art. 138.

¹⁹² Mining Law Reform of 2013, Art. 26 (replacing Art. 138 of the Mining Law).

- For metallic minerals: up to 300 tons per day in underground mining; up to 1000 tons per day in open pit mining; and, up to 1500 cubic meters per day in alluvial mining;
- For non-metallic minerals: up to 1000 tons per day; and,
- For construction materials: up to 800 cubic meters for mining in alluvial terraces; and 500 tons per day in open pit mining in hard rock (quarry).¹⁹³

The law indicates that one or more of these mining operations may be carried out in a particular mining area, so long as the characteristics of the deposit so justify.¹⁹⁴ Similar to the situation with artisanal miners, when the mining activities for small-scale miners exceed the constraints for such activities, the classification of such miners may be changed.¹⁹⁵

Individuals, associations of miners or companies may engage in small-scale mining, but must first obtain a small-scale mining concession through the State's public auction process for the grant of mining concessions.¹⁹⁶ The Mining Law Reform of 2013 expanded this provision to also allow the award of mining concessions to associated miners in order to allow and encourage artisanal miners to partner together (three or more) to obtain small-scale mining concessions, with the aim of growing artisanal mining operations into more substantial small-scale mining operations.¹⁹⁷

Mining concessions for small-scale mining confer upon the holder, "an exclusive right to prospect, explore, exploit, benefit, smelt, cast, refine and market all mineral substances that may exist and be obtained in the area of such concession."¹⁹⁸ The law concerning mining concessions specifies that in auctions for small-scale mining concessions, only natural or legal persons who qualify as small-scale miners may participate.¹⁹⁹ Further, the Mining Law specifies that small-scale miners, as well as artisanal miners, should not have foreign companies as partners or shareholders.²⁰⁰ With regard to small-scale mining, however, the Government appears to now permit foreign companies to both hold mining titles and invest in small-scale mining operations.²⁰¹

¹⁹³ *Id.* Art. 27 (adding a section following Art. 138); *see also* SPDA at 192.

¹⁹⁴ *Id.*

¹⁹⁵ *See* General Mining Regulations, Chpt. IV, Art. 16. Division of production capacity of exploitation and/or smelting facilities, or the production levels, in order to avoid a change in classification is prohibited. *Id.*, Chpt. IV, Art. 17.

¹⁹⁶ *See* Mining Law, Chpt. II, Arts. 29-39 (presenting process for obtaining concessions).

¹⁹⁷ *See* SPDA at 192.

¹⁹⁸ Mining Law., Art. 139.

¹⁹⁹ Mining Law, Art. 29; *see also id.*, Art. 139 ("State shall grant Mining Concessions for Small-Scale Mining in favor of natural and legal persons").

²⁰⁰ *Id.*

²⁰¹ *See* Ministry of Mining, *National Plan of Development for the Mining Sector*, at 88-89.

In 2013, changes were also made to simplify requirements for small-mining exploration and development. In particular, small-scale miners were allowed to commence mining without the previously required exploration phase and with a simplified process to obtain an environmental license.²⁰² In addition, holders of small mining concessions do not need to enter mining exploitation contracts like large-scale miners, as referred to in Article 41 of the Mining Law, but they are required to submit notarized manifests and production reports to the Ministry of Mining, in which the number of mining hectares in exploration and exploitation, respectively, shall be indicated.²⁰³ The “duly audited annual production reports” must be prepared in accordance with the technical guidelines provide by ARCOM and submitted to the Ministry of Mining by March 31 of each year.²⁰⁴ The law imposes penalties for non-compliance with the reporting requirement.²⁰⁵ As with the artisanal mining regime, the law also indicates that ARCOM has the ability to promulgate regulations and otherwise modify the law concerning the quantities of extraction, processing and export of minerals.

Finally, to comply with the Mining Law, small-scale miners must register with ARCOM.²⁰⁶ The application for registration must present the following:

- a) Written application to the Ministry of Mining on the appropriate form;
- b) Identification of the applicant by name and statement of business purpose;
- c) Specific information concerning the location where mining activities will take place;
- d) Number of hectares to be used for mining activities, and location thereof;
- e) Daily exploitation capacity;
- f) . . .
- g) Certificate of approval for special programs for technical assistance, environmental management, mining safety and training; and
- h) Attendance at, and approval of, the training programs promoted by the National Institute of Geological, Mining, Metallic Research.²⁰⁷

If the application complies with the Mining Law and if ARCOM provides a favorable report concerning the proposed mining activities, the Ministry of Mining “shall issue a certificate authorizing the applicant . . . as a small-scale miner.”²⁰⁸

²⁰² See SPDA at 192.

²⁰³ Mining Law Reform of 2013, Art. 27 (adding a section following Art. 138).

²⁰⁴ *Id.*

²⁰⁵ *Id.*

²⁰⁶ General Mining Regulations, Art. 14.

²⁰⁷ *Id.*, Art. 14(a)-(h).

²⁰⁸ *Id.*, Art. 14.

3. Mining Control and Enforcement

The Mining Law does not specifically distinguish between illegal and informal mining, but Article 56 of the Mining Law states that the illegal exploitation of minerals occurs when one conducts mining operations and work, in any of its phases, without a title do to so or without the required permission.²⁰⁹ Thus, in practice, illegal mining is that which operates without the proper permits and without following requirements concerning characteristics such as production type, location, etc., in order to be formalized. Informal mining is that which fits within the parameters of the law, could be permitted and has begun the process of formalization, but which has not yet been properly registered or permitted.

Penalties for illegal mining were provided in 2013 under Article 57 of the Mining Law as follows: “Illegal mining activity exercised by natural or legal persons or groups of persons, national or foreign, without titles, authorizations, permits or licenses, shall be punished in accordance with the requirements of this article, subject to application of the environmental, tax or criminal codes, as applicable.”²¹⁰ Penalties were enhanced to include “confiscation, seizure, detention, destruction, demolition, disablement, or neutralization, as appropriate” of machinery or other equipment.²¹¹ Persons engaging in such activity were subject to: (1) a penalty ranging from approximately USD 70,000 to USD 170,000 depending on the severity of the offense, (2) payment of an amount equal to the total of the minerals extracted illegally, as well as (3) an obligation to complete ecosystem restoration and (4) compensate affected individuals and communities.²¹² In addition, not only can the offender be charged with a violation of the mining law, but also the offender may be charged with simultaneous violations of the environmental law (pollution, destruction of wildlife, etc.), tax law (not declaring or paying taxes minerals extracted) and criminal law.²¹³ The holder of a mining concession may also face sanctions for allowing, or not denouncing illegal activities on the associated concession.²¹⁴

B. Environmental Legal Framework for Artisanal and Small Mining

1. Environmental Registration for Artisanal Mining

Ecuador’s Ministry of the Environment regulates the impacts of mining activities on the environment. The Environmental Regulations promulgated by the Ministry provide a special regime for ASM at Environmental Mining Regulations, Chpt. XI, Arts. 99-102.²¹⁵ As

²⁰⁹ Mining Law, Art. 56.

²¹⁰ See Mining Law Reform of 2013, Art. 11 (replacing Art. 57 of the Mining Law).

²¹¹ *Id.*

²¹² *Id.*

²¹³ *Id.*

²¹⁴ See SPDA at 195; see also Mining Law Reform of 2013, Art. 12 (adding article to Mining Law extending liability to holders of mining rights).

²¹⁵ Ministry of the Environment, *Environmental Regulations for Mining Activities* (updated June 11, 2015), <http://www.mineria.gob.ec/wp->

with the Mining Law, the Environmental Mining Regulations have seen a number of changes since they were first promulgated.²¹⁶

The Mining Law Reform of 2013 affirmed and codified the Ministry of the Environment's authority over environmental impacts resulting from mining activities.²¹⁷ The Reform provided:

Mining rights holders, prior to the initiation of activities, shall prepare and submit environmental studies or documents to prevent, mitigate, control, and repair the environmental and social impacts resulting from their activities. The competent Environmental Authority, with the grant of the respective Environmental License, must approve such studies or documents. The Environmental Mining Regulations . . . will establish the requirements and procedures for the application of this article.²¹⁸

Pursuant to the Ministry of the Environment's June 2015 amendments to its regulations, mining projects under the special artisanal mining regime will require an "environmental registration," while small-scale mining projects or activities involving exploration and exploitation will require an "environmental license."²¹⁹ The

content/uploads/downloads/2015/08/RAAM.pdf (visited Mar. 14, 2017) (hereinafter referred to as the "Environmental Mining Regulations").

²¹⁶ See, e.g., Pérez Bustamante & Ponce, *Mining Activities in Ecuador are Subject to New Environmental Provisions* (July 16, 2015), <http://www.pbplaw.com/mining-activities-ecuador-new-environmental-provisions/> (visited Mar. 14, 2017) (discussing Ministerial Decree No. 080 published in the Official Register Supplement No. 520 on June 11, 2015); Pérez Bustamante & Ponce, *Environmental Reforms for Mining Activities* (July 22, 2016), <http://www.pbplaw.com/environmental-reforms-mining-activities/> (visited Mar. 14, 2017) (discussing Ministerial Decree No. 69 of the Ministry of the Environment – Official Register 795, July 12, 2016).

²¹⁷ See Mining Law Reform of 2013, Art. 14 (replacing Art. 78 of the Mining Law).

²¹⁸ *Id.*

²¹⁹ See Pérez Bustamante & Ponce, *Mining Activities in Ecuador are Subject to New Environmental Provisions* (July 16, 2015), <http://www.pbplaw.com/mining-activities-ecuador-new-environmental-provisions/> (visited Mar. 14, 2017) (discussing Ministerial Decree No. 080 published in the Official Register Supplement No. 520 on June 11, 2015); see also Ministerial Decree No. 080, Official Register Supplement No. 520, Art. 3 (June 11, 2015), <http://www.oficial.ec/acuerdo-080-reformese-reglamento-ambiental-actividades-mineras-raam> (visited Mar. 17, 2017); Mining Law Reform of 2013, Art. 14 (replacing Art. 78 of the Mining Law and stating that "[i]n the artisanal mining regime, approval of environmental records will be required, while under the small mining regime, the environmental license must be granted for simultaneous exploration/exploitation operations, which should be counted for the purpose with specific and simplified environmental studies").

“environmental registration” required for mining projects under the special artisanal mining regime is also referred to as an “environmental information sheet,” and defines the scope of artisanal mining activities permitted within a specific permit area.²²⁰ Permit holders, either individually or collectively, must obtain environmental information sheets approved by the Ministry of the Environment, which include “the specific and simplified environmental plans” for the permit area(s).²²¹ These environmental information sheets are obtained through the so-called “Single Environmental Information System,” which in the case of artisanal mining activities consists of an online form that must be completed and submitted to the Ministry of the Environment.²²² The environmental registration does not require any type of bond or other guarantee of compliance with the environmental management plan.²²³

Such registration shall be “automatically renewed every semester following payment of the costs established by the Ministry.”²²⁴ If the registration is not renewed, or if the environmental plan is not complied with, the Ministry of Environment shall sanction the artisanal miner(s).²²⁵ The Ministry of the Environment is also tasked with inspecting areas abandoned by artisanal miners to verify the state of the area and to determine what measures may be required to reclaim the area.²²⁶ Reclamation costs are attributed to the artisanal miner(s) that abandoned the area.²²⁷ The June 2015 amendments to the Environmental Mining Regulations reinforced that mining activities and facilities can be inspected at any time without the need for prior notification.²²⁸ Holders of mining titles are obligated to provide access to all facilities for the purposes of the inspections.²²⁹

If an artisanal or small-scale miner is carrying out ASM activities in an existing concession, pursuant to a mining contract with the concessionaire, the mining contract shall specify that the artisanal or small-scale miner must adhere to the concessionaire’s environmental management plan.²³⁰ Responsibility for implementation of the environmental management plan is shared as it corresponds to each party.²³¹

²²⁰ Environmental Mining Regulations, Art. 99.

²²¹ *Id.*

²²² See Ministerial Decree No. 080, Official Register Supplement No. 520, Art. 3 (stating that “[i]n all cases, the environmental regularization process must be carried out, as determined in the procedure contained in the Single Environmental Information System”).

²²³ See Ministerial Decree No. 080, Official Register Supplement No. 520, Art. 18; see also Pérez Bustamante & Ponce, *Mining Activities in Ecuador are Subject to New Environmental Provisions*.

²²⁴ Environmental Mining Regulations, Art. 99.

²²⁵ *Id.*

²²⁶ *Id.*

²²⁷ *Id.*

²²⁸ See Pérez Bustamante & Ponce, *Mining Activities in Ecuador are Subject to New Environmental Provisions*.

²²⁹ *Id.*

²³⁰ Environmental Mining Regulations, Art. 99. Note that this requirement differs slightly from that stated in the Mining Law Reform of 2013, which provides that artisanal miners

Recent changes to the Environmental Mining Regulations indicate that the Ministry of the Environment and Ministry of Mining will develop and hold periodic “training programs regarding environmental issues in the mining field, which will be addressed to artisanal miners and small miners.”²³²

2. Environmental License for Small Mining

Mining projects or activities within the small-scale mining regime require an “environmental license” when conducting exploitation activities or simultaneous exploration and exploitation activities.²³³ The environmental license “shall have an annual cost equivalent to two basic unified remunerations” (approximately USD 708).²³⁴ As with the environmental registration for artisanal mining, the environmental license for small-scale mining “shall include the specific and simplified management plans for small-scale mining.”²³⁵

Holders of small-scale mining concessions may also “propose projects and manage requests for international technical cooperation” related to the reclamation of watersheds that have been degraded by mining activities.²³⁶ Such projects must be approved by the Ministry of the Environment and include the following studies: environmental baseline; delineation of existing contamination; identification of remediation methods; analysis of alternatives based on available technologies; monitoring, reporting and evaluation plan; proposed civil works with estimated costs; remediation plan; proposed containment and preventions works for future mining activities, with estimated costs; and cost and implementation timeline.²³⁷ The Ministry is also tasked with managing requests for international financing for such projects.²³⁸

As with artisanal mining activities, mining concessionaires, through a mining contract, may authorize the performance of small-scale mining activities in their concessions, in accordance with the terms established in Article 134 of the Mining Law.²³⁹ Again, like the situation for artisanal miners, the mining contract “shall state that the small-

will be exclusively responsible for compliance with all environmental regulations for artisanal and small-scale mining, instead of those corresponding to those specified in the concessionaire’s environmental management plan. *See* Mining Law Reform of 2013, Art. 24 (replacing Art. 134 of the Mining Law).

²³¹ *Id.*

²³² *See* Ministerial Decree No. 080, Official Register Supplement No. 520, Art. 37.

²³³ *See* Ministerial Decree No. 080, Official Register Supplement No. 520, Art. 3; *see also* Environmental Mining Regulations, Chpt. XI, Art. 100.

²³⁴ Environmental Mining Regulations, Art. 100.

²³⁵ *Id.*

²³⁶ *Id.*

²³⁷ *Id.*

²³⁸ *Id.*

²³⁹ *Id.*

scale miner must adhere to the mining concessionaire's environmental management plan."²⁴⁰ Environmental responsibility for implementation of the management plan "is shared" as it corresponds to each party.²⁴¹

The Environmental Mining Regulations require the Ministry of the Environment to "promote and, if necessary, require joint management plans to be consolidated in environmental impact studies" for areas with identified and similar technical and socio-environmental characteristics.²⁴² As with the mining contracts, "each activity or action" in a plan "shall be assigned to the individual responsible for its compliance."²⁴³

3. Environmental Control and Enforcement

If the holder of mining rights who has an environmental registration or environmental license approved by the Ministry of the Environment breaches the approved environmental management plan or otherwise "carries out activities that generate a risk of environmental damage" or actually damages the environment, as determined by the Ministry of the Environment, the Ministry may "order the suspension of the license or the approval of the environmental information sheet of the activity that caused the environmental damage."²⁴⁴ As "necessary," the Ministry "shall also require the [Ministry of Mining] to suspend mining activities improperly initiated until the requirement referred to is met, or until the failure or omission is corrected."²⁴⁵ Suspension of activities "may be lifted upon verification of compliance with the emergency plan of action approved by the Ministry of the Environment."²⁴⁶ With such verification by the Ministry of the Environment, the Ministry of Mining can authorize the resumption of mining activities.²⁴⁷

Recent changes to the Environmental Mining Regulations emphasize that the Ministry of the Environment may inspect mining activities "at any time, without prior notification" and that mine owners are obliged to provide access to inspectors to all mining facilities and to allow inspectors to conduct all necessary sampling and analysis.²⁴⁸ Inspections result in a technical report, and, if necessary, an "Action Plan" or other regularization or sanctioning procedures.²⁴⁹ The Action Plan will contain the measures necessary to correct any noncompliance identified by the inspection, as well as the plan for continued control and monitoring by the Ministry.²⁵⁰

²⁴⁰ *Id.*

²⁴¹ *Id.*; see also *supra* fn. 225 (discussing requirements of Mining Law Reform of 2013).

²⁴² *Id.*, Art. 101.

²⁴³ *Id.*

²⁴⁴ *Id.*, Art. 103.

²⁴⁵ *Id.*

²⁴⁶ *Id.*

²⁴⁷ *Id.*

²⁴⁸ See Ministerial Decree No. 080, Official Register Supplement No. 520, Art. 21.

²⁴⁹ *Id.*

²⁵⁰ *Id.*

The Environmental Mining Regulations provide that levels of environmental contamination are judged according to base values identified in baseline studies.²⁵¹ The holder of mining rights is responsible for conducting mining operations to keep environmental contamination within allowable ranges.²⁵² If breaches of environmental standards, as described in a report from the Ministry of the Environment, are not corrected, the Ministry is “authorized to implement the suspension and/or revocation of the environmental license,” depending upon the severity of breaches.²⁵³

If mining activities are initiated without an environmental registration or environmental license, the Ministry of the Environment “shall initiate penalty proceedings” against the miner(s) requesting the appropriate sanctions.²⁵⁴ The Ministry of the Environment handles initial administrative proceedings, although in cases of “serious misconduct,” the Ministry may refer the case to a “judge or competent judicial official” for criminal prosecution, which is pursued separately from applicable administrative or civil actions.²⁵⁵

Legal responsibility for the following administrative offenses is “assigned to the natural person or the representative of corporate entities who:”

1. Undertakes mining activities without an environmental registration or environmental license;
2. Fails to comply with environmental impact studies or management plans;
3. Fails to comply with recommendations contained in control, follow-up and monitoring reports;
4. Includes false data or conceals information relevant for environmental impact studies or environmental management plans, or in documents presented to the Ministry in order to receive permits or to comply with control and reporting obligations.²⁵⁶

The regulations allow several parties to initiate proceedings to initiate administrative proceedings:

- a) By a complaint from any person exercising the environmental rights established in Ecuador’s Constitution;
- b) By submittal of a report to the Ministry from the mining rights holder or other authority indicating that prior administrative control methods have not been met;

²⁵¹ Environmental Mining Regulations, Art. 105.

²⁵² *Id.*

²⁵³ *Id.*; “Significant damage” is classified as “a re-occurrence of a major breach.” *Id.*, Art. 106.

²⁵⁴ *Id.*, Art. 103.

²⁵⁵ *Id.*, Arts. 104, 107.

²⁵⁶ *Id.*, Art. 105.

- c) By the Ministry of the Environment or through its entities.²⁵⁷

When administrative proceedings are initiated, the Ministry of the Environment may adopt preventative measures, “if necessary,” such as temporarily suspending the action giving rise to the proceedings or expediting the proceedings to reach a quicker resolution.²⁵⁸ Any “preventative measures” imposed must be “confirmed, modified or lifted while the proceedings are being processed” if additional information is taken into account following imposition of the measures.²⁵⁹

A “citizen-complaint” must contain at least the following information:

- a) Administrative body or administrative unit to which it is addressed;
- b) Names and surnames of the interested party and, as the case may be, of the person representing such party, as well as identification of the place or means of notification;
- c) Facts, reasons, legal grounds, and the petition in which the alleged location of the infraction is clearly specified;
- d) Technical and social information that substantiates the offense that should give rise to the administrative proceedings, as the case may be;
- e) Location and date of application;
- f) Signature of the applicant or certification authenticating its willingness, expressed in any way.²⁶⁰

Thus, filing a citizen-complaint is not a small undertaking and requires not only identification of the complainant, but it also requires the complainant to bear the burden of proving that administrative proceedings are justified.²⁶¹

Upon receipt of a complaint, the proper administrative body within the Ministry of the Environment shall evaluate the complaint and “summon the mining titleholder to the commencement of the administrative proceedings.”²⁶² The administrative body is then tasked with investigating the complaint; collecting evidence; holding a public hearing if deemed “necessary;” assessing the evidence; and finally, issuing a resolution withdrawing the complaint or deciding appropriate remedies and actions against the holder of the mining title.²⁶³

Funds collected from sanctions on artisanal miners as well as funds collected from small-scale miners are placed in an accumulative budget to be used by the Ministry of the

²⁵⁷ *Id.*, Art. 108.

²⁵⁸ *Id.*, Art. 110.

²⁵⁹ *Id.*, Art. 111.

²⁶⁰ *Id.*, Art. 108.

²⁶¹ *Id.*

²⁶² *Id.*, Art. 112.

²⁶³ *Id.*, Arts. 113-121.

Environment to prepare “strategic environmental evaluations” in areas where artisanal and small-scale mining activities are carried out.²⁶⁴

VII. Significant Regulatory Gaps in Ecuador’s Legal Framework for the ASM Sector

A. The Legal Framework Contributes to Illegal Mining and Gold Laundering

1. Statistics Indicate that Ecuador is a Haven for “Dirty” Gold

According to ARCOM, as of 2015, there were 229 authorized gold mining areas in nine provinces across Ecuador, with a meager production of less than seven tons annually.²⁶⁵ Historically, for the first decade of this century (prior to 2010), the United States Geological Survey reported that Ecuador’s production of gold fluctuated between approximately 2 and 5 tons annually.²⁶⁶ Considering that Ecuador has not had, and does not now have, any medium or large-scale gold mining projects in production yet, all of the metal was extracted by ASM operations.²⁶⁷ Although Ecuador’s gold production remained relatively stable from 2010 to 2015, following enactment of Ecuador’s new Mining Law in 2009, gold exports from Ecuador have curiously skyrocketed.

Customs records uncovered by investigative journalists reveal that between 2010 and 2014 there were recorded shipments of 74 tons of gold to international markets, just from the Guayaquil Airport.²⁶⁸ Over that same period, Ecuador’s Central Bank recorded only 22 tons as the country’s entire gold output.²⁶⁹ Since all gold production from legal operations in Ecuador must be declared to the Central Bank of Ecuador or to ARCOM, it

²⁶⁴ *Id.*, Arts. 99-100.

²⁶⁵ See Fabiola Torres López (Ojo Público), *Ecuador’s dirty gold is transported to the US on commercial flights*, Ecuador Review (Sept. 1, 2015), <http://www.ecuadorreview.com/in-depth-ecuador/investigations/ecuadors-dirty-gold-is-transported-to-the-us-on-commercial-flights/> (visited Mar. 18, 2017) (English version); see also Fabiola Torres López (Ojo Público), *Ecuador’s ‘dirty gold’ is transported to the US on commercial flights*, Plan V (Aug. 16, 2015), <http://www.planv.com.ec/historias/sociedad/el-oro-sucio-ecuador-sale-avion-desde-guayaquil/pagina/0/3> (visited Mar. 18, 2017) (Spanish version).

²⁶⁶ SPDA at 198 (citing United States Geological Survey, Minerals Resources Program, www.indexmundi.com).

²⁶⁷ See *id.*; SPDA at 198 (noting that there are no medium or large-scale mining projects, such as Mirador, Fruta del Norte or Rio Blanco, that are producing gold yet); see also Ministry of Mining, *National Plan of Development for the Mining Sector*, at 90 (ARCOM indicates that approximately 89% of Ecuadorian gold production, in terms of tons, comes from small-scale mining, while artisanal mining accounts for the remaining 11%).

²⁶⁸ Fabiola Torres López (Ojo Público), *Ecuador’s dirty gold is transported to the US on commercial flights*.

²⁶⁹ *Id.*

appears that more than 50 tons, or 70% of Ecuador’s gold exports, were of illicit origin as such gold was not declared and its origins are unknown.²⁷⁰ Other sources reporting on gold production in Ecuador, such as the Sociedad Peruana de Derecho Ambiental (“SPDA”), have also recognized the large difference between gold exports and declared production, and have attributed the difference to illegal and informal mining.²⁷¹ Thus, Guayaquil airport “is a sieve for shipments of gold of suspicious origin.”²⁷² And, Ecuador clearly has a very high rate of gold leaving the country without certificates of origin. This rate has been rapidly increasing. Specifically, in 2012, 10 tons of gold were exported, double the historical average; in 2013, about 15 tons were exported, and the amount exceeded 30 tons in 2014.²⁷³

Reports indicated that between 2010 and 2014, 140 companies were responsible for gold shipments on commercial flights, with the primary destinations being companies in the United States, with shipments also going to companies in Switzerland and China.²⁷⁴ Neither ARCOM, nor the Central Bank of Ecuador or the Internal Revenue Service of Ecuador have provided an explanation for the large increase in the amount of gold leaving from the Guayaquil airport between 2010 and 2014.²⁷⁵ The common and most likely explanation is that illegal gold, from both inside Ecuador and more particularly from Peru, is being “laundered” in Ecuador.²⁷⁶

2. Gold Laundering

a) Gold Laundering in General

Before gold produced illegally can enter into international markets, it needs to have its true origin concealed (“laundered”) or the buyers may become liable to prosecution under various laws and regulations designed to combat transnational organized crime.²⁷⁷ Generally, after extraction, gold mined by artisanal and small-scale miners or mined illegally is first processed locally and then sold to local middlemen or traders, who in turn,

²⁷⁰ See *id.*; Óscar Castilla C., Nelly Luna Amancio and Fabiola Torres López, *Dirty Gold: Chasing the trace of the London Bullion Market—The secret story of the companies that financed the millionaire trade of illegal gold in South America*, Ojo Publico (June 9, 2015), <http://ojo-publico.com/dirty-gold-chasing-the-trace-of-the-london-bullion-market/> (Mar. 18, 2017).

²⁷¹ See SPDA at 198-99.

²⁷² Fabiola Torres López (Ojo Público), *Ecuador’s dirty gold is transported to the US on commercial flights*.

²⁷³ *Id.*

²⁷⁴ *Id.*; Óscar Castilla C., et al., *Dirty Gold: Chasing the trace of the London Bullion Market—The secret story of the companies that financed the millionaire trade of illegal gold in South America*.

²⁷⁵ Fabiola Torres López (Ojo Público), *Ecuador’s dirty gold is transported to the US on commercial flights*.

²⁷⁶ *Id.*

²⁷⁷ See Global Initiative at 16.

sell the gold to processors, trading houses, or exporters who then transport the gold to refiners who purify it to the qualities required by end users.²⁷⁸ Gold from Latin America is generally sent to refineries in the United States, Switzerland or Canada.²⁷⁹

For illegal gold to be exported from Latin America, it needs certificates of origin and purchase receipts, which are generally supplied to the bigger traders by chains of *acopiadores* (consolidators), who purchase directly from the small mines or from informal gold buyers who operate in cities and in hardware stores that advance supplies to miners in exchange for repayment in gold.²⁸⁰ Illegal gold is also laundered by formal and informal processing plants, which claim the gold as their own with help from *facturadores* (intermediaries who provide fraudulent purchase receipts) or simply by exaggerating their production.²⁸¹ Each of these processes obscures the actual origins of illegally produced gold.²⁸²

Criminal organizations are increasingly using illegal gold to launder illicit proceeds as, unlike cocaine, for example, once gold is “laundered” it becomes legal and can move freely across international borders, making its way into the formal consumer market.²⁸³ There have been numerous cases in which criminal groups use illegally mined gold to launder their profits by buying up stakes in gold mines, using the bank accounts of gold companies to launder money, or using gold extracted from illegal mining areas that they control as currency.²⁸⁴

b) Gold Laundering in Ecuador

Up until October 2015, the Financial Action Task Force (“FATF”), the body that sets the global standards for anti-money laundering and combating the financing of terrorism, listed Ecuador as an uncooperative country in enforcing international standards against money laundering.²⁸⁵ In a 2010 report, the FATF estimated that approximately six to eight tons of gold were produced illegally in Ecuador each year.²⁸⁶ This gold is laundered within Ecuador, “by bribing officials, creating false records, or selling illegally produced gold to

²⁷⁸ *Id.* at 4, 16 (citation omitted).

²⁷⁹ *Id.* (based on United States, Swiss and Canadian customs data); *see also* Verité, at 3 (“Illegally mined gold is ‘laundered’ and exported, with the help of corrupt government officials, to prominent refineries in the United States, Switzerland, Italy, and the United Arab Emirates, which supply some of the biggest central banks, jewelry companies, and electronics producers in the world.”).

²⁸⁰ *See* Global Initiative at 17.

²⁸¹ *Id.*

²⁸² *Id.*

²⁸³ *Id.*; *see also* Verité, at 4 (citations omitted).

²⁸⁴ *Id.*

²⁸⁵ Global Initiative at 20 (citing Financial Action Task Force, *FATF Public Statement*, (Feb. 27, 2015)).

²⁸⁶ *Id.* at 20 (citing Financial Action Task Force, *Money Laundering / Terrorist Financing Risks and Vulnerabilities Associated with Gold*, (July 2015)).

legal gold mines who claim that the gold came from their own concessions.”²⁸⁷ Gold is also smuggled across the borders into and out of Colombia and Peru where gold sellers in these countries that do not need to have a permit to sell such gold can sell it.²⁸⁸

Increasingly, rather than gold leaving the country, gold has been flooding into Ecuador. An incident illustrating how gold from Peru is being smuggled into Ecuador took place in March 2015.²⁸⁹ Police in the Arenillas canton of the El Oro province stopped two armored vehicles coming from the Peruvian border.²⁹⁰ Within the vehicles police found ten armed private security guards, protecting 90 gold bars (ingots) valued at USD 2.5 million.²⁹¹ Although the guards were able to show the police a waybill for the gold shipment, they could not prove that the gold had been produced legally.²⁹² The lack of verification led the police to believe that the gold was mined illegally and that it was being smuggled into Ecuador as a way of “laundering” it—allowing the gold to be mixed with Ecuadorian gold and “legally” exported from Guayaquil.²⁹³ The gold bars were seized and sent to Ecuador’s Central Bank, while the guards were arrested.²⁹⁴

Illegal gold, however, has several main routes into Ecuador: the Ecuadorian police have identified the province of Esmeraldas, located on the northern border with Colombia, as another flashpoint where gold smuggling is closely linked to drug trafficking and FARC.²⁹⁵ Likewise, the Ecuadorian Defense Minister has linked arms trafficking and money laundering to the illegal gold mining industry in northern Ecuador.²⁹⁶ In 2011, an unlicensed gold mining operation was raided and shut down by the Ecuadorian army because the operation was being used to launder money for Colombian criminal groups.²⁹⁷ And, in 2013, Ecuador’s Ministry of the Interior declared a state of emergency for 90 days in the communities of San Lorenzo and Eloy Alfaro, in the Esmeraldas province, so that the

²⁸⁷ *Id.* at 20.

²⁸⁸ *See id.* (citing Financial Action Task Force, *Money Laundering / Terrorist Financing Risks and Vulnerabilities Associated with Gold*, (July 2015)).

²⁸⁹ *See id.* at 20 (citing Óscar Castilla C., Nelly Luna Amancio, Fabiola Torres Lopez, *Tracing Latin America’s Illegal Gold to the U.S.*, InSight Crime (Aug. 5, 2015)); Fabiola Torres López (Ojo Público), *Ecuador’s dirty gold is transported to the US on commercial flights*; *see also* SPDA at 200; Óscar Castilla C., et al., *Dirty Gold: Chasing the trace of the London Bullion Market—The secret story of the companies that financed the millionaire trade of illegal gold in South America*.

²⁹⁰ *Id.*

²⁹¹ *Id.*

²⁹² *Id.*

²⁹³ *Id.*

²⁹⁴ *See* Fabiola Torres López (Ojo Público), *Ecuador’s dirty gold is transported to the US on commercial flights*.

²⁹⁵ *Id.*

²⁹⁶ *See* Global Initiative at 20 (citing Andes, *It is revealed in Ecuador that illegal mining is related to money laundering and arms trafficking*, (Nov. 19, 2013)).

²⁹⁷ *Id.* at 20 (citing Hannah Stone, *Colombian Gangs Use Illegal Gold Mining in Ecuador to Launder Cash*, InSight Crime (July 19, 2012)).

Armed Forces could destroy the backhoe loaders and inputs belonging to mining communities apparently financed by the FARC.²⁹⁸ Since then, more than 70 machines have been seized and 15 locations for the purchase and sale of gold in the area have been closed.²⁹⁹ Jorge Montoya, an ARCOM coordinator, has indicated that “[t]his is a very complicated area because illegal mining there is a way of laundering the money of organized crime. There is no other explanation for extremely poor communities having dredges to produce gold.”³⁰⁰ Despite occasional enforcement efforts, gold shipments have no trouble reaching their buyers and leave the country without proper certification.³⁰¹

3. The ASM Sector in Ecuador Facilitates Gold Laundering

The commercialization of gold in Ecuador is regulated by several government entities.³⁰² The Ministry of Mines issues licenses to gold traders that meet certain requirements.³⁰³ The licenses allow the national marketing of gold (buying and selling) and require submittal of semiannual reports of purchases and sales to ARCOM.³⁰⁴ The export of gold is regulated by a special export license issued by the Central Bank of Ecuador.³⁰⁵ Finally, the Internal Revenue Service regulates taxation of the purchase and sale of gold.³⁰⁶

The main areas for the processing of ore and refining of gold are located in the towns of Portovelo and Zaruma, among others, in the province of El Oro.³⁰⁷ Processing plants in these locations process gold-bearing sands and rock from numerous mines in the south of the country, especially from the provinces of Zamora-Chinchipec, Loja and El Oro.³⁰⁸ The operation of these plants is controlled by ARCOM and the Ministry of the Environment, but miners in the area report that underreporting of the actual production from mines is common in order to evade the payment of taxes and royalties, and that production can be sold illegally both in the local market and across the border in Peru.³⁰⁹ In the towns of Portovelo and Zaruma, as well as in other towns in mining regions, and in all medium and

²⁹⁸ See Fabiola Torres López, Ojo Público, “Ecuador’s dirty gold is transported to the US on commercial flights,” Ecuador Review (Sept. 1, 2015)).

²⁹⁹ *Id.*

³⁰⁰ *Id.*

³⁰¹ *Id.*

³⁰² See, generally, Daniel Pino and Paulette Ocampo Vélez (of Coronel & Pérez), *Mining Law 2017—Ecuador*; Mining Law Reform of 2013, Art. 10 (replacing Art. 49 of the Mining Law and providing “in the case of gold from legally authorized artisanal mining, the Central Bank of Ecuador shall carry out its trading directly or through financial institutions duly authorized by the Central Bank”).

³⁰³ SPDA at 200.

³⁰⁴ *Id.*

³⁰⁵ *Id.*

³⁰⁶ *Id.*

³⁰⁷ *Id.*

³⁰⁸ *Id.*

³⁰⁹ *Id.*

large cities in Ecuador, there are countless jewelry businesses, pawnshops or actual gold-trading businesses that buy gold.³¹⁰ There are few statistics on how much gold these businesses buy and sell, or in what form the gold is bought and sold.³¹¹ The Internal Revenue Service, however, is attempting to require these businesses to become registered, to enable the Service to collect tax revenue.³¹²

Statistics show that since passage of Ecuador’s new Mining Law in 2009, intended to formalize artisanal and small-scale miners, there has been an increase in illegally produced gold in the country. Approximately 70% of the gold produced in Ecuador in recent years—approximately USD 800 million of gold—had an illegal origin.³¹³ It appears that Ecuador’s new Mining Law may have actually facilitated the increase in illegally produced gold.

Recent testimony from geologists and gold exporters sheds some light on the reasons for the increase.³¹⁴ At the start of Ecuador’s mining reform, in 2010, there were very few gold exporters and Ecuador’s total gold exports were limited.³¹⁵ Around the same time, Peru exercised rigorous control over gold traders in the country to prevent trafficking of the metal, reducing 30 traders down to 3 traders.³¹⁶ As a result, illegal gold from Peru began finding its way to Ecuador and Bolivia.³¹⁷

The main catalyst, however, according to the gold exporters, was Ecuador’s mining reform.³¹⁸ Prior to the reform, there was legal and illegal mining in Ecuador, which were differentiated by whether the operation was paying royalties or taxes, or not. The advent of the artisanal mining scheme, under which artisanal miners would not have any obligation to pay patents or royalties or submit production reports, created a loophole where illegal miners could “legitimize” their operations without cost.³¹⁹ A “powerful” sector (and historically “illegal”) of the mining industry took advantage of the regularization process, and through friends, relatives, etc., they obtained artisanal mining concessions.³²⁰ These “artisanal miners” could position their concessions of four hectares for underground mines or six hectares for open pit mines in the best part of their deposits

³¹⁰ *Id.*

³¹¹ *Id.*

³¹² *Id.*

³¹³ See Óscar Castilla C., et al., *Dirty Gold: Chasing the trace of the London Bullion Market—The secret story of the companies that financed the millionaire trade of illegal gold in South America*; see also Plan V, *The “Miracle” of Dirty Gold and the Legal Window*, Plan V (July 22, 2016), <http://www.planv.com.ec/investigacion/investigacion/el-milagro-del-oro-sucio-y-la-ventana-legal> (Mar. 18, 2017).

³¹⁴ See Plan V, *The “Miracle” of Dirty Gold and the Legal Window*.

³¹⁵ *Id.*

³¹⁶ *Id.*

³¹⁷ *Id.*

³¹⁸ *Id.*

³¹⁹ *Id.*

³²⁰ *Id.*

or funnel production from other deposits through their artisanal mine.³²¹ Likewise, gold from Peru could be said to have come from an artisanal mine, because such mines lack documentation of production.³²² Miners could produce, or claim to produce, gold from several dollars to several hundred million dollars because there was no limit in the law on the sale of gold from artisanal concessions and the “artisanal miners” had no obligation to pay royalties or taxes or submit production reports, or otherwise provide details of their alleged production.³²³

The gold exporters raised a number of questions concerning the State’s involvement in the illegal mining scheme. First, why did the State pass new reforms to the Mining Law reaffirming the artisanal mining scheme that had triggered a huge increase in gold exports, signaling illegal gold trafficking and laundering?³²⁴ Second, with the huge increase in gold exports, and obvious local spikes in gold “production” in certain areas—without any of the precursors for increased production, such as an increase in mercury or cyanide—why did the State not audit the processing plants reporting such production (which is required by ARCOM)?³²⁵ The gold exporters indicate that the State could have conducted audits and asked for production information, but that it was complicit in the scheme.³²⁶

Finally, after years of skyrocketing gold exports and numerous news outlets crying foul, the State, in June of 2016, through its anti-narcotics and anti-money laundering agencies, took action against several of the fast-growing gold exporters.³²⁷ The State indicated that “[t]hese private entities operating in Quito and Guayaquil used gold smuggling and tax evasion to make a profit. The companies covered the illegality of their commercialization with fraudulent sales notes of gold from approximately 230 people registered as RISE taxpayers, as their suppliers.”³²⁸ According to ARCOM, in the period 2012-2014, there was a difference in the value of gold exported and the value of gold produced of USD 940,587,692—the origin of such gold is unknown, and the State has not recouped proper taxes on such amount.³²⁹ The State indicated that they were investigating whether the companies were responsible for taking illegal RISE information, or whether the RISE taxpayers were also part of the organization.³³⁰

³²¹ *Id.*

³²² *Id.*

³²³ *Id.*

³²⁴ *Id.*

³²⁵ *Id.*

³²⁶ *Id.*

³²⁷ See Fiscalía General del Estado Ecuador, *The Route of Gold Commercialized by Spartan and Clearprocess Reports Alleged Anomalies* (Aug. 13, 2016), <http://www.fiscalia.gob.ec/index.php/sala-de-prensa/441-la-ruta-del-oro-comercializado-por-spartan-y-clearprocess-registra-presuntas-anomal%C3%ADas> (Mar. 18, 2017).

³²⁸ Plan V, *The “Miracle” of Dirty Gold and the Legal Window*.

³²⁹ *Id.*

³³⁰ *Id.*

The gold exporters allegedly bought minerals from persons subject to the Simplified Ecuadorian Tax Regime (“RISE”).³³¹ The RISE is a special tax regime for small businessmen and taxpayers whose sales do not exceed USD 60,000 per year.³³² Based on the number of merchants (224) and the total revenue collected by these companies (USD 750 million), each of these persons, on average, reported vouchers for a sum of USD 850,000 per year.³³³ During their investigation, the Internal Revenue Service (“SRI”) found a number of anomalies, such as suppliers who claimed to have no business relationship with the two companies and evidence that the companies fabricated or tampered with invoices.³³⁴ Cristina Silva, Executive Director of ARCOM, stated that control processes were initiated in order to verify the legal original of the mineral with “[t]he objective is to determine where the gold comes from, where it goes and confirm that they have the permits.”³³⁵

4. Opportunities to Fix the Legal Framework for ASM to Reduce Illegal Mining and Gold Laundering

As the discussion above illustrates, Ecuador needs to establish a system to enhance the traceability of illegally sourced gold from artisanal and small-scale mining. The commercialization process is one of the weakest parts of Ecuador’s ASM regime because it facilitates the commercialization of illegally mined gold. Gold produced from artisanal and small-scale operations is difficult to trace, both because of the informal nature in which many miners continue to operate, but also because there is little reporting of the collection and purchase of gold at the local levels in Ecuador. Once miners market gold to local traders in the various mining provinces, the gold is difficult to track. These local traders are a weak link in the system. In order to effectively trace the origin of gold in Ecuador, this first point of sale needs to be with an authorized and registered trader, and production and sales records must be required from all gold-producers, including artisanal miners.

a) Implementation of Ecuador’s Existing Controls on the Commercialization of Gold

The Central Bank of Ecuador is in charge of the commercialization of gold produced by ASM, either directly or indirectly through other financial entities that it endorses.³³⁶

³³¹ See Fiscalía General del Estado Ecuador, *The Route of Gold Commercialized by Spartan and Clearprocess Reports Alleged Anomalies*.

³³² *Id.*

³³³ *Id.*

³³⁴ *Id.*

³³⁵ *Id.*

³³⁶ See Organic Monetary and Finance Code, Art. 36, 33. (Sept. 5, 2014), <http://www.politicaeconomica.gob.ec/wp-content/uploads/downloads/2015/04/CODIGO-ORGANICO-MONETARIO-Y-FINANCIERO.pdf> (visited Mar. 20, 2017) (one of the functions of the Central Bank is to “[c]ommercialize gold from artisanal and small-scale mining, either directly or through public and private economic agents, which must be previously authorized by the Central Bank of Ecuador”); see also Daniel Pino and Paulette Ocampo Vélez (of Coronel & Pérez),

Article 135 of Ecuador’s Monetary and Finance Code (2014) states “[t]he Board of the Central Bank of Ecuador will regulate where and how the Central Bank can intervene in the buying, selling or trading of gold.”³³⁷ The Mining Law Reform of 2013 tasked the Central Bank of Ecuador with issuing regulations “necessary for the commercialization of gold, especially for those required to offer mine owners the logistical and operational facilities required for said commercialization.”³³⁸ The Mining Law Reform of 2013 also stated that “[t]he purchase of gold by the Central Bank of Ecuador directly or through the financial institutions authorized by the Bank, shall be taxed with zero value added tax.”³³⁹

The idea behind the reform was to help control the gold marketing processes affecting artisanal and small-scale miners.³⁴⁰ The Central Bank would acquire the gold produced by artisanal and small-scale miners and ensure the fairness, legality and safety of the transaction.³⁴¹ While the law establishes this general framework for direct marketing, it does not appear that the Central Bank has established the official operating mechanisms by which it will purchase gold from artisanal and small-scale miners.³⁴²

As a result, miners are still selling to local middlemen.³⁴³ These sales are made in a variety of locations to both licensed and unlicensed (illegal) traders, with differing measuring and testing systems.³⁴⁴ Payments are usually made in cash, although sometimes delayed, and the price of gold is generally set according to the price of gold on the international market, except that a discount rate of approximately 7-8% is applied as a commission for the purchase.³⁴⁵ Legitimate traders must document the purchase and pay a 12% value added tax (VAT), which is usually passed on to the miner, resulting in further discounting of the purchase price.³⁴⁶

Mining Law 2017—Ecuador; see also Mining Law Reform of 2013, Art. 10 (replacing Art. 49 of the Mining Law and providing “in the case of gold from legally authorized artisanal mining, the Central Bank of Ecuador shall carry out its trading directly or through financial institutions duly authorized by the Central Bank”); SPDA at 201 (discussing Government initiative for the Central Bank of Ecuador to purchase gold by artisanal and small-scale miners).

³³⁷ *See* SPDA at 201 (citing Art. 47 of the Monetary Code (2014), which appears incorrect); *see also* Organic Monetary and Finance Code, Art. 135 (correct citation).

³³⁸ *See* Mining Law Reform of 2013, Second Transitory Provision.

³³⁹ *Id.*, Art. 28 (replacing Art. 149 of the Mining Law); *see also* SPDA at 201 (discussing provision).

³⁴⁰ SPDA at 201.

³⁴¹ *Id.*

³⁴² *Id.*

³⁴³ *Id.* at 201-02.

³⁴⁴ *Id.*

³⁴⁵ *Id.* at 201.

³⁴⁶ *Id.*

The Central Bank's purchasing program, if and when implemented, may have significant benefits for both the State and artisanal and small-scale miners.³⁴⁷ First, the miners would be guaranteed their gold would be fairly measured and tested, and paid for according to the international market price.³⁴⁸ In addition, the miners would not be subject to commission fees or the pass-through of the 12% VAT, thus earning more for the gold they sell to the Central Bank.³⁴⁹ It is important to educate miners on this significant incentive and to attempt to eliminate distrust, which is common when government organizations are involved in Ecuador. Of course, the miners would also enjoy compliance with the law. From the State's perspective, direct marketing would help improve control over gold marketing and the country would be better able to properly record and trace gold production.³⁵⁰

b) Implementation of International Standards for the Commercialization of Gold

In an attempt to prevent illegally produced gold from making its way up the supply chain, there have been numerous initiatives to certify that gold has been sourced responsibly. In Latin America, the two most prevalent certification schemes are those of The Alliance for Responsible Mining ("ARM") and Fairtrade International.³⁵¹ These schemes are primarily implemented in Peru, Bolivia and Colombia.³⁵²

The ARM is a non-profit organization, which developed the world's first certification system for responsible ASM, referred to as the "Fairmined Standard."³⁵³ The standard enhances the traceability of sourced gold and assures the buyer that the gold was produced in a socially and environmentally responsible manner.³⁵⁴

The Fairmined Standard requires all actors in the supply chain to be licensed and certified and also includes a business-to-business model for sustainability reporting.³⁵⁵ To date, the standard has been implemented in Peru, Colombia and Bolivia. In the case of Peru, nongovernmental organizations have reported that there is a great deal of overlap between the new government requirements and the Fairmined Standard and, as a result, miners who comply with the government requirements may also meet the Fairmined Standard and be able to receive a premium on the certified gold.³⁵⁶

³⁴⁷ *Id.* at 202.

³⁴⁸ *Id.*

³⁴⁹ *Id.*

³⁵⁰ *Id.*

³⁵¹ Global Initiative at 52.

³⁵² *Id.*

³⁵³ *Id.*

³⁵⁴ *Id.*

³⁵⁵ *Id.* (citing Alliance for Responsible Mining, *Fairmined Standard for Gold from Artisanal and Small-scale Mining, including Associated Precious Metals, Version 2.0* (Apr. 2014)).

³⁵⁶ *Id.* (citing Verité, *Risk Analysis of indicators of Forced Labor and Human Trafficking in Illegal Gold Mining in Peru*, Verité (2013)).

Fairtrade International, formerly associated with ARM, developed a certification scheme that ensures that “Fairtrade” gold has been extracted, processed and traded in a fair and responsible manner.³⁵⁷ In addition to requirements for improved working conditions and responsible use of chemicals, the scheme focuses on strengthened miners’ organizations to enable miners to form groups that have better bargaining power with traders in order for the miners to get fairer returns for their gold and to gain greater control over the jewelry supply chain.³⁵⁸ Recently, Fairtrade gold has been introduced at select jewelry companies and as an investment product at a bank in Switzerland.³⁵⁹

Certification schemes, such as Fairmined and Fairtrade are a great models for responsible gold mining frameworks, but to address the widespread problems of illegally produced gold in Ecuador, the Government of Ecuador should follow in the path of Peru and simply enact and enforce requirements for the proper collection and marketing of gold in the country (these requirements, could of course be modeled after the Fairmined and/or Fairtrade standards). This would avoid piecemeal compliance and provide a mechanism for the State to comprehensively regulate the gold trade in Ecuador.

B. The Legal Framework Lacks Environmental Planning and Review

1. The GALO Mine Case Study

The State’s permitting and enforcement actions at the artisanal “GALO” mine in the amazon region of Ecuador illustrate a number of shortcomings with the current artisanal mining regime in the country. The mine is an alluvial gold mine of six hectares permitted under the special regime for artisanal mining.³⁶⁰ The mine is named for the holder of the mining right, Galo Leonardo Shiguango Huatatoca, and is located on the banks of the Río Jatunyacu outside of the city of Tena in the Napo province.³⁶¹

Tena is billed as “the whitewater rafting capital of Ecuador” and the Río Jatunyacu is one of Ecuador’s premier kayaking and rafting destinations.³⁶² Ecuador’s Ministry of Tourism elaborates: during a tour of the Río Jatunyacu “you can observe all the scenery and the exuberance of the forest, observing land birds, mountains and enjoying the rapids of the river formed by the cold waters that are born from Los Llanganates National Park, and during the tour you can also observe the people of the Kichwa culture in their daily

³⁵⁷ *Id.* (citing Fairtrade International: Gold).

³⁵⁸ *Id.*

³⁵⁹ *Id.* (citing Max Havelaar, *Fairtrade-Gold new als Goldbarren bie der Zürcher Kantonalbank erhältlich*, Fairtrade (Nov. 2, 2015)).

³⁶⁰ ARCOM, Cadastro Minero, Code: 1090207, GALO, http://geo.controlminero.gob.ec:1026/geo_visor/ (visited Mar. 20, 2017) (searching ARCOM’s Cadastro Minero site for information on the GALO mine, Code: 1090207).

³⁶¹ *Id.*

³⁶² *See, e.g.*, Michael Grosberg and Luke Waterson, *Ecuador & the Galapagos Islands*, Lonely Planet (2015) (“Top Rafting Spots—Tena—This is Ecuador’s de facto white-water capital”).

activities in the communities along the river.”³⁶³ Ecuador’s Ministry of Tourism once tricked a group of unsuspecting tourists who thought they were flying to Costa Rica—in an effort to compare Ecuador to Costa Rica and sell its natural wonders—by flying them to Tena and pretending the area was in Costa Rica.³⁶⁴ The area has significant natural beauty.

Currently, however, a trip down the Río Jatunyacu may have more ready comparisons to an industrial park than a place resembling the natural wonder of Costa Rica. The Ministry-of-Tourism-recommended raft trip down the Río Jatunyacu now consists of dodging excavators and dump trucks in the middle of the river from in-stream sand and gravel mining operation; listening to the motors of the 25-100+ dredges (dragas) (depending on the day) mining for gold in the river; viewing the alluvial terraces lining the river being gutted by ASM operations; and paddling through waters running brown with sediment and mine wastewater. The GALO mine is one of the artisanal mining operations exploiting the alluvial terrace along the river.

a) *Permitting of the GALO Mine*

Mr. Galo was granted permission by ARCOM to conduct artisanal mining operations at the GALO mine on March 29, 2016, although the process followed in terms of the documents and information submitted is unclear.³⁶⁵ Mr. Galo also applied for and received a certificate from the National Water Secretariat to appropriate water for operations from an area near the mine.³⁶⁶ And, finally, Mr. Galo completed the online “environmental registration” with the Ministry of the Environment for his artisanal mining operation, specifying the location of the operation, the types and capacities of the equipment and machinery to be used, and other details of the operation.³⁶⁷ The environmental registration was approved soon thereafter on April 21, 2016, by the Ministry of the

³⁶³ See Ministry of Tourism, *Adventure Ecuador—Rafting*, https://ecuador.travel/wp-content/uploads/2015/10/guia_rafting.pdf (visited Mar. 16, 2017).

³⁶⁴ See Becky Pemberton, *Ecuador Fools Travellers into Thinking they are in Costa Rica as part of Elaborate Stunt to Promote its Tourism Offering...and Sparks Diplomatic Incident*, MailOnline (Apr. 16, 2015), http://www.dailymail.co.uk/travel/travel_news/article-3039916/Ecuador-fools-travellers-thinking-Costa-Rica-elaborate-stunt-lot-offer-tourists-sparks-diplomatic-incident.html (visited Mar. 16, 2017).

³⁶⁵ See ARCOM, Cadastro Minero, Code: 1090207, GALO, <http://geo.controlminero.gob.ec:1026/geovisor/> (visited Mar. 20, 2017) (searching ARCOM’s Cadastro Minero site for information on the GALO mine, Code: 1090207); ARCOM, Resolution No. MM-CZM-N-2016-0144-RM, *Permission for Work in the Special Regime for Artisanal Mining* (Apr. 18, 2016) (on file with ARCOM-Tena).

³⁶⁶ National Water Secretariat, Napo Hydrographic Demarcation, Center of Attention to the Tena Citizen, Process No. 869-Cn-2016 (Apr. 14, 2017) (on file with the National Water Secretariat-Tena).

³⁶⁷ Ministry of the Environment, *Environmental Registration for the Artisanal Mining Sector*, MAE-RA-2016-244867 (Apr. 22, 2016) (on file with the Ministry of the Environment-Napo) (hereinafter “Environmental Registration”).

Environment.³⁶⁸ Notably, the registration states, “[t]here are no areas of scenic or touristic value in the area of influence” of the mine.³⁶⁹ Operations at the GALO mine started sometime before or just after receipt of the environmental registration.

b) Inspections of the GALO Mine

On May 1, 2016, passing river runners noticed that the primary forest had been cut down at the location of the GALO mine and that the banks of the Río Jatunyacu were being mined with an excavator (outside of the permitted mine area). The mine was also discharging sediment and mine wastewater into the river. Upon this discovery, the river runners notified a local nonprofit dedicated to protecting rivers in the area. The nonprofit immediately contacted local representatives of ARCOM, the Ministry of the Environment and the National Water Secretariat (“SENAGUA”) on May 2-3, 2016, to request an inspection of the new mining activity and to obtain any available information on the mine.

(1) Noncompliance from the First Inspections

ARCOM conducted an inspection of the GALO mine on May 5, 2016.³⁷⁰ The day of the inspection, however, no one was working (allegedly because the excavator was undergoing maintenance that day).³⁷¹ ARCOM noted the equipment onsite, including the excavator, but the mine representative could not provide a registration for the excavator.³⁷² ARCOM also reported: there were no sedimentation or clarification pools; the personal protection equipment at the mine was inadequate; there was no evidence of waste management; the management of combustibles was deficient; there was inadequate signage; and there were issues with the workers’ camp.³⁷³

As a result of the inspection, the GALO mine was provided 10 days from the date of the technical report to correct the deficiencies noted in the report, including, but not limited to: adding signage to the mine to comply with the law; fixing the fuel storage area; adding a first aid kit at the mine; properly registering its workers with the State; and providing a registration for the excavator.³⁷⁴

Unaware of ARCOM’s recent inspection, and taking matters into its own hands, the nonprofit conducted its own inspection of the GALO mine on May 7, 2016. The inspection found that mining activities were not in compliance with applicable environmental and mining regulations. First, there were no permits or paperwork available at the site, nor any

³⁶⁸ See Ministry of the Environment, *Resolution No. 208419* (Apr. 21, 2016) (on file with the Ministry of the Environment-Napo).

³⁶⁹ Environmental Registration at 6.

³⁷⁰ See ARCOM, *Technical Report No. ARCOM-T-CR-CMT-2016-0163-ME* (May 20, 2016) (May 5, 2016—inspection date) (on file with ARCOM-Tena).

³⁷¹ *Id.* at 2.

³⁷² *Id.*

³⁷³ *Id.* at 2-3.

³⁷⁴ *Id.* at 5.

signage.³⁷⁵ The concession area was not marked, as required, but mining activity clearly exceeded the concession area as it had been conducted directly on the shores and in the bed of the Río Jatunyacu—which were outside of the mapped concession area.³⁷⁶ The opening of a new access road and the installation of a workers’ camp away from the concession area also appeared improper as they too were well outside the mapped concession area.³⁷⁷ The mining activity involved an excavator rated at 98 HP, over the legal limit for an artisanal mine.³⁷⁸ Further, the water source for the mine appeared to be the Río Jatunyacu, which was not the permitted water source.³⁷⁹ SENAGUA had permitted water for mine use from a location away from the Río Jatunyacu that was not being used by the mine.³⁸⁰ Wastewater from mining activities was being discharged directly into the Río Jatunyacu, without any treatment and/or use of a sedimentation and/or clarification pool.³⁸¹ And, there was no sort of water recycling and/or recirculation system. In addition, the workers were informal and working without any personal protective equipment, and there were no formal sites or systems for fuel storage or waste management.³⁸² These deficiencies were noted on top of questions raised by the nonprofit as to whether the site should have been permitted in the first place considering its location near Los Llanganates National Park and along the Río Jatunyacu, where the mine negatively affects recreation and tourist activities by destroying the landscape; producing noise; working with machinery in and along the river; and discharging wastewater into the river, among other nuisances.³⁸³

These deficiencies were detailed in an extensive report prepared by the nonprofit, complete with maps and color photographs, and reported to ARCOM and SENAGUA, who were requested to conduct an inspection of the GALO mine.³⁸⁴ Also, the nonprofit again requested information from ARCOM, the Ministry of the Environment and SENAGUA concerning the GALO mine.³⁸⁵

³⁷⁵ See Fundación Río Napo, *Report: 1st Inspection of the Artisanal Mining Area “GALO”* at 4-5 (May 5, 2017—inspection date) (on file with Fundación Río Napo); see also Letter from Fundación Río Napo to ARCOM (May 17, 2016) (on file with ARCOM-Tena) (detailing deficiencies and requesting inspection of same).

³⁷⁶ *Id.*

³⁷⁷ *Id.*

³⁷⁸ *Id.*

³⁷⁹ *Id.*

³⁸⁰ *Id.*

³⁸¹ *Id.*

³⁸² *Id.*

³⁸³ *Id.*

³⁸⁴ See Letter from Fundación Río Napo to ARCOM (May 17, 2016) (on file with ARCOM-Tena); Letter from Fundación Río Napo to SENAGUA (May 17, 2016) (on file with SENAGUA-Tena).

³⁸⁵ See *id.*; Letter from Fundación Río Napo to Ministry of the Environment (May 16, 2016) (on file with Ministry of the Environment-Napo).

On June 1, 2016, the Ministry of the Environment also conducted an inspection of the GALO mine, which resulted in a technical report issued June 22, 2016.³⁸⁶ Similar to the inspection by ARCOM, the report found: there were no sedimentation and clarification pools; the fuel storage was inadequate; the waste disposal was inadequate; there was no spill contingency kit; there was no emergency medical kit; and there was inadequate signage.³⁸⁷ The report also found that the opening of the mine was performed incorrectly: the vegetal layer and vegetation had not been properly removed and stored, and likewise soil and clay had not been properly removed and stored.³⁸⁸ Due to the noncompliance identified in the inspection and the mine's failure to comply with its environmental registration, the mine was ordered to submit an Action Plan, subject to approval by the Ministry, within 20 days of receipt of the technical report.³⁸⁹ The report also presented a map indicating that the GALO mine is located within State Patrimonial Forest, but no conclusions or recommendations were made concerning such location.³⁹⁰

(2) Noncompliance from the Second Inspections

After a number of meetings with representatives of ARCOM, the Ministry of Mining, and the Ministry of the Environment throughout the rest of June 2016 and through early July, the nonprofit spurred the Ministries to conduct another inspection of the GALO mine on July 8, 2016.³⁹¹ ARCOM's technical report from this inspection indicated that the mine needed to: improve demarcation of the concession; provide workers with personal protective equipment such as steel-toed boots, reflective vests and gloves; place the required signs at the mine, including signs concerning safety issues; improve waste disposal; and construct sedimentation and clarification ponds in an appropriate manner to allow for reuse of water after washing the alluvial deposits.³⁹² ARCOM also stated that the GALO mine should not exploit the margin of the river and should avoid clearing vegetation along the edge of the river.³⁹³ Finally, ARCOM indicated that the GALO mine must keep operations within the concession area and avoid placing waste dumps outside the concession.³⁹⁴

³⁸⁶ See Ministry of the Environment, *Technical Report No. 185-2016 UCA-DPAN-MAE* (June 22, 2016) (June 1, 2016—inspection date) (on file with the Ministry of the Environment-Napo).

³⁸⁷ *Id.* at 5.

³⁸⁸ *Id.* at 5-6.

³⁸⁹ *Id.*

³⁹⁰ *Id.* at 2 (presenting map).

³⁹¹ See Fundación Río Napo, *Report: Inspection of the Artisanal Mining Area "GALO"* (July 8, 2017—inspection date) (on file with Fundación Río Napo); ARCOM, *Technical Report No. ARCOM-T-CR-STCMT-2016-0220-IT* (Aug. 4, 2016) (July 8, 2016—inspection date) (on file with ARCOM-Tena)

³⁹² See ARCOM, *Technical Report No. ARCOM-T-CR-STCMT-2016-0220-IT*, at 4-5 (Aug. 4, 2016) (July 8, 2016—inspection date) (on file with ARCOM-Tena).

³⁹³ *Id.* at 5.

³⁹⁴ *Id.*

The Ministry of the Environment’s technical report from this inspection reported additional deficiencies such as inadequate fuel storage, absence of a spill contingency kit, and again, the Ministry noted that the mine had not been opened properly and that vegetation and soils were not properly stored.³⁹⁵ The report also verified that mining activities were carried on outside the concession area.³⁹⁶ Finally, the report indicated that the road access constructed to the GALO mine had not been detailed in the mine’s environmental registration.³⁹⁷ As a result of the inspection, Mr. Galo was ordered to provide an updated environmental registration, subject to approval by the Ministry, as well as present an Action Plan within 20 days of receipt of the technical report to correct the instances of noncompliance both within and outside the concession area.³⁹⁸

The nonprofit also prepared a report from the inspection, noting the issues highlighted by ARCOM and the Ministry of the Environment, but also indicating the impacts to the Río Jatunyacu, including: opening access to the river; depositing debris in the river; dumping wastewater directly into the river; appropriating water from the river; and constructing a road within the 15-meter permanent protection zone of the river.³⁹⁹ The report also indicated that the mine pit depth exceeded that allowable by law, leading to risk of landslides, which is a significant safety hazard for workers who work down in the pit.⁴⁰⁰ The report contained a long list of recommendations, including the recommendation that ARCOM and the Ministry of the Environment suspend mining activities at the GALO mine until the mine is able to meet the requirements of the applicable environmental and mining regulations.⁴⁰¹ The nonprofit also followed up on the inspection with SENAGUA, requesting an inspection of the GALO mine’s water appropriation and discharge.⁴⁰² And, the nonprofit sent a request to the Ministry of the Environment to conduct additional inspections of the GALO mine to determine compliance with environmental regulations, and to provide the nonprofit with information concerning their past two inspections.⁴⁰³

c) Continued Noncompliance at the GALO Mine

On September 1, 2017, the Ministry of the Environment sent a letter to Mr. Galo specifying that two inspections of the mine site had been conducted and presenting a list of

³⁹⁵ See Ministry of the Environment, *Technical Report No. 238- 2016-UCA-DPAN-MAE*, at 3 (Aug. 15, 2016) (July 8, 2016—inspection date) (on file with Ministry of the Environment-Napo).

³⁹⁶ *Id.*

³⁹⁷ *Id.*

³⁹⁸ *Id.* at 4.

³⁹⁹ See Fundación Río Napo, *Report: Inspection of the Artisanal Mining Area “GALO,”* at 3 (July 8, 2017—inspection date) (on file with Fundación Río Napo);

⁴⁰⁰ *Id.*

⁴⁰¹ *Id.* at 3-4.

⁴⁰² See Letter from Fundación Río Napo to SENAGUA (Aug. 10, 2016) (on file with SENAGUA-Tena).

⁴⁰³ See Letter from Fundación Río Napo to Ministry of the Environment (Sept. 5, 2017) (on file with the Ministry of the Environment-Napo).

the mine's numerous failures to comply with the applicable environmental regulations.⁴⁰⁴ Mr. Galo was again ordered to update the environmental registration for the mine and to present an Action Plan to the Ministry within 20 days of receipt of the letter indicating how the noncompliance issues would be remedied.⁴⁰⁵

Again, on September 21, 2016, the Ministry of the Environment conducted an inspection of the GALO mine, providing another technical report.⁴⁰⁶ This report again observed that the mine was failing to comply with the applicable environmental regulations, the environmental registration for the mine, as well as the previous two technical reports provided to the mine in June and August, respectively.⁴⁰⁷ Further, the report detailed the mine's location within State Patrimonial Forest and explained that such location violated a Ministerial Agreement, as mines were not allowed to be located in State Patrimonial Forest without prior approval for such location.⁴⁰⁸ The report also recommended that the legal unit of the Ministry of the Environment be notified of the noncompliance in order to initiate proceedings to suspend activities at the GALO mine.⁴⁰⁹

(1) GALO Mine Increases Production

Meanwhile, as detailed in a report from the nonprofit concerning an October 3, 2016 inspection, mining activities continued as before at the GALO mine, with the usual deficiencies, except that the mine brought two excavators on site—one in operation and one in maintenance at the time of the nonprofit's inspection.⁴¹⁰ The excavator in operation was a Volvo EC130 according to the model number on the outside of the excavator.⁴¹¹ According to Volvo's website, the EC130 has a rated output of 103 HP.⁴¹² The plaque on the excavator that indicates the PIN number and other information for the machine, however, stated that the excavator was a Volvo EC210.⁴¹³ According to Volvo's website, the EC210

⁴⁰⁴ See Letter from Ministry of Mining to Mr. Galo Leonardo Shiguango Huatatoca, at 1 (Sept. 1, 2016) (on file with the Ministry of Mining-Tena).

⁴⁰⁵ *Id.* at 2.

⁴⁰⁶ See Ministry of the Environment, *Technical Report No. 294- 2016-UCA-DPAN-MAE* (Sept. 28, 2016) (Sept. 21, 2016—date of inspection) (on file with the Ministry of the Environment-Napo).

⁴⁰⁷ *Id.* at 7.

⁴⁰⁸ *Id.* at 8 (discussing the violation of Art. 9 of Ministerial Agreement 080 of the Reformed Environmental Regulations for Mining Activities).

⁴⁰⁹ *Id.*

⁴¹⁰ See Fundación Río Napo, *Report: Inspection of the Artisanal Mining Area "GALO"* (Oct. 3, 2016—inspection date) (on file with Fundación Río Napo).

⁴¹¹ *Id.* at 12-13.

⁴¹² *Id.*; Volvo, EC130, <https://www.volvoce.com/global/en/product-archive/crawler-excavators/kerman-ec-series/ec130/> (visited Mar. 19, 2017) (indicating horsepower of Volvo EC130 model excavator).

⁴¹³ See Fundación Río Napo, *Report: Inspection of the Artisanal Mining Area "GALO,"* at 12-13 (Oct. 3, 2016—inspection date).

has a rated output of 160 HP.⁴¹⁴ Thus, it appears that someone cleverly changed the model number on the outside of the excavator to trick authorities, although neither model was in compliance with the regulations for artisanal mining activities, which only allow excavators rated up to 90 HP.⁴¹⁵

The nonprofit's inspection was conducted with representatives of SENAGUA and special attention was paid to the source of the GALO mine's water, as well as the area of discharge for the mine's wastewater.⁴¹⁶ Both the source of the water and the area of discharge were determined to be the Río Jatunyacu.⁴¹⁷ The inspection also noted a number of local men and women panning for gold in the mine pit, directly below the dangerous and noncompliant pit walls.⁴¹⁸

(2) GALO Mine Submits Insufficient Action Plan

For the first time on September 30, 2016, Mr. Galo responded to the Ministry of the Environment's technical reports, requests for updates to the mine's environmental registration and requests for the development of Action Plans.⁴¹⁹ The response provided an Action Plan in response to the Ministry of the Environment's letter of September 1, 2016.⁴²⁰ The Ministry of the Environment provided its review of the proposed Action Plan in a technical report dated October 17, 2016.⁴²¹ In short, the technical report concluded that the proposed Action Plan was deficient and would not be approved.⁴²² Still, Mr. Galo was given another 20 days after notice to correct the observations detailed in the technical report.⁴²³ Notice was provided to Mr. Galo on October 20, 2016, noting the long history of

⁴¹⁴ Volvo, EC210, <https://www.volvoce.com/-/media/volvoce/global/global-site/product-archive/documents/07-crawler-excavators/04-volvo-b-prime-series/v-ec210/v-ec210-213-1617-0009.pdf?v=QCEyPw> (visited Mar. 19, 2017) (indicating horsepower of Volvo EC210 excavator).

⁴¹⁵ See ARCOM, *Instructions for the Characterization of Machines and Equipment with Limited Capacities of Load and Production for Artisanal Mining*, Resolution No. 001-INS-DIR-ARCOM-2013, CONV 06- ACT 03 (Oct. 8, 2013), <http://www.controlminero.gob.ec/wp-content/uploads/downloads/2016/08/Instructivo-para-Characterización-de-Maquinarias-y-Equipos-con-Capacidades-Limitadas-de-Carga-y-Producción-para-la-Miner%C3%ADa-Artesanal.pdf> (visited Mar. 16, 2017).

⁴¹⁶ See Fundación Río Napo, *Report: Inspection of the Artisanal Mining Area "GALO,"* at 2, 5-7 (Oct. 3, 2016—inspection date).

⁴¹⁷ *Id.* at 5-7.

⁴¹⁸ *Id.* at 12, 16 (providing picture of men and woman panning for gold below pit walls).

⁴¹⁹ See Letter from Mr. Galo Leonardo Shiguango Huatatoca to Ministry of the Environment (Sept. 30, 2016) (providing Action Plan) (on file with the Ministry of the Environment-Napo).

⁴²⁰ *Id.*

⁴²¹ See Ministry of the Environment, *Technical Report No. 324- 2016-UCA-DPAN-MAE* (Oct. 17, 2016) (on file with the Ministry of the Environment-Napo).

⁴²² *Id.* at 2.

⁴²³ *Id.*

compliance issues and explaining that measures such as “agreement with owners of lands adjacent to the concession area, for temporary disposal” of mine tailings, were not proper corrective measures.⁴²⁴ The Ministry of the Environment specifically explained what Mr. Galo needed to do to correct the compliance issues.⁴²⁵

(3) GALO Mine Determined to be in State Patrimonial Forest

Not seeing any enforcement actions against the mine for continued noncompliance, the nonprofit took a different approach and notified the Ministry of the Environment about the issue concerning the GALO mine’s location within State Patrimonial Forest.⁴²⁶ The nonprofit referenced the “Certificate of Intersection” generated by the Ministry showing the improper location.⁴²⁷ This appears to have spurred Ecuador’s National Forestry Director within the Ministry of the Environment to request information concerning the mine’s compliance with the laws protecting State Patrimonial Forest.⁴²⁸ After receiving information concerning the mine’s compliance, the National Forestry Director responded to the Ministry of the Environment indicating that Article 2 of Ministerial Agreement 69 of the Reformed Environmental Regulations for Mining Activities (“RAAM”) “establishes that for any mining activity that has an intersection with Protected Forests and Vegetation or the State Patrimonial Forest, the holder of mining rights must request an Environmental Viability Certificate from the National Forestry Department . . . which is a prerequisite for the environmental licensing process.”⁴²⁹

⁴²⁴ See Letter from Ministry of Mining to Mr. Galo Leonardo Shiguango Huatatoca, at 2 (Oct. 20, 2016) (on file with the Ministry of the Environment-Napo).

⁴²⁵ *Id.*

⁴²⁶ See Letter from Fundación Río Napo to Ministry of the Environment (Oct. 21, 2016) (on file with the Ministry of the Environment-Napo); see also E-mail from Fundación Río Napo to Ministry of the Environment (Oct. 25, 2016) (on file with the Ministry of the Environment-Napo).

⁴²⁷ *Id.*

⁴²⁸ See Memorandum No. MAE-CGZ2-DPAN-2016-1498 from the Ministry of the Environment to the National Forestry Director (Oct. 28, 2016) (on file with the Ministry of the Environment).

⁴²⁹ See Memorandum No. MAE-DNF-2016-5123 from the National Forestry Director to the Ministry of the Environment (Nov. 12, 2016) (on file with the Ministry of the Environment); see also Ministry of the Environment, *Agreement No. 069. Reform of the Environmental Regulations for Mining Activities (RAAM)*, Art. 2 (June 10, 2016), <https://vlex.ec/vid/reformese-reglamento-ambiental-actividades-645089733> (visited Mar. 20, 2017) (presenting requirements concerning certificate of intersection and stating that intersection with State Patrimonial Forest requires issuance of an Environmental Viability Certificate from the National Forestry Director addressing the location of the mining right).

d) Operations at GALO Mine Suspended for Noncompliance

Finally, based on the numerous violations of the applicable environmental regulations and a continued failure to correct instances of noncompliance, the Ministry of the Environment suspended mining activities at the GALO mine on October 31, 2016.⁴³⁰ Following suspension, Mr. Galo submitted a new Action Plan on November 29, 2016, for which a technical report was generated on January 9, 2017, and about which Mr. Galo was notified on January 19, 2017.⁴³¹ The notification details many of the same deficiencies from Mr. Galo's previous Action Plan and indicates that the Action Plan "does not comply with the technical or legal requirements, so it is not approved."⁴³² The notification finally states that a 10-day term is granted to remedy the issues with the Action Plan.⁴³³ The notification does not indicate the outcome of the issue concerning the mine's location in State Patrimonial Forest.⁴³⁴ As of February 16, 2017, the date of the nonprofit's most recent inspection of the GALO mine, work had not resumed at the mine and operations appear to continue to be suspended.⁴³⁵

2. Opportunities for Increased Planning, Review and Enforcement

a) Need for Controls and Planning at the Front-End of the Mine Permitting Process

When Mr. Galo applied for permission to conduct artisanal mining activities and for an environmental registration for the GALO mine, there was no public notice or involvement, or any sort of scoping or planning efforts by ARCOM or the Ministry of the Environment. Rather, the agencies' respective grant of mining rights and approval of the environmental registration appeared to be automatic; without review of the forms submitted and certainly without any prior inspection of the proposed mine area.

The environmental registration stated, "[t]here are no areas of scenic or touristic value in the area of influence" of the mine, which was not accurate.⁴³⁶ If the Ministry of the Environment had reviewed this statement, Mr. Galo could have been made to adjust his proposed operations to account for scenic and touristic values. Or, if there had been any sort of public notice or involvement prior to the approval and start of operations at the

⁴³⁰ See Fundación Río Napo, *Report: Inspection of Artisanal Mining Area "GALO"* (Feb. 16, 2017) (on file with Fundación Río Napo) (indicating that mining activities were suspended at GALO mine on Oct. 31, 2016 by order of the Ministry of the Environment-Napo, due to noncompliance with environmental regulations).

⁴³¹ See Letter from Ministry of the Environment to Mr. Galo Leonardo Shiguango Huatatoca (Jan. 19, 2017) (on file with the Ministry of the Environment).

⁴³² *Id.* at 2.

⁴³³ *Id.*

⁴³⁴ *Id.* at 1-2.

⁴³⁵ See Fundación Río Napo, *Report: Inspection of Artisanal Mining Area "GALO"* (Feb. 16, 2017) (on file with Fundación Río Napo).

⁴³⁶ Environmental Registration at 6.

GALO mine, the public could have informed the agency about the significant scenic and touristic values of the area. Likewise, if the Ministry had looked at a map, or even better, performed a visit to the proposed mine site, the area's location and important scenic and touristic values would have been noted.

On a broader scale, and in the first place, there is a question of why the State is approving mining operations along one of the most popular rivers for recreation and tourism in the country? Such approval begs for higher-level coordination and planning within the Government of Ecuador, and certainly between the Ministries of Mining and Tourism, to decide which areas should be off-limits to mining and instead protected for their scenic and touristic values.

Along the same lines, but perhaps more worrying, the GALO mine is located within the buffer zone of Los LLanganates National Park, within the area of influence of the Colonso-Chalupas Biological Reserve and within Napo Unit 2 of the State Patrimonial Forest. As part of the environmental registration process, based on the information provided by a mining rights holder in the Single System of Environmental Information ("SUIA"), the Ministry of the Environment generates a "Certificate of Intersection" to determine whether a proposed mine location intersects with National Protected Areas, State Patrimonial Forest and/or Protected Forests and Vegetation. In this case, the system worked.

The "Certificate of Intersection" generated for the GALO mine clearly states that the mine's location intersects "State Patrimonial Forest: Napo Unit 2."⁴³⁷ As a result, the mining rights holder was required by law to request and obtain, if possible, an Environmental Viability Certificate from the National Forestry Department prior to approval of the environmental registration. The Ministry of the Environment, however, ignored this requirement and approved the environmental registration for the GALO mine anyways, making one wonder what the point of such a process is, if not to prevent projects that do not comply with applicable environmental regulations.

In the GALO case study, it was not until after the primary forest within the State Patrimonial Forest had been cut down and the mine had operated for seven months, causing significant disturbance, that the issue concerning the mine's location within State Patrimonial Forest became important. And, this was only after the nonprofit had detailed the flaw countless times to the Ministry of the Environment and was finally able to get in contact with the right person within the agency, who notified the National Forestry Director. Thankfully the National Forestry Director asserted his authority, which will hopefully prevent further damage to primary forest in the mine area—at least without an

⁴³⁷ See Ministry of the Environment, Certificate of Intersection with the National System of Protected Areas (SNAP), State Patrimonial Forest (PFE), and Protected Forests and Vegetation for the Project: Permission of Artisanal Mining for the Area "GALO" Code: 1090207, Located in the Napo Province (Apr. 21, 2016) (on file with the Ministry of the Environment-Tena).

Environmental Viability Certificate and some consideration of the mine's impact within State Patrimonial Forest.

As the GALO case study highlights, Ecuador needs to develop national plans to identify where ASM activities are best suited.⁴³⁸ Considering the significant and sustainable benefits of tourism in and near Tena, and specifically along the Río Jatunyacu, in comparison to the long-term impacts and short-term gain from mining in and along the river, the economy and people of Ecuador would likely benefit more from preservation of the area. These sorts of strategic decisions should be made at a high level in the Government and then implemented to preserve important areas of scenic and touristic values in Ecuador.

At a regional and local level, the country would benefit from strategic environmental evaluations ("scoping"), in general and before a project is approved. Such scoping should consider and promote alluvial mining activities in acceptable locations, which minimize environmental impacts and social conflicts (such as areas with existing access routes and that are already disturbed). These evaluations should define exclusion zones, such as urban water sources and reserves, steep slopes, and areas with scenic and touristic resources, and provide buffers from mining impacts. For example, mining might have occurred at the GALO mine along the Río Jatunyacu without incident if the mine had left a buffer of land and vegetation (in this case, primary forest) between the mine operations on the alluvial terrace and the river.

Finally, the permitting processes at the Ministries of Mining and of the Environment, both for granting mining rights, and for approving environmental registrations and licenses, have no mechanism for public participation. This is a significant omission. In the case of the GALO mine, had there been public involvement and consideration of environmental criteria when mining rights were granted to Mr. Galo, or when Mr. Galo submitted his environmental registration for the mine, the public could have informed the agencies about environmental and social issues in the area, including identification of the area's important scenic and touristic values, as well as the area's location within State Patrimonial Forest. With this information, the agencies would have been better informed and more able to avoid and minimize disturbance from the GALO mine.

b) There are Limited Consequences for Violations of Applicable Environmental and Mining Regulations

After each and every inspection by ARCOM and the Ministry of the Environment, the GALO mine was given 10-20 days to correct specified instances of noncompliance. There is

⁴³⁸ Peru is the only country in Latin America with an established body to review and approve detailed environmental impact studies of projects of public, private or mixed investment (the National Service for Environmental Certification ("SENACE")). These reviews address activities, buildings, operations and other commercial services and investment activities that could cause significant environmental impacts. See Global Initiative at 57.

no indication that the GALO mine ever corrected instances of noncompliance within these timeframes or that the agencies ever monitored or re-inspected the mine to follow-up regarding noncompliance within these timeframes. Indeed, with every inspection and with Mr. Galo's few and inadequate responses to the agencies' demands, Mr. Galo has been given more time to achieve compliance. For the entire time the GALO mine was noncompliant up until operations were suspended at the end of October 2016, operations at the GALO mine were allowed to continue. The mine even brought in two excavators, at least one rated at 160 HP (70 HP over the allowable limit of 90 HP) to beef up production in the face of the agencies' reports and regulations.

If the stated timeframes are to have any meaning and if the agencies are to have a bite to accompany their bark, they need to adhere to these timeframes and actually cause meaningful disruption of mine operations when a mine does not comply with their reports—be that by way of a fine, suspension of operations, or other punishment. The agencies should require strict compliance with applicable regulations, both so they will be respected and so the miner will respect the law.

Furthermore, the regulatory and control institutions of ARCOM, the Ministry of the Environment and SENAGUA do not have the capacity and personnel to manage the onslaught of mining activities in the country, even in an area like Tena, which is vital to tourism in Ecuador. Ecuador is suffering death by a thousand cuts, as the cumulative impact of numerous small, unregulated operations take its toll on the environment and communities. Although operations are conspicuous—the operation of 100 dredges in unison is difficult *not* to hear; likewise streams running brown with sediment are quite visible and easy to detect—there appear to be few ARCOM and Ministry of the Environment officials to police most operations in Ecuador. The institutional capacity and staff to administer mining activities needs to be increased at these agencies in order to handle the workload created by increased mining activities. Without adequate enforcement, Ecuador's laws and regulations governing ASM have limited effect.

c) The Responsibility for Enforcement and Monitoring Improperly Lies with the Parties Affected by Mining Activities

Another aspect of Ecuador's environmental legal framework for ASM that would benefit from some minor changes would be the provision concerning citizen-complaints.⁴³⁹ Public involvement in the environmental enforcement process is recommended and citizen complaints should be allowed. In the situation faced in several areas in Ecuador, however, the Ministry of the Environment should allow anonymous and/or confidential citizen-complaints. When illegal mining and/or organized crime is involved there can be terrible repercussions for persons filing complaints, especially the way the citizen-complaint system is designed in Ecuador, where the citizen must provide extensive personal details and then submit evidence against the alleged misfeasor to prove a violation of environmental regulations.

⁴³⁹ See *supra* § VI.B.3 (discussing citizen-complaints).

As an example of “repercussions,” in November 2015, Alfredo Ernesto Vracko Neuenschwander, a Peruvian activist against illegal mining who had received several land and forest concessions from the government, was murdered—presumably by criminal groups involved in illegal mining.⁴⁴⁰ Alfredo had lodged numerous complaints with the government about the invasion of illegal miners in his concessions, none of which were ever acted upon.⁴⁴¹ He was receiving regular death threats from illegal miners.⁴⁴² On the very day an official anti-mining raid had finally been scheduled in response to his requests, he was murdered.⁴⁴³

The burden should not be on the citizen to prove a violation; rather the system should be designed to encourage citizens to report environmental and other violations, and to allow the proper enforcement agency to follow up concerning evidence and to prove a violation. Likewise, the pattern of enforcement at the GALO mine should not be the norm, where the nonprofit had to identify the violations, investigate the violations, research the law, and then keep after the agencies for months to prompt some sort of enforcement action. Most areas of Ecuador do not have such active and persistent third parties to ensure application and enforcement of the law—that should be the role of ARCOM and the Ministry of the Environment, not third parties.

d) Control, Monitoring and Enforcement are Improperly Influenced by Corruption

As happened at the GALO mine on several occasions, and as is reported to be a frequent occurrence throughout Ecuador, on the day of inspections by ARCOM or the Ministry of the Environment, mines will be shutdown and noncompliant equipment will often be moved just offsite. The miners appear to receive information about inspections ahead of time and thus flee the area or prepare the sites accordingly. Indeed, there was not a single nonprofit or company of any size interviewed for this paper, that did not indicate that miners—illegal or not—were regularly, if not always, tipped-off about inspections before the inspections took place.⁴⁴⁴ There appears to be a large problem with information leakage from the enforcement agencies.

Inspectors report that they cannot make a finding that noncompliant equipment is being used at a mine site if they do not witness active operation of the equipment and, particularly, if the equipment is not onsite. Although the implications of noncompliant equipment being onsite, but not operating, or being just offsite, are obvious to most people, inspectors will not issue notices of noncompliance in these situations. The situation is the same with regard to the unauthorized appropriation of water and discharge of wastewater—unless the inspector sees it happen, the inspector will not find noncompliance. Considering that there are obvious leaks about inspections within the

⁴⁴⁰ See Global Initiative at 10.

⁴⁴¹ *Id.*

⁴⁴² *Id.*

⁴⁴³ *Id.*

⁴⁴⁴ See also *infra* § VIII.B. (same).

regulatory agencies, finding active noncompliance is difficult. These are aspects of the inspection process that need to be improved upon.⁴⁴⁵

This discussion highlights an issue prevalent in Ecuador, especially with regard to regulation of mining activities, but which often goes unmentioned: corruption. Artisanal and small-scale miners interviewed for this paper indicated awareness, if not complete understanding, of the environmental and mining regulations applicable to their operations. When asked if they complied with these regulations, the miners responded that it was pointless to comply for two main reasons: 1) compliance would put them at a financial disadvantage compared to the illegal miners in the area, i.e., it is more costly to comply with the law than to operate “illegally” (without compliance); and 2) regardless of the level of compliance, the miner would be subject to some sort of bribe/payment to a local official to avoid further “scrutiny” of their mining activities from the local official/agencies.

This is the same experience reported by Plan V’s interviews of geologists and gold exporters concerning the roots of Ecuador’s recent gold laundering problems.⁴⁴⁶ Testimony from these sources about the current ASM regime in Ecuador stated that the signs were “obvious” that illegal gold from both within Ecuador and from Peru was being laundered through artisanal mining operations in Ecuador.⁴⁴⁷ With the unusual spike in gold production “obvious to everyone in the industry,” the sources report that the State could have easily uncovered the illegality, simply by conducting the required audits of the processing plants that were reporting abnormal production.⁴⁴⁸ The sources report, though, that those audits never took place and that even if auditors were present, the auditors “come close to blackmailing those who are on the verge of the law.”⁴⁴⁹

The majority of miners, at least from the Azuay province, are reported to be illegal, but allegedly work under the knowledge of the local authorities without declaring royalties or paying taxes, etc., and with free access to explosives and fuel, which are supposed to be controlled.⁴⁵⁰ As the minority, miners who attempt to follow the law are at a significant disadvantage and are often persecuted.⁴⁵¹ These miners insist the authorities are well aware of the illegal miners and complain “informality has greater guarantees than those provided to entrepreneurs who comply with the law by paying taxes and meeting the

⁴⁴⁵ Occasional enforcement actions against illegal and noncompliant miners do take place. See, e.g., Confirmado.net, *27 People Charged with Alleged Illegal Mining in Zaruma*, www.confirmado.net/nacionales (Oct. 14, 2016); Ministry of the Interior, *Operation Against Illegal Mining Completed in El Oro* (Sept. 13, 2013), <http://www.ministeriointerior.gob.ec/operativo-contra-mineria-ilegal-se-cumplio-en-el-oro/> (visited Mar. 20, 2017).

⁴⁴⁶ See *supra* § VII.A.3 (discussing interviews); Plan V, *The “Miracle” of Dirty Gold and the Legal Window*.

⁴⁴⁷ *Id.*

⁴⁴⁸ *Id.*

⁴⁴⁹ *Id.*

⁴⁵⁰ *Id.*

⁴⁵¹ *Id.*

requirements of the Mining Law and its regulations.”⁴⁵² Complaints to ARCOM about companies and miners operating illegally reportedly go unanswered.⁴⁵³

This corruption within ARCOM, the Ministries of Mining and of the Environment, especially at the local levels, appears to be pervasive, entering the system when mining rights are granted and continuing while mining activities are being conducted.⁴⁵⁴ By its very nature, however, corruption is difficult to measure and hard to stop—as few miners or officials for that matter, are willing to admit to corruption for fear of consequences. Still, the problem is obvious to those conducting mining operations in Ecuador, as well as those independent international organizations that track such issues.

Ecuador has a problem with corruption. The Heritage Foundation’s annual index of economic freedom puts Ecuador at number 25 out of 29 countries in Central and South America.⁴⁵⁵ While, the World Bank’s Doing Business Index currently ranks Ecuador 114th out of 189 countries, and Transparency International ranks it 110th of 175 nations in its Corruption Perception Index.⁴⁵⁶ Mining-technology.com states that “[t]he present social-political system is not the best in Ecuador and mining multinationals will definitely put ease of business and corruption as the top two business risks.”⁴⁵⁷

Thus, at every level, whether it is regularizing artisanal and small-scale miners; ensuring compliance with environmental and mining regulations; fighting against illegal mining and gold laundering; or attracting international mining investments; the Government of Ecuador and the people of the country must work to eliminate corruption. It is endemic in the mining regulatory system and in the author’s opinion, is the single biggest impediment to the responsible development and regulation of the mining industry in Ecuador.

⁴⁵² *Id.*

⁴⁵³ *Id.*

⁴⁵⁴ *See id.* (indicating that distribution of mining concessions and granting of mining rights was subject to corruption); *see also* Gard Fraekaland Vangsnes, *Meanings of Mining—A Political Ecologist’s Approach on the Regulation of Artisanal and Small-Scale Gold Mining in Southern Ecuador*, Norwegian University of Life Sciences, at 58-59 (May 2016), <https://www.nmbu.no/om/fakulteter/samvit/institutter/noragric> (visited Mar. 13, 2017) (“talking to people without loyalties to the State, the comment of ‘that’s politics’ was always followed up by accusations of top-level corruption as if *that* was all too obvious”).

⁴⁵⁵ *See* Mining-technology.com, *Gold rush: can Ecuador attract \$8bn in new mining investment by 2024?*, Kable (Jan. 16, 2017), <http://www.mining-technology.com/features/featuregold-rush-can-ecuador-attract-8bn-in-new-mining-investment-by-2024-5716280/> (visited Mar. 20, 2017).

⁴⁵⁶ *Id.*

⁴⁵⁷ *Id.*

VIII. Additional Opportunities to Enhance the ASM Sector in Ecuador

A. Reducing Mercury Contamination from ASM

1. Ecuador's Prohibition on the Use of Mercury in Mining Activities

The Mining Law Reform of 2013 prohibited the use of mercury in mine operations in Ecuador as follows:

Without prejudice to the application of the environmental mining regulations, the use of mercury in the country in mining activities is prohibited, according to the mechanisms that the national environmental authority established for this purpose, in conjunction with the institutions with legal authority on the matter. Failure to comply with this prohibition will be sanctioned with the revocation of the mining right, without prejudice to any penal sanctions that may be imposed.⁴⁵⁸

The Mining Law Reform of 2013, however, provided in the General Provisions of the Reform that “[f]or the eradication of the use of mercury in mining activities, natural or juridical persons, national or foreign and holders of mining rights, as of the validity of this law and for a period of two years, shall apply alternative methods to eliminate this substance progressively in the recovery processes of the mineral.”⁴⁵⁹

Implementing the prohibition on mercury from the Mining Law Reform of 2013, the current version of the Environmental Mining Regulations indicates that mine owners must look for alternative techniques that eliminate the use of mercury.⁴⁶⁰ The regulations further state, “failure to comply with the mercury ban will be sanctioned with revocation of environmental licenses” and that “importation, marketing, possession, and use of mercury in mining activities will be subject to” applicable regulations.⁴⁶¹

In addition, the Ecuador Foreign Trade Committee (“COMEX”) issued Resolution 108 in September 2013, which prohibits the importation of mercury to Ecuador to any person or company other than the Public Enterprise Importer (“EPI”), in effect creating the centralized import of mercury for mining purposes.⁴⁶² The quantity to be imported was

⁴⁵⁸ See Mining Law Reform of 2013, Art. 17 (adding new article the Mining Law concerning the prohibition of mercury).

⁴⁵⁹ See *id.*, Sixth Transitory Provision.

⁴⁶⁰ Environmental Mining Regulations, Art. 108 (updated June 11, 2015), <http://www.mineria.gob.ec/wp-content/uploads/downloads/2015/08/RAAM.pdf> (visited Mar. 17, 2017).

⁴⁶¹ *Id.*

⁴⁶² See Comité de Comercio Exterior, *Resolución No. 108*, <http://www.comercioexterior.gob.ec/wp->

fixed at 19 tons, with the idea that this amount would be progressively reduced as practices were adopted to avoid its use in the mining industry.⁴⁶³

Ecuador has also signed the Minamata Convention on Mercury, a global treaty to protect human health and the environment from the effects of mercury, and recently reaffirmed its commitment to take steps to control the use of mercury, including its definitive ban in mining activities.⁴⁶⁴

2. Efforts to Reduce Mercury Use in Ecuador

Despite the clear prohibition on mercury in the Mining Law Reform of 2013, and Ecuador's subsequent commitments to eliminate the use of mercury, reports indicate that ARCOM does not currently sanction the use of mercury and that the time period for replacing the use of mercury has been increased by another two years.⁴⁶⁵ There are also reports that a black market has sprung up where miners can informally acquire mercury for gold processing.⁴⁶⁶

Currently, artisanal and small-scale miners in Ecuador use relatively primitive and inefficient techniques to extract gold that include improper milling, poor concentration techniques and/or whole ore amalgamation with cyanide leaching of contaminated tailings. Gold recovery is greatly reduced while excessive amounts of mercury are released into the environment.⁴⁶⁷ There are opportunities, however, to train miners on methods to reduce

content/uploads/downloads/2013/10/RESOLUCION-108.pdf (visited Mar. 19, 2017); see also SPDA at 199.

⁴⁶³ See SPDA at 199.

⁴⁶⁴ See Ministry of Exterior Relations and Human Mobility, *Ecuador Subscribes to Minamata Convention on Mercury* (Oct. 14, 2013), <http://www.cancilleria.gob.ec/ecuador-suscribe-el-convenio-de-minamata-sobre-el-mercurio/> (visited Mar. 17, 2017); see also Minamata Convention on Mercury, *Ecuador Becomes 29th Future Party to the Minamata Convention*, United Nations Environmental Program (Aug. 9, 2016), <http://www.mercuryconvention.org/DNNAdmin/AllNews/tabid/3444/articleType/ArticleView/articleId/112050/Ecuador-becomes-29th-future-Party-to-the-Minamata-Convention.aspx> (visited Mar. 17, 2017).

⁴⁶⁵ See Gard Fraekaland Vangsnes, at 60 (reporting on the use of mercury in the El Oro province).

⁴⁶⁶ See SPDA at 200.

⁴⁶⁷ See U.S. Department of State and Biodiversity Research Institute, *Creating a Sustainable Artisanal and Small-Scale Gold Mining Sector, Case Study: Portovelo, Ecuador*, http://www.briloon.org/uploads/BRI_Documents/Tropical_Program/ASGM/ASGM%20Fl yer_Portovelo_English_final_3.18.15.pdf (visited Mar. 19, 2017); see also Marcello M. Veiga, Gustavo Angeloci, Michael Hitch, and Patricio Colon Velasquez-Lopez, *Processing centres in artisanal gold mining*, *Journal of Cleaner Production* Vol. 64, 535-44 (Feb. 2014), <http://dx.doi.org/10.1016/j.jclepro.2013.08.015> (visited Mar. 19, 2017).

and/or eliminate the use of mercury while increasing gold recovery. Techniques include gravity concentration, flotation and cyanidation.⁴⁶⁸

The Canadian International Resources and Development Institute (“CIRDI”) is currently working directly with the Government of Ecuador through the Ministry of Mining to develop a long-term education and training program for small-scale miners in Ecuador.⁴⁶⁹ A large aspect of this project is to develop and educate miners about more socially and environmentally responsible gold processing techniques that reduce and/or eliminate the use of mercury. The project will have widespread benefits, but is currently focused primarily on gold processing in the El Oro province.⁴⁷⁰

Researchers at the Universidad Técnica Particular de Loja (“UTPL”) are also working on developing more efficient gold processing techniques without the use of mercury for areas in the Zamora-Chinchipe province.⁴⁷¹ The detailed study is taking samples from the various mining areas in the province, and in southern Ecuador, and analyzing the characteristics of each sample, to determine the optimum milling, concentration, flotation, and cyanidation techniques. With the results of the study, the researchers hope to build a pilot plant to efficiently process gold in the Zamora-Chinchipe province without the use of mercury.

Considering miners’ general distrust of the Government, the Government’s promotion of university and nonprofit programs like these may prove more fruitful than direct Government education and training efforts. The techniques being studied by CIRDI and UTPL, among others, have the potential to reduce mercury use in Ecuador and create higher and more efficient gold extraction rates via gravity-flotation-cyanidation plants. With use of such plants, Ecuador should establish and implement regulations for ASM operations that follow the protocols of the International Cyanide Management Code for the transporting, handling, using, and disposing of cyanide to prevent environment

⁴⁶⁸ *Id.*

⁴⁶⁹ See CIRDI, *Transformation of ASM in Ecuador*, <http://cirdi.ca/asm-ecuador-colombia/> (visited Mar. 19, 2017); see also CIRDI, *Shrimp, bananas, gold – Ecuador’s top ASGM academic expert leads CIRDI project*, <http://cirdi.ca/shrimp-bananas-gold-ecuadors-top-asgm-academic-expert-leads-cirdi-project/> (visited Mar. 19, 2017).

⁴⁷⁰ See *id.*

⁴⁷¹ See Universidad Técnica Particular de Loja, Department of Geology, Mines and Civil Engineering, http://www.utpl.edu.ec/directorio/index.php?ban=2&id_citte=1&id_dep=79&nom_dep=D+EPARTAMENTO%20DE%20GEOLOGIA,%20MINAS%20E%20INGENIERIA%20CIVIL (visited Mar. 20, 2017) (providing general information about UTPL); see also UTPL Center of Innovation and Development for Industry and Mining, <http://www.edumine.com/campuses/centro-de-innovacion-y-desarrollo-para-la-industria-y-mineria-cima-de-la-utpl/> (visited Mar. 20, 2017) (providing additional information).

degradation from these operations utilizing cyanide.⁴⁷² With the above programs, and with all recommendations of best practices, it is important to involve miners and local governments, and to train and educate miners that these cleaner extraction processes can lead to greater profitability and reduce negative environmental and health impacts.

B. Developing Relationships Between ASM and Large-Scale Mining

In general, Ecuador's new approach to allow artisanal and small-scale miners to contract with large-scale miners to conduct operations on existing concessions is a valuable part of the ASM framework. Based on the Government of Ecuador's experience with regularizing artisanal and small-scale miners in the Fruta del Norte concessions, it would be helpful for the Government to generate guidelines and contract models for other miners and companies who wish to partner together, so that the rights and obligations related to ASM activities in these situations are better understood by future parties.

The experiences of artisanal and small-scale miners engaging with larger-scale miners, and vice versa, the experiences of larger-scale miners engaging with artisanal and small-scale miners, varied wildly between miners and companies. In general, artisanal and smaller-scale miners expressed that all the good areas of mineralization were tied up by companies, and that the "free areas" now available to artisanal miners lacked comparable mineralization. Thus, in order to operate, these miners indicated that they either operated illegally (i.e., without permission) on existing concessions or that they operated with permission of the concessionaire, in which case they were generally charged a 10-15% commission on sales by the concessionaire—either by informal agreement or under contract in a few situations. The lack of available and desirable mining areas and the tough choice between being subject to law enforcement or a large payment to concessionaires were sources of discontent amongst artisanal and smaller-scale miners.

Small-scale to medium-scale mining companies had different experiences with artisanal and smaller-scale miners on their concessions. One Ecuadorian-owned small-scale mining company expressed that it has had continual problems with trespassing (and thus "illegal") artisanal miners on its concessions. The company's continual complaints to ARCOM to enforce the law went largely unanswered and thus the company was limited to documenting the invasions and associated environmental impacts in an attempt to avoid future liability.⁴⁷³

⁴⁷² See Brandon Nichols, et al., at 46 (discussing International Cyanide Management Code and related best practices for ASM operations).

⁴⁷³ Reports indicate that owners of small mining operations in areas such as the provinces of Loja and Zamora-Chinchiipe are receiving little government support, as compared to large-scale mining companies. They indicate that the red tape is impossible to cut and that their mines are experiencing high rates of theft and that the government is offering little support to combat the theft and support the miners and mine-owners. See "Ecuador rolls out the red carpet to large mining companies but the indigenous community and small miners cry foul," Cuenca High Life (July 15, 2016), <https://www.cuencahighlife.com/ecuador-rolls-out-the-red-carpet-to-large-mining->

Another slightly larger foreign-owned company indicated that it had similar problems with “illegal” artisanal miners on its concessions, but that its complaints to ARCOM would often be answered. Still, the company documented the invasions and associated environmental impacts in an attempt to avoid future liability. Some small-scale to medium-scale mining companies did not report any issues with artisanal miners on their concessions, largely as a result of the type of mineralization. Large-scale foreign-owned mining companies, such as Lundin Gold Inc., reported that there were occasional issues with “illegal” artisanal miners on their concessions, but that the Government was generally responsive to their complaints.

All companies noted that prior to ARCOM enforcement actions to remove “illegal” artisanal miners, the offending artisanal miners generally received prior word of the enforcement action and would vacate the area before ARCOM’s arrival. This common occurrence was linked to corruption in local government offices—either from connections by the artisanal miners themselves, or from connections of persons/mafias employing the artisanal miners.

At the Fruta del Norte project in southeastern Ecuador, the efforts by Lundin Gold and its predecessor Kinross Gold Corp. to coexist with artisanal and small-scale miners are well documented.⁴⁷⁴ In 2010, an aerial survey of Fruta del Norte found 42 informal alluvial, surface and underground mining operations, along with significant equipment and structures supporting the operations.⁴⁷⁵ In consultation with various ministries of the Government of Ecuador, local authorities and security forces, local communities, and informal and formal miners, Kinross developed a strategy of identifying and confirming the mining activities on its concessions, of engaging the artisanal and small-scale miners, and starting a process of legalizing those miners with a long-standing presence in the region.⁴⁷⁶ With assistance from the various stakeholders, Kinross initiated training programs focused on legal and institutional frameworks, and environmental, health and safety considerations, among others.⁴⁷⁷

As a result of these efforts, Lundin/Kinross has entered into contracts with a number of artisanal mining operations on its concessions, benefitting over 100 workers in

companies-but-indigenous-communities-and-small-mining-operation-cry-foul/ (visited Mar 20, 2017).

⁴⁷⁴ See Kinross Gold Corp., *Case Study 08 (Spanish): Formalizing Artisanal Mining at Fruta del Norte*, Kinross Gold Corp. Corporate Responsibility Report (2011), <http://takingresponsibility2011.kinross.com/in-the-community/case-study-08-formalizing-artisanal-mining-at-fruta-del-norte/> (visited Mar. 19, 2017); SPDA at 219-229 (providing an extensive analysis of the efforts by Kinross to work with, and help formalize, artisanal and small-scale miners on its concessions).

⁴⁷⁵ See Kinross Gold Corp., *Case Study 08 (Spanish): Formalizing Artisanal Mining at Fruta del Norte*.

⁴⁷⁶ *Id.*

⁴⁷⁷ *Id.*

the area.⁴⁷⁸ And, several small concessions have been carved out for small-scale mining operations within the Lundin concessions.⁴⁷⁹ In addition, Lundin/Kinross has developed and implemented training sessions and workshops on institutions and mining law for artisanal miners; and concerning environmental, health and safety issues.⁴⁸⁰

Regularization of the miners was a joint effort by Lundin/Kinross, various ministries of the Government of Ecuador, local authorities and security forces, local communities, and informal and formal miners.⁴⁸¹ Although management of artisanal mining activities requires continuous management by Lundin and government authorities, the regularization process appears to have reduced mining-related conflicts in the area, improved Lundin's presence in the community and established a new respect for application of, and compliance with, the law.⁴⁸² Though time will tell, there is hope that established and legal artisanal mining operations on Lundin's concessions will help create a buffer against future illegal operations.

The regularization of artisanal miners on the concessions of Lundin/Kinross and the agreements achieved between the company and the smaller-scale miners has been hailed as a great success and shows that "coexistence of the three types of mining (artisanal, small- and large-scale) is possible in the same area, through mechanisms of mutual understandings and benefits, respecting the regulations of responsible mining."⁴⁸³ Lundin's success in regularizing miners, as well as the lessons it has learned in the process, and continues to learn, should be spread to other companies so that they may engage artisanal and small-scale miners up-front, avoid potential conflict and promote coexistence between the various types of mining and within communities.

C. Regulating Alluvial Mining for Construction Materials

Although not the subject of this paper, research for this paper and observations in the field revealed that in-stream mining for construction materials (i.e., sand and gravel) is a significant issue across Ecuador. Mining for such materials is rudimentary, consisting of an excavator or other machinery extracting materials from the banks or beds of rivers and loading such materials into dump trucks. Indiscriminate mining and dredging of rivers provokes active upstream erosion and head-cutting of the riverbed, causes the banks and shoreline to erode and collapse, and saturates downstream areas with newly released sediments and material.⁴⁸⁴ These erosional processes completely alter river channels, eliminating natural features like rapids, bends and meanders, and make the river wider,

⁴⁷⁸ See SPDA at 227.

⁴⁷⁹ See Kinross Gold Corp., *Case Study 08 (Spanish): Formalizing Artisanal Mining at Fruta del Norte*.

⁴⁸⁰ *Id.*

⁴⁸¹ *Id.* at 227-28.

⁴⁸² *Id.* at 227-29.

⁴⁸³ *Id.* at 229, 233.

⁴⁸⁴ See Ecuadorian Rivers Institute, *River Issues in Ecuador—Gravel Mining*, <http://ecuadorianrivers.org/projects/> (visited Mar. 19, 2017).

shallower, and warmer.⁴⁸⁵ Besides wreaking havoc on the aquatic ecosystem, this can result in massive channel shifts and increases the risks and impacts of flooding.⁴⁸⁶

There is significant need for education on the impacts of in-stream mining for construction materials, particularly for local governments who appear to be the main sponsors of such mining, as much of the material is used for local roads and infrastructure projects. Education is also needed on the proper use of such materials for building purposes, in order to avoid destruction of the magnitude and type experienced in the Manabi province of Ecuador in 2016 as the result of an earthquake.⁴⁸⁷ The State would benefit from encouraging development of modern aggregate mining and production facilities in appropriate areas away from rivers. These modern facilities would avoid the impacts to waterways and ensure proper production of aggregates for development.

IX. Conclusion

Mining in Ecuador has not yet reached the level at which it occurs in other neighboring countries, but with mining becoming more and more prevalent, Ecuador faces much of the same deforestation, waterway diversion, and water contamination that its neighbors Peru and Colombia have suffered.⁴⁸⁸ Ecuador expects producers to make at least USD 8 billion in investments in new mines by 2024, according to Mining Minister Javier Cordova.⁴⁸⁹ With such interest and investment in mining, Ecuador is being, and will continue to be challenged to make tough choices about how and whether to protect its other natural resources and how to enforce the rule of law in the mining sector.

⁴⁸⁵ *Id.*

⁴⁸⁶ *Id.*

⁴⁸⁷ See Ben Bain and Nathan Gill, *Ecuador Earthquake Death Toll Rises; AIR Worldwide Comments*, Insurance Journal (Apr. 18, 2016) <http://www.insurancejournal.com/news/international/2016/04/18/405662.htm> (visited Mar. 19, 2017) (explaining that building code enforcement varies across Ecuador, that the seismic performance of buildings in Ecuador is greatly influenced by local construction practices and that building damageability is exacerbated by inadequate materials); see also Mercedes Cabrera, *Earthquake Ecuador: Was Ecuador prepared to face an earthquake?*, EcuadorTimes.net (Apr. 19, 2016), <http://www.ecuadortimes.net/2016/04/19/earthquake-ecuador-was-ecuador-prepared-to-face-an-earthquake/> (visited Mar. 19, 2017) (indicating that municipalities in Ecuador do not exercise controls during construction to ensure that buildings are construction with the right materials).

⁴⁸⁸ See Global Initiative at 27 (citing Council on Hemispheric Affairs, *Opening the Door to Mining in Ecuador* (June 17, 2013)).

⁴⁸⁹ See Mining-technology.com, *Gold rush: can Ecuador attract \$8bn in new mining investment by 2024?*.

The country's development and implementation of the Mining Law of 2009 and its subsequent amendments were important steps in formalizing ASM miners. Ecuador should continue to invest in the formalization process, while making improvements in the areas discussed in this paper, particularly in the areas of commercialization of gold and environmental control, planning and enforcement. To make improvements in both of these areas, among others, the State must ensure that inspectors have sufficient resources and capacity to protect the environment, and to hold individuals, companies and criminal organizations involved in the extraction and export of illegally mined gold accountable. The Government appears to recognize the problem, as Ecuadorian Minister of Mines, Javier Cordova, has indicated that the main challenge for the Government is to strengthen small mining, provide opportunities and fight against the illegal activity.⁴⁹⁰ Now it is a matter of turning words into action.

The State, as well as larger-scale mining companies, institutions and nonprofits, also need to commit to adequate training and monitoring of artisanal and small-scale miners, both in theory and in the field at each stage of mining operations. This is the only way to ensure that miners have the knowledge and experience to fulfill their duties in a manner consistent with the laws; to protect the environment and to support local communities and workers who depend on the mining industry. For Ecuador's law to be effective, it must be understood and implemented by artisanal and small-scale miners. While the Government works through issues in the law and enacts changes, as it has done, it is important for the Government to sponsor outreach and assist with compliance. From a lawyer's standpoint, the law is complicated. From the standpoint of an artisanal miner, one can only imagine how daunting compliance must appear.

Finally, Ecuador's laws and regulations concerning ASM will only be as effective as their enforcement. To achieve effective enforcement, investment in institutional capacity and staffing is necessary, but reducing corruption is even more fundamental. Among miners, respect for the law and those trying to enforce it, deteriorates when the public officials and agencies governing them do not themselves abide by the law. As a result, and to ensure effective implementation of Ecuador's Mining Law, elimination of corruption within ARCOM, the Ministry of Mining and the Ministry of the Environment should be a constant focus, especially in the field where these agencies engage artisanal and small-scale miners.

⁴⁹⁰ Agencia Pública de Noticias del Ecuador y Suramérica (Andes), *Ecuador offers great advantages for mining investment, Minister Javier Cordova highlights*, (Jan. 22, 2016), <http://www.andes.info.ec/en/news/ecuador-offers-great-advantages-mining-investment-minister-javier-cordova-highlights.html> (visited Mar. 20, 2017) (Minister Javier noted that the Government has even created a specific commission to monitor and eradicate illegal mining).