

EL SALVADOR'S MINING BAN AND MINING IN ONTARIO'S RING OF FIRE FROM THE LENS OF ECOLOGICAL LAW

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INTRODUCTION

As the topic of the workshop at which this Essay was presented indicates, one of the challenges of the Anthropocene is to shift from environmental to ecological law. I understand ecological law as a new legal paradigm aimed at constraining economic activity within ecological limits and at promoting and supporting an ecologically just society. To better

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understand the challenges and opportunities for a shift to this new paradigm, I have proposed a *lens of ecological law* and here I apply this lens in two different cases concerning mining.

The Anthropocene would not have occurred without the Bronze Age and it will not unfold without minerals. Mineral extraction has greatly expanded with the Great Acceleration,¹ contributing to ecological degradation and grave social impacts.² We may be unable to imagine human civilization without minerals, but we have to reimagine their extraction and use to avoid harm to the landscape, water, wildlife, workers, women, and communities. Ecological law is one important lever to transform mining in the Anthropocene. Understanding how current laws differ from ecological law can contribute to this transition. To shed some light on this question, this Essay applies a *lens of ecological law* to two case studies: El Salvador's metal mining ban and the proposed mineral development in Ontario's Ring of Fire.

I. THE LENS OF ECOLOGICAL LAW

The *lens of ecological law* is an analytical tool for critiquing existing law to identify major obstacles and opportunities for a shift to ecological law.³ It is comprised of three interconnected principles:

1. *Ecocentrism*: “[r]ecognize and [r]espect the [v]alue of all [b]eings” and the interconnectedness among them, equally “[p]romoting the [i]nterests of [h]uman and [n]on-[h]uman [m]embers of the Earth community.”⁴

1. MARINA FISCHER-KOWALSKI ET AL., UNITED NATIONS ENV'T PROGRAMME, DECOUPLING NATURAL RESOURCE USE AND ENVIRONMENTAL IMPACTS FROM ECONOMIC GROWTH 10 (2011); Will Steffen et al., *The Trajectory of the Anthropocene: The Great Acceleration*, 2 ANTHROPOCENE REV. 81, 89 (2015).

2. See, e.g., CLIVE PONTING, A GREEN HISTORY OF THE WORLD: THE ENVIRONMENT AND THE COLLAPSE OF GREAT CIVILIZATIONS 325, 327–28 (1993) (“The massive increase in mining operations to produce metals . . . has inevitably made a major and highly visible impact on the environment.”); THE GAIA FOUND., UNDER-MINING AGRICULTURE: HOW THE EXTRACTIVE INDUSTRIES THREATEN OUR FOOD SYSTEMS 9 (2014), https://www.gaiafoundation.org/wp-content/uploads/2015/11/UnderMiningAgriculture_Report_lowres.pdf (“Given the Earth’s current ecological fragility, any further devastation and ‘toxification’ of lands, soils, waters and biodiversity by mining would be planetary suicide”).

3. For a detailed discussion of ecological law, see Carla Sbert Carlsson, *Amparos Filed by Indigenous Communities Against Mining Concessions in Mexico: Implications for a Shift in Ecological Law*, 10 MEXICAN L. REV. 3, 7 (2017).

4. *Id.* at 8.

The principle of *ecocentrism* considers the view of the human-Earth relationship underlying the law; whether the interconnectedness of all members of the Earth community is recognized; and whether human and non-human beings are equally valued.⁵

2. *Ecological Primacy*: “[e]nsure that [s]ocial and [e]conomic [b]ehavior and [s]ystems are [e]cologically [b]ound, [r]especting Planetary Boundaries.”⁶

The principle of *ecological primacy* involves several related elements: ensuring human development is pursued without irreversibly impairing ecological integrity⁷ or crossing planetary boundaries,⁸ constraining material and energy use within ecological limits;⁹ and restoring and maintaining ecological integrity.¹⁰ Some ecological law scholars argue that the “Holocene concept”¹¹ of ecological integrity should be aligned with the concept of the Anthropocene.¹² I use the Parks Canada Agency’s definition of “ecological integrity,” which states that “ecosystems have integrity when they have their native components (plants, animals and other organisms)

5. *Id.*

6. *Id.* at 9.

7. See, e.g., Stephen Woodley, *Ecological Integrity and Canada’s National Parks*, 27 GEORGE WRIGHT F. 151, 158–59 (2010) (“In Canadian national parks, ecological integrity has evolved from a scientific idea into a management system.”); Jack Manno, *Why the Global Ecological Integrity Group? The Rise, Decline and Rediscovery of a Radical Concept*, in CONFRONTING ECOLOGICAL AND ECONOMIC COLLAPSE: ECOLOGICAL INTEGRITY FOR LAW, POLICY AND HUMAN RIGHTS 36–37 (Laura Westra, Prue Taylor & Agnès Michelot eds., 2013) (recognizing how the industrial use of chemicals affects ecological integrity); Kate Turner & Karen Beazley, *An Exploration of Issues and Values Inherent in the Concept of Ecological Integrity*, 32 ENVIRONMENTS 45, 46 (2004) (exploring the “various controversies and perceptions associated with the definition of ecological integrity and of the roles of science and philosophy embodied in the concept”); ECOLOGICAL INTEGRITY: INTEGRATING ENVIRONMENT, CONSERVATION, AND HEALTH 22 (David Pimentel, Laura Westra & Reed F. Noss eds., Island Press 2000) (“[T]here is a growing body of policy and law that mandates the protection and restoration of ecological integrity.”).

8. Johan Rockström et al., *Planetary Boundaries: Exploring the Safe Operating Space for Humanity*, 14 ECOLOGY & SOC’Y 32, 37, 52 (2009), <https://www.ecologyandsociety.org/vol14/iss2/art32/>.

9. Sbert Carlsson, *supra* note 3, at 11.

10. *Id.* at 20.

11. For example, Peter Burdon referred to ecological integrity as a “Holocene concept” during a question and answer session following an Economics for the Anthropocene Presentation. Carla Sbert, *The Ring of Fire and the El Salvador Mining Ban from the Lens of Ecological Law*, YOUTUBE (Jan. 17, 2018), https://www.youtube.com/watch?v=m_zuIVL4DqI&feature=youtu.be.

12. Geoffrey Garver, *A Complex Adaptive Legal System for the Challenges of the Anthropocene*, in ECOLOGICAL SYSTEMS INTEGRITY: GOVERNANCE, LAW AND HUMAN RIGHTS 232, 235 (Laura Westra et al. eds., 2015).

and processes (such as growth and reproduction) intact”¹³ with the understanding that “ecosystems are inherently dynamic, and have a history of human intervention and even management.”¹⁴

3. *Ecological Justice*: “[e]nsure [e]quitable [a]ccess to the Earth’s [s]ustaining [c]apacity for [p]resent and [f]uture [g]enerations of [h]umans and [o]ther [l]ife [f]orms and [s]ystems, and [a]void the [i]nequitable [a]llocation of [e]nvironmental [h]arms.”¹⁵

The principle of *ecological justice* is based primarily on Klaus Bosselmann’s concept, which includes intragenerational, intergenerational, and interspecies equity.¹⁶ The principle of ecological justice probes whether the law provides ethical grounding for decisions that lead to the equitable use of the planet’s sustaining capacity and promotes taking only what one needs and the fair distribution of—and restraint on—wealth.¹⁷ Finally, this principle asks whether environmental harms are equitably distributed among current and future generations of humans and other beings.¹⁸

In the case studies that follow, I use this *lens of ecological law* to reflect on the implications of a shift from environmental to ecological law in the context of mining. By looking to El Salvador, I consider whether the first attempt by a country to ban metal mining is a step in the direction towards ecological law.¹⁹ In considering the mineral extraction proposed in Ontario’s Ring of Fire—which is within one of the most ecologically intact regions of the world²⁰—I search for elements of ecological law in a legal framework that purportedly ensures mineral extraction is sustainable.²¹

13. PANEL ON THE ECOLOGICAL INTEGRITY OF CAN.’S NAT’L PARKS, UNIMPAIRED FOR FUTURE GENERATIONS?: CONSERVING ECOLOGICAL INTEGRITY WITH CANADA’S NATIONAL PARKS 2 (2000), publications.gc.ca/collections/Collection/R62-323-2000-1E.pdf.

14. Woodley, *supra* note 7, at 159.

15. Sbert Carlsson, *supra* note 3, at 11.

16. Klaus Bosselmann, *Ecological Justice and Law*, in ENVIRONMENTAL LAW FOR SUSTAINABILITY: A READER 150–52 (Benjamin J. Richardson & Stepan Wood eds., 2006) [hereinafter Bosselmann, *Ecological Justice and Law*]; Klaus Bosselmann, THE PRINCIPLE OF SUSTAINABILITY: TRANSFORMING LAW AND GOVERNANCE 102–04, 106 (2d ed. 2017) [hereinafter Bosselmann, THE PRINCIPLE].

17. See Bosselmann, *Ecological Justice and Law*, *supra* note 16, at 157 (“[R]esource distribution is determined by sustaining the potential of resources *in view* of future needs . . .”).

18. See *id.* (“[D]ecisions regarding the distribution of resources must sustain the needs of future generations.”).

19. See *infra* Part II.B (evaluating El Salvador’s Law Prohibiting Metal Mining through a *lens of ecological law*).

20. FAR N. SCI. ADVISORY PANEL, SCIENCE FOR A CHANGING FAR NORTH ii (2010) [hereinafter ADVISORY PANEL], www.ontla.on.ca/library/repository/mon/24006/302262.pdf.

21. See *infra* Part III.C (applying a *lens of ecological law* to mining law in Ontario’s Ring of Fire).

II. EL SALVADOR'S MINING BAN

A. Brief Context

The Republic of El Salvador is the smallest country in Central America and the most densely populated, with approximately 6.5 million people living in an area of 21,040 square kilometers.²² Between approximately 1980–1992, the country experienced a brutal civil war in which 70,000–80,000 people were killed and one-fifth of the population was displaced.²³ A mountainous country with high seismic activity and extreme weather events, El Salvador also suffers from serious environmental degradation, including minimal forest cover, high erosion, and water scarcity and contamination.²⁴ The country's high vulnerability is exacerbated by climate change and deforestation, which increase the likelihood of landslides and floods,²⁵ and by poverty, which aggravates the negative impacts of natural disasters.²⁶ Historian Christopher M. White describes El Salvador as a country “which simultaneously has endured great hardship while maintaining a vibrant culture and an optimistic outlook for the future.”²⁷ El Salvador is also the first country in the world to enact a law prohibiting metal mining.²⁸

Mineral extraction has occurred in El Salvador since the mid-18th century,²⁹ but mining has not been a major activity in the country.³⁰ Mining operations all but came to a halt in the 1980s mostly due to the civil war.³¹

22. See René Santamaria Varela et al., *El Salvador*, ENCYCLOPAEDIA BRITANNICA, www.britannica.com/place/El-Salvador (last updated Feb. 4, 2019) [hereinafter *El Salvador*, ENCYCLOPAEDIA] (estimating the population of El Salvador at 6.5 million).

23. CHRISTOPHER M. WHITE, *THE HISTORY OF EL SALVADOR* 9, 109 (2009); *El Salvador*, ENCYCLOPAEDIA, *supra* note 22.

24. MINISTERIO DE ECONOMÍA DE EL SALVADOR (MINEC) [EL SAL. MINISTRY OF ECONOMY], SERVICIOS DE CONSULTORÍA PARA LA EVALUACIÓN AMBIENTAL ESTRATÉGICA (EAE) DEL SECTOR MINERO METÁLICO DE EL SALVADOR, INFORME FINAL 5–6, 9–10, 12 (2011) [hereinafter METAL MINING SECTOR SEA].

25. WHITE, *supra* note 23, at 5; cf. Kristin Stranc, Note, *Managing Scarce Water in the Face of Global Climate Change: Preventing Conflict in the Horn of Africa*, 39 HOFSTRA L. REV. 245, 259 (2010) (“Scholars have warned of the potential for increased natural disasters due to global climate change. The damage done by such disasters is exacerbated by deforestation and over-cultivation of land.” (footnote omitted)).

26. METAL MINING SECTOR SEA, *supra* note 24, at 12.

27. WHITE, *supra* note 23, at xvi.

28. Nina Lakhani, *El Salvador Makes History as First Nation to Impose Blanket Ban on Metal Mining*, GUARDIAN (Mar. 30, 2017), <https://www.theguardian.com/global-development/2017/mar/30/el-salvador-makes-history-first-nation-to-impose-blanket-ban-on-metal-mining>.

29. METAL MINING SECTOR SEA, *supra* note 24, at 33.

30. WHITE, *supra* note 23, at 37.

31. METAL MINING SECTOR SEA, *supra* note 24, at 33.

Reconstruction in El Salvador after the war aligned with neoliberal trends throughout Latin America to encourage foreign investment.³² El Salvador reformed its mining laws in 1996 and adopted mechanisms protecting foreign investors to attract mining companies.³³ From 1995 to 1999 there was modest industrial gold and silver production,³⁴ but currently only artisanal mining is ongoing.³⁵ By the early 2000s, approximately 29 companies had obtained exploration concessions in El Salvador, but no exploitation concessions were active.³⁶

At the same time, environmental organizations, communities, and civil society groups began opposing metal mining due to the risks to water and health, especially given the grave water pollution and scarcity issues facing El Salvador. In 2006, the National Roundtable Against Metal Mining (La Mesa Nacional Frente a la Minería Metálica) submitted the first proposal to ban metal mining in the country.³⁷ In 2007, *La Mesa* gained the support of the influential Salvadoran Catholic Church for a permanent prohibition of metal mining,³⁸ and a poll found that almost 65% of the population opposed metal mining in their community.³⁹ A *de facto* moratorium was established in March 2008 when the President publicly said he would work with the legislature to reform the law to permit mining only once it had been shown

32. WHITE, *supra* note 23, at 112; *see* Daviken Studnicki-Gizbert, *Canadian Mining in Latin America (1990 to Present): A Provisional History*, 41 CAN. J. LATIN AM. & CARIBBEAN STUD. 95, 100 (2016) (explaining that in the 1990s, “[n]ew mining codes, new regulatory regimes, and new institutional arrangements between state and industry were developed to channel international capital into” Latin America’s mineral sector).

33. Decreto No. 544, arts. 1, 3, Enero 24, 1996, DIARIO OFICIAL [D.O.], at 99 (El Sal.), <https://imprentanacional.gob.sv/archivo-digital-del-diario-oficial/>; *see also* Decreto No. 732, art. 1, Noviembre 11, 1999, DIARIO OFICIAL [D.O.], at 7 (El Sal.), <https://imprentanacional.gob.sv/archivo-digital-del-diario-oficial/> (outlining a goal of promoting foreign investment); Michael L. Dougherty, *El Salvador Makes History*, N. AM. CONGRESS ON LATIN AM. (Apr. 12, 2017), <https://nacla.org/news/2017/04/19/el-salvador-makes-history> (explaining that in 1995, “El Salvador established a 3% royalty rate for mineral production” to “secure foreign direct investment”).

34. Commerce Grp. Corp. v. Republic of El Salvador, ICSID Case No. ARB/09/17, Notice of Arbitration, ¶ 14 (July 2, 2009), <https://www.italaw.com/cases/296>.

35. METAL MINING SECTOR SEA, *supra* note 24, at 34.

36. *Id.*

37. *Nueva propuesta de Ley para prohibir la minería en El Salvador*, FUNDACIÓN DE ESTUDIOS PARA LA APLICACIÓN DEL DERECHO [Foundation of Studies for the Application of Law] (Sept. 18, 2013) (on file with *Vermont Law Review*).

38. Press Release, Conferencia Episcopal de El Salvador [Episcopal Conference of El Sal.], *La Explotación Minera en El Salvador: Cuidemos la Casa de Todos* (May 3, 2007), <http://www.caritaselsalvador.org.sv/documentos/otros/65-cuidemos-la-casa-de-todos/file>.

39. *See* INSTITUTO UNIVERSITARIO DE OPINIÓN PÚBLICA, ENCUESTA SOBRE CONOCIMIENTOS Y PERCEPCIONES HACIA LA MINERÍA EN ZONAS AFECTADAS POR LA INCURSIÓN MINERA EN EL SALVADOR (2007), www.uca.edu.sv/publica/iudop/Web/2008/finalmineria040208.pdf (reporting that when people were asked whether they agreed or disagreed that more mining projects should be opened, 49.5% responded they disagreed strongly, while 14.5% responded that they disagreed somewhat).

that “gold [could] be exploited to boost the economy without damaging resources.”⁴⁰

The government completed a Strategic Environmental Assessment (SEA) of the metal mining sector in September 2011, documenting multiple serious obstacles for effectively addressing the environmental impacts and risks of metal mining activities in El Salvador.⁴¹ These obstacles included grave potential impacts to health and water resources and the government’s insufficient capacity to manage them.⁴² The fact that the country was being sued by foreign mining companies in two international investor–state disputes,⁴³ and the 2016 arbitration award in favor of El Salvador in one of them,⁴⁴ contributed to strengthening support to ban mining.⁴⁵ Finally, in March 2017, El Salvador became the first country to adopt a law prohibiting all surface and subsurface metal mining.⁴⁶

B. The Law Prohibiting Metal Mining from the Lens of Ecological Law

The Law Prohibiting Metal Mining (LPMM) bans all metal mining activities as well as the use of toxic chemicals in metal mining; cancels all pending licensing procedures; and prohibits future politicians from passing laws that allow metal mining.⁴⁷ The LPMM charged the Ministry of Economy with closing all mines and coordinating the remediation of mining sites—the latter in collaboration with the Ministry of Environment

40. *Pac Rim Cayman LLC v. Republic of El Salvador*, ICSID Case No. ARB/09/12, Award, ¶ 6.125 (Oct. 14, 2016), www.italaw.com/sites/default/files/case-documents/italaw7640_0.pdf.

41. METAL MINING SECTOR SEA, *supra* note 24, at 72.

42. *Id.*

43. In 2009, the mining companies Pacific Rim and Commerce Group, Inc. separately initiated investor–state disputes against El Salvador. *Pac Rim Cayman LLC*, ICSID Case No. ARB/09/12 ¶ 6.125; *Commerce Grp. Corp. v. Republic of El Salvador*, ICSID Case No. ARB/09/17, Award, ¶ 3 (Mar. 14, 2011).

44. *Pac Rim Cayman LLC*, ICSID Case No. ARB/09/12 ¶ 11.17. In the other case, the tribunal determined in March 2011 that it did not have jurisdiction because Commerce was pursuing the same matters in court within El Salvador (unsuccessfully, as it turned out). *Commerce Grp. Corp.*, ICSID Case No. ARB/09/17 ¶¶ 134, 138, 140. The Supreme Court of El Salvador decided two domestic cases against Commerce in 2010. PROCURADURÍA PARA LA DEFENSA DE LOS DERECHOS HUMANOS [ATTORNEY GENERAL’S OFFICE FOR HUMAN RIGHTS], INFORME ESPECIAL DE LA PROCURADURÍA PARA LA DEFENSA DE LOS DERECHOS HUMANOS – EL LEGADO DE LA MINA SAN SEBASTIAN Y SUS IMPACTOS EN LA POBLACIÓN 46 (Jan. 2016), issuu.com/pedrocabezas/docs/informe_especial_pddh_legado_de_la.

45. See Robin Broad & John Cavanagh, *El Salvador Votes for Water Over Gold*, NATION (Apr. 4, 2017), <https://www.thenation.com/article/el-salvador-votes-for-water-over-gold> (explaining how attempts by corporations to undermine El Salvador’s mining ban “sparked renewed resistance” and support for the law).

46. Decreto No. 639, art. 1, Abril 4, 2017, DIARIO OFICIAL [D.O.], at 6 (El Sal.), <https://imprentanacional.gob.sv/archivo-digital-del-diario-oficial/>.

47. *Id.* at arts. 2–4.

and Natural Resources.⁴⁸ The ban includes artisanal mining and establishes a two-year period for those practicing it to transition to other economic activities with the support of the state.⁴⁹ The LPMM “is of public order and its provisions shall prevail over any other to the contrary.”⁵⁰

Given that ecological law aims to ecologically constrain economic activity, does this first law prohibiting metal mining signal a shift to ecological law? The analysis that follows reflects on the LPMM from the perspective of each of the principles comprising the *lens of ecological law*.

1. Ecocentrism

In the mining ban, there are no elements of *ecocentrism*. The preamble to the LPMM states an unambiguously anthropocentric vision underlying the Salvadoran legal system by noting that the Constitution of El Salvador “recognizes the human person as the origin and end of the activities of the State.”⁵¹ Moreover, the LPMM does not recognize the interconnectedness of humans with other beings or the interests of non-human members of the Earth community.⁵²

2. Ecological Primacy

Ecological primacy implies that law should be informed by the scientific understanding of Earth systems, ecosystems, and their relation to human activities.⁵³ El Salvador’s prohibition of metal mining is an example of *ecological primacy*, even though the LPMM does not use the term ecological integrity or make any reference to planetary boundaries. The LPMM decree notes that in establishing the ban, the legislature considered scientific knowledge concerning the ecological vulnerability of El Salvador (especially related to water), the impacts of metal mining on human and ecosystem health, and the environmental degradation problems facing El Salvador.⁵⁴ The law aims to avoid pushing the country’s water resources

48. *Id.* at art. 6.

49. *Id.* at art. 2.

50. *Id.* at art. 9 (translation provided by Carla Sbert).

51. *Id.* at pmb. I (translation provided by Carla Sbert).

52. *See id.* (emphasizing that the law is designed to protect human persons).

53. *See* Sbert Carlsson, *supra* note 3, at 9 (“*Ecological primacy* provides clarity about the need to ensure human development is pursued without irreversibly impairing natural systems . . .”).

54. Decreto No. 639, at pmb. IV–VI. The Preamble of the LPMM states:

IV. That in 2010, the United Nations Environment Program ranked El Salvador as the country with the second worst environmental degradation in the Americas after Haiti. Because of this, metal mining due to its environmental

beyond ecological limits and acknowledges that metal mining involves an unacceptable risk of transgressing these limits.⁵⁵ As the campaign to ban mining called for,⁵⁶ the LPMM effectively prioritizes water (ecological values) over gold (short-term economic gain).⁵⁷ Also, the LPMM addresses at its source the problem of ecological degradation from mining.⁵⁸ Rather than attempting to mitigate the negative impacts of metal mining through “sustainable mining” standards,⁵⁹ El Salvador chose to prevent further potential harm to ecological values by prohibiting the activity altogether.⁶⁰

At the same time, although the LPMM takes a precautionary approach in line with *ecological primacy*, the ban is not quite a shift in paradigm. Rather, it appears to be a rare example of the sustainable development calculation (whereby environmental, social, and economic concerns are balanced) turning out in favor of environmental concerns because the ecological and social costs of metal extraction were found to be so much greater than the potential economic benefits, especially given the absence of a strong mining tradition in El Salvador.⁶¹

Another concurrence with *ecological primacy* is that while the LPMM seems to narrowly focus on banning the extraction and production of metals

impact on water resources becomes a threat to the sustainable development and wellbeing of the Salvadoran family.

V. That the activities of exploration and exploitation of metal mining, constitute a threat to the health of the inhabitants of the country, carry severe risks for the environment, characterized by endangering forests, soils and water resources, due to acid drainage, heavy metals and highly toxic wastes, like mercury, cyanide and others; and by consuming important amounts of water in all its operation phases, with the probability of destroying landscapes, polluting the air and generating social conflict.

VI. That the Strategic Environmental Assessment of the Metallic Mining Sector conducted in 2011 by the Ministry of Environment and Natural Resources, concluded that the conditions of vulnerability in El Salvador imply an important barrier to the possibility that the country could guarantee metal mining that effectively controls its environmental and social risks and impacts, or achieve a positive contribution to social and economic development of the country.

Id. (translation provided by Carla Sbert).

55. *Id.*

56. See Broad & Cavanagh, *supra* note 45 (emphasizing water degradation as a motivation for the LPMM’s passage).

57. *Id.* (explaining that El Salvador’s mining ban chooses “water over gold”).

58. Decreto No. 639, at pmb1. V.

59. METAL MINING SECTOR SEA, *supra* note 24, at 79. Pacific Rim vowed to apply “sustainable mining” standards in its El Dorado project. *Pac Rim Cayman LLC v. Republic of El Salvador*, ICSID Case No. ARB/09/12, Award, ¶ 3.8 (Oct. 14, 2016), www.italaw.com/sites/default/files/case-documents/italaw7640_0.pdf.

60. Decreto No. 639, at art. 1; Broad & Cavanagh, *supra* note 45.

61. Decreto No. 639, at pmb1. VI; METAL MINING SECTOR SEA, *supra* note 24, at 55.

within the country,⁶² it also indirectly constrains material and energy use in El Salvador. Presumably, the consumption of energy and materials, and the generation of waste, that would have resulted directly and indirectly from metal mining will be averted.⁶³ Yet nothing indicates that El Salvador intends to use less metal or to substitute the foregone locally sourced metals with metals produced elsewhere with less ecological impact.⁶⁴ Indeed, the net effect of the ban could be worse for ecological sustainability if El Salvador's metal consumption does not decrease and the metals it could have produced locally are imported from a jurisdiction that has worse practices or involves additional ecological impacts from transport.⁶⁵ In contrast, a jurisdiction applying ecological law would arguably limit the consumption of metals to those required for basic needs within that jurisdiction, use recovered and recycled metals (from landfills and other existing stocks within that jurisdiction) to satisfy those needs, and only allow the import of metals that could not be obtained from these sources.⁶⁶

Lastly, as noted, the LPMM also orders the remediation of areas affected by mining, which is consistent with *ecological primacy*.⁶⁷ However, the standard adopted—"to return to the population the conditions of a healthy environment"⁶⁸—does not conform with ecological law, which would instead require restoring the health of the ecosystem as a whole—for

62. Decreto No. 639, at art. 1 (providing that the purpose of the LPMM is "to prohibit surface and subsurface metal mining in the territory of the Republic [of El Salvador]" (translation provided by Carla Sbert)).

63. See, e.g., Geoffrey Blight, *Mine Waste: A Brief Overview of Origins, Quantities, and Methods of Storage*, in WASTE: A HANDBOOK FOR MANAGEMENT 77 (Trevor M. Letcher & Daniel A. Vallero eds., 2011) (explaining that the "volumes of waste" produced from mining "are commensurately large"); *The Market Underestimates the Tremendous Energy Consumption by the Gold Mining Industry*, SRSROCCO REP. (Feb. 3, 2019), <https://srsrocco.com/market-underestimates-tremendous-energy-consumption-gold-mining-industry> (calculating the energy and production costs of various metals and materials).

64. See Decreto No. 639, at art. 1 (banning metal mining in El Salvador without explaining where the country would acquire metals).

65. Cf. Tiina Häyhä et al., *From Planetary Boundaries to National Fair Shares of the Global Safe Operating Space—How Can the Scales be Bridged?*, 40 GLOBAL ENVTL. CHANGE 60, 62 (2016) ("[I]nternational trade . . . allows a country's environmental impact to be externalized, for example by relocating resource-intensive or highly polluting industries in other countries. As a result, the production (and potential related environmental impacts) and consumption of goods increasingly happens in different locations and part of the territorially reduced environmental pressure in one country may come at the cost of increasing impact elsewhere.").

66. For a preliminary discussion of need-based minerals use, see Carla Sbert, *Re-imagining Mining: The Earth Charter as a Guide for Ecological Mining Reform*, 6 IUCN ACAD. ENVTL. L. EJOURNAL 66, 84 (2015) [hereinafter Sbert, *Re-imagining*] (explaining how society could extract non-renewable resources "based on the reasonable needs of living generations (equitably considered) without jeopardizing the ability of future generations to enjoy similar access to those resources").

67. Decreto No. 639, at art. 6.

68. *Id.* (translation provided by Carla Sbert).

its human and other inhabitants—as well as reestablishing ecological integrity to the greatest degree possible.⁶⁹

3. Ecological Justice

The LPMM does not make any reference to intragenerational, intergenerational, or interspecies equity.⁷⁰ Yet the metal mining ban is the result of a social movement grounded in concerns regarding access to clean water, exploitation of the country's resources by foreign companies, and environmental degradation and pollution threatening health and livelihoods.⁷¹ These concerns are all relevant to *ecological justice's* focus on equitable access to the planet's sustaining capacity and its questioning of unfair exposure to environmental harms; although, under ecological law they would not be limited only to humans.⁷²

Also, as noted above, the LPMM bans the extraction of metals within El Salvador, but it does not address the use of metals generally,⁷³ which under ecological law would be based on needs and the fair distribution of wealth.⁷⁴

Finally, an important aspect from the perspective of *ecological justice* is the commitment to support artisanal miners—known as *güiriseros*—to transition to other economic activities.⁷⁵ There are serious, yet insufficiently studied and diagnosed, health impacts related to artisanal mining for *güiriseros*, their families, neighbors, and others in nearby communities.⁷⁶ More broadly, the area's sustaining capacity is undermined by the pollution generated from mining, and thus not accessible to support the flourishing of humans and other beings today and in the future.⁷⁷ From the perspective of *ecological justice*, the transition of *güiriseros* to other activities would have

69. Sbert Carlsson, *supra* note 3, at 11 (“Governments and individuals shall take all available measures to enhance and sustain the capacity of social and natural systems to maintain their integrity.” (quoting Nicholas A. Robinson, *The Resiliency Principle*, 5 IUCN ACAD. ENVTL. L. E.J. 19, 24 (2014))).

70. See Decreto No. 639, at arts. 1–11 (finding no reference to the terms intragenerational, intergenerational, and interspecies equity in the LPMM).

71. METAL MINING SECTOR SEA, *supra* note 24, at 26–27.

72. Sbert Carlsson, *supra* note 3, at 11.

73. See Decreto No. 639, at art. 1 (providing only that mining is prohibited in El Salvador); see also *supra* notes 62–66 and accompanying text (outlining how El Salvador's metal mining ban does not address metals consumption generally).

74. Sbert Carlsson, *supra* note 3, at 12.

75. VLADIMIR PACHECO CUEVA, AN ASSESSMENT OF MINE LEGACIES AND HOW TO PREVENT THEM: A CASE STUDY FROM LATIN AMERICA 28–31, 40–41 (2017).

76. See *id.* at 41 (speculating that “the handling of mercury may be affecting the long term health of the *Güiriseros*, their families and the environment” because “no toxicity pathway study [nor] serology of the region . . . ha[s] taken place”).

77. *Id.*

to ensure the new activities are ecologically viable and consistent with the equitable sharing of the sustaining capacity of the region between current and future humans and other beings.⁷⁸ The transition should further be complemented by restoration of the sites, forests, and waterways that have been impacted, with the goal of restoring the greatest possible levels of ecological integrity.⁷⁹ Details are not yet available on how the government will support the transition away from artisanal mining, and there seems to be no progress on remediation of contaminated mine sites.⁸⁰ Instead, artisanal miners appear to be working to permanently exempt artisanal mining from the metal mining ban.⁸¹

In summary, the LPMM does not represent a full shift in paradigm towards ecological law, but it is an important step in this direction. By foreclosing metal extraction and ordering the restoration of El Salvador's stressed ecological systems, this law establishes a precedent that recognizes ecological sustainability as a precondition for flourishing societies and economies.⁸² At the same time, however, because the ban is not grounded on an ecocentric worldview, it is more vulnerable to shifting short-term human interests.⁸³

78. Sbert Carlsson, *supra* note 3, at 7–11.

79. *Id.* at 9, 11–12.

80. The regulations implementing the LPMM, published in June 2017, only add that the Ministry of Economy will provide credit under preferential conditions and other types of support for *güiriseros* to “reconvert” to other productive activities. Decreto No. 25, art. 3, Junio 2, 2017, DIARIO OFICIAL [D.O.] at 7 (El Sal.); see also Alfredo Carías, *La minería aún es causa de disputas en El Salvador*, CONTRAPUNTO (Feb. 1, 2018), contrapunto.com.sv/sociedad/periodismociudadano/lamineria-aun-es-causade-disputas-en-el-salvador/5784 (explaining that the uncertainty surrounding the transition from artisanal mining generates distrust among the *güiriseros*).

81. Andrés McKinley, *Cuidado El Salvador: la ‘minería verde’ es un mito*, NOTICIAS DE AMERICA LATINA Y EL CARIBE (June 14, 2018), <https://www.nodal.am/2018/06/cuidado-el-salvador-lamineria-verde-es-un-mito-por-andres-mckinley/>.

82. Decreto No. 639, arts. 1, 6, Abril 4, 2017, DIARIO OFICIAL [D.O.], at 5–6 (El Sal.), <https://imprentanacional.gob.sv/archivo-digital-del-diario-oficial/>.

83. For example, environmental groups are calling for the metal mining ban to be constitutionally enshrined, fearing that changes in the legislature might lead to the repeal of the LPMM, especially given OceanaGold's attempts “to influence the population . . . with the idea of ‘Responsible Mining.’” Mirina Garcia, *Threats to the Law Against Metallic Mining*, VARGUARDIA (May 7, 2018), www.stopesmining.org/news/salvadoran-mining-ban/532-threats-to-the-law-against-metallic-miningvanguardia; McKinley, *supra* note 81.

III. MINING IN ONTARIO'S RING OF FIRE

A. Brief Context

Ontario's Far North is a lightly populated region that covers about 40% of the province's territory.⁸⁴ First Nations make up more than 90% of the region's total population of 24,000.⁸⁵ The region is exceptional for its ecological features.⁸⁶ In 2008, mining companies discovered substantial mineral potential in an area of approximately 5,000 square kilometers in the central part of the Far North region, now known as the Ring of Fire.⁸⁷ This area lies within the traditional territories of nine Ojibway and Cree First Nations united under the Matawa Tribal Council.⁸⁸ Many companies and individuals hold mining claims in the area,⁸⁹ but only one is currently actively pursuing a mine there.⁹⁰ Despite the Ring of Fire's mineral potential, some question the feasibility of its development, primarily due to the lack of transport and energy infrastructure in the remote area and the challenge of negotiating with the area's First Nations.⁹¹

The Far North Act of 2010 was meant to establish a collaborative land use planning process for development of the Far North,⁹² but it appears to have led to further disagreement between the province of Ontario and First

84. *Far North of Ontario*, GOV'T ONT., www.ontario.ca/rural-and-north/far-north-ontario (last visited Apr. 14, 2019).

85. *Id.*

86. See ADVISORY PANEL, *supra* note 20, at xi (providing that "[l]arge intact landscapes like the Far North are rare").

87. JED CHONG, LIBRARY OF PARLIAMENT, PUBLICATION NO. 2014-17-E, RESOURCES DEVELOPMENT IN CANADA: A CASE STUDY ON THE RING OF FIRE 1-3 (2014); ADVISORY PANEL, *supra* note 20, at 65 (providing a history of diamond mining in the Far North).

88. Unity Declaration, Chiefs Council Mamow-Wecheekapawetahteewiin (2011), <http://www.matawa.on.ca/wp-content/uploads/2013/12/Mamow-Wecheekapawetahteewiin-Unity-Declaration-Signed-July-13-2011.pdf>. The member First Nations are Aroland, Constance Lake, Eabametoong, Ginoogaming, Long Lake #58, Marten Falls, Neskantaga, Nibinamik, and Webequie. *Id.*

89. See MINISTRY OF ENERGY, N. DEV. & MINES, ONTARIO MINERAL DEVELOPMENT STRATEGY 10 (2015) [hereinafter N. DEV. & MINES], https://www.mndm.gov.on.ca/sites/default/files/mndm_mds_english_2015.pdf.

90. See Letter from Mark Baker, Projects Eng'r, Noront Res. Ltd., to David Bell, Project Manager, Can. Env'tl. Assessment Agency (Jan. 22, 2012), <https://www.ceaa.gc.ca/050/documents/p63925/89363E.pdf> (detailing the company's ongoing environmental assessment in preparation for mining).

91. Jody Porter, *Ring of Fire Mining Development Still Years Away from Delivering on a Decade of Hype*, CBC NEWS (Jan. 30, 2017), www.cbc.ca/news/canada/thunder-bay/ringof-fire-talks-1.3955236.

92. See Far North Act, S.O. 2010, c. 18, s. 5 (Can.) ("The following are objectives for land use planning in the Far North: 1. A significant role for First Nations in the planning.").

Nations⁹³ and is “viewed by First Nations in [the Nishnawbe Aski Nation] as an invalid law and a new form of colonialism.”⁹⁴ Still, the 2014 Regional Framework Agreement between the Matawa First Nations and the Ontario government established a community-based negotiation process focusing on land management, revenue sharing, and capacity building.⁹⁵ Information on how the agreement will be implemented is scant,⁹⁶ but dissatisfaction among some First Nations is apparent.⁹⁷

Mining and related development in the Far North will have multiple environmental impacts, including: loss and fragmentation of habitat, major rivers, wetlands and peatlands; impacts on groundwater flow and surface waters; pollution of the air, soil, and water; and disturbance of wildlife.⁹⁸ Mineral prospecting in the Ring of Fire has already impacted the region.⁹⁹

93. Holly L. Gardner et al., *The Far North Act (2010) Consultative Process: A New Beginning or the Reinforcement of an Unacceptable Relationship in Northern Ontario, Canada?*, INT’L INDIGENOUS POL’Y J., Aug. 2012, at 11–12; Peggy Smith, *A Reflection on First Nations in their Boreal Homelands in Ontario: Between a Rock and a Caribou*, 13 CONSERVATION & SOC’Y 23, 26 (2015) (explaining that certain environmental non-governmental organizations “negotiat[ed] behind the scenes with government and industry, while avoiding any direct negotiations with First Nations who might oppose their direction”); see Catie Burlando, *Land Use Planning Policy in the Far North Region of Ontario: Conservation Targets, Politics of Scale, and the Role of Civil Society Organizations in Aboriginal–State Relations*, at i (2012) (unpublished Ph.D. dissertation, University of Manitoba), https://umanitoba.ca/institutes/natural_resources/canadaresearchchair/thesis/PhD%20Thesis%20Burlando%202012.pdf (“Aboriginal organizations have condemned new comprehensive legislation for opening the Far North Region to development . . .”).

94. See *Ontario’s Far North Act*, NISHNAWBE ASKI NATION, www.nan.on.ca/article/ontarios-far-north-act-463.asp (last visited Apr. 14, 2019) (“In spite of its Treaty and international obligations, the federal government of Canada did not intervene to protect First Nations in the process leading up to th[e] [Far North] Act.”).

95. Regional Framework Agreement, First Nations-Ont., Mar. 26, 2014, Ministry of Energy, N. Dev. & Mines.

96. See, e.g., Letter from Michael Gravelle, Minister of N. Dev. & Mines, to Kathleen Wynne, Premier of Ont. (Jan. 11, 2016), www.onla.on.ca/library/repository/mon/30001/333372.pdf (providing scarce information on the Far North Act’s implementation).

97. See, e.g., Press Release, Nishnawbe Aski Nation, Neskantaga and Eabametoong Denounce Wynne Government’s Failure on Ring of Fire Planning; Suggest it is Time to Re-set the Regional Process (May 31, 2018), www.nan.on.ca/article/may-31-2018-22595.asp (outlining the First Nations’ criticism of how the government has implemented the agreement); Chief Cornelius Wabasse, *What Really Needs to Happen to Make the Ring of Fire a Reality*, HUFFINGTON POST (Feb. 22, 2015), https://www.huffingtonpost.ca/chief-cornelius-wabasse/ring-of-fire-development_b_6367606.html (“[D]evelopment in the Ring of Fire must be part of the ongoing process of Treaty implementation. No longer can our Treaty be ignored and violated. New agreements cannot be reached while existing ones are treated as if they don’t exist.”).

98. ENVTL. COMM’R OF ONT., *SERVING THE PUBLIC: ANNUAL REPORT 2012/2013*, at 66 (2013) [hereinafter *ANNUAL REPORT*], docs.assets.eco.on.ca/reports/environmental-protection/2012-2013/2012-13-AR.pdf.

99. Compare Wildlands League, *Flying Over the Ring of Fire in Canada*, VIMEO (Dec. 12, 2015), <https://vimeo.com/148702660> (documenting the Ring of Fire Region prior to any mining activity), with Jody Porter, *Mining Exploration Causing Permanent Damage in Ring of Fire, Wildlands*

In July 2008, the Ontario government announced it would protect at least 225,000 square kilometers of the Northern Boreal region in an interconnected network of conservation lands¹⁰⁰ and later formalized this in the Far North Act of 2010.¹⁰¹ Ontario's approach in practice to the regional development of this area has been deeply criticized by the Environmental Commissioner of Ontario¹⁰² and others who had praised the conservation aims of the Far North Act of 2010.¹⁰³ One of the main concerns has been the government's failure to conduct a Regional Strategic Environmental Assessment (R-SEA) before any development in the Ring of Fire.¹⁰⁴

B. Selected Rules Governing Mining in the Ring of Fire from the Lens of Ecological Law

In contrast to the concise Salvadoran LPMM reviewed earlier,¹⁰⁵ the legal framework governing mining in the Ring of Fire involves a suite of lengthy and complex laws and regulations.¹⁰⁶ Without attempting a comprehensive analysis, I review below—from the *lens of ecological law*—some key provincial rules that apply to mining in the Ring of Fire.

League Says, CBC NEWS (June 29, 2015), www.cbc.ca/news/canada/thunder-bay/miningexploration-causing-permanent-damage-in-ring-of-fire-wildlands-league-says-1.3129705 (describing how “mining activity is causing permanent damage in [the Ring of Fire’s] fragile ecosystem”).

100. Press Release, Office of the Premier, Protecting Ontario’s Northern Boreal Forest (July 14, 2008), <https://news.ontario.ca/opo/en/2008/07/protecting-ontarios-northern-boreal-forest.html>.

101. Far North Act, S.O. 2010, c.18, s. 5 (Can.) (providing that one objective of the Far North Act is the protection of cultural values and ecological systems “by including at least 225,000 square kilometres of the Far North in an interconnected network of protected areas”).

102. ANNUAL REPORT, *supra* note 98, at 63–75.

103. Cheryl Chetkiewicz & Justina Ray, *Ontario’s Ring of Fire Development Plan Has Major Flaws*, TORONTO STAR (May 29, 2017), <https://www.thestar.com/opinion/commentary/2017/05/29/ontarios-ring-of-fire-development-plan-has-major-flaws.html> (criticizing how Ontario has implemented the Far North Act).

104. ANNUAL REPORT, *supra* note 98, at 72; *see also* CHERYL CHETKIEWICZ & ANASTASIA M. LINTNER, GETTING IT RIGHT IN ONTARIO’S FAR NORTH: THE NEED FOR A REGIONAL STRATEGIC ENVIRONMENTAL ASSESSMENT IN THE RING OF FIRE [WAWANGAJING] 4 (2014), www.wcsacanada.org/Portals/96/Documents/RSEA_Report_WCSCanada_Ecojustice_FINAL.pdf (“R-SEA . . . is a decision-support tool and participatory process that addresses environmental sustainability at a regional scale.”); Cole Atlin & Robert B. Gibson, *Lasting Regional Gains from Non-Renewable Resource Extraction: The Role of Sustainability-Based Cumulative Effects Assessment and Regional Planning for Mining Development in Canada*, 4 EXTRACTIVE INDUSTRIES & SOC’Y 36, 46–50 (2017) (explaining how sustainable decision making could be implemented in the Ring of Fire).

105. *See supra* Part II.B (analyzing El Salvador’s LPMM).

106. *See infra* Parts III.B.1–3 (explaining the legal framework that regulates mining in the Ring of Fire).

1. Accessing Minerals and Land Use Planning

Under Canadian law, the province of Ontario owns the minerals in the Ring of Fire and has jurisdiction to regulate their extraction.¹⁰⁷ While not before the courts, this jurisdiction is contested. According to Ontario, the Matawa First Nations surrendered their traditional territories to the Crown under the James Bay Treaty (Treaty 9), but members of the First Nations maintained a right to use the lands “until [they] might be ‘taken up’ by the government for a variety of purposes including settlement, mining and lumbering.”¹⁰⁸ For their part, the eight Matawa First Nations party to Treaty 9 (all except Long Lake #58 First Nation) “assert that they never gave up their land or their right to govern themselves . . . [A]nd that they have shared jurisdiction with Ontario.”¹⁰⁹ Recognizing this important difference of interpretation, the analysis below focuses primarily on the legal framework in place per Ontario’s interpretation.

The Mining Act governs disposition of Crown-owned minerals in Ontario.¹¹⁰ Consistent with the free entry system,¹¹¹ prospecting on Crown lands, which are not subject to rights held by others or excluded from mining, is open to anyone who obtains a prospecting license.¹¹² Licensees can then register mining claims.¹¹³ The 2009 reform of the Mining Act¹¹⁴

107. See Constitution Act, 1867, 30 & 31 Vict. c. 3, s. 92A(1) (U.K.) (“In each province, the legislature may exclusively make laws in relation to (a) exploration for non-renewable natural resources in the province . . .”), reprinted in R.S.C. 1985, c. 40 (Can.); BARRY J. BARTON, CANADIAN LAW OF MINING 151–52 (1993) (describing the two main types of laws regulating mineral extraction in Canada).

108. Nigel Bankes, *The Implications of the Tsilhqot’in (William) and Grassy Narrows (Keewatin) Decisions of the Supreme Court of Canada for the Natural Resources Industries*, 33 J. ENERGY & NAT. RESOURCES L. 188, 208–09 (2015); *Treaty: James Bay Treaty No. 9*, MATAWA FIRST NATIONS MGMT., <http://www.matawa.on.ca/66-2/> (last visited Apr. 14, 2019) [hereinafter *James Bay Treaty*].

109. *James Bay Treaty*, supra note 108; TRUTH AND RECONCILIATION COMM’N OF CAN., HONOURING THE TRUTH, RECONCILING FOR THE FUTURE 1 (2015) [hereinafter HONOURING THE TRUTH], <http://caid.ca/TRCFinExeSum2015.pdf> (“The negotiation of Treaties, while seemingly honourable and legal, was often marked by fraud and coercion, and Canada was, and remains, slow to implement their provisions and intent.”).

110. Mining Act, R.S.O. 1990, c. M.14, ss. 18–19 (Can.). For purposes of the Act, “‘minerals’ means all naturally occurring metallic and non-metallic minerals, including coal, salt, quarry and pit material, gold, silver and all rare and precious minerals and metals, but does not include sand.” *Id.* s. 1.

111. “The free entry system, also called the free miner or location system, permits the mineral operator to enter lands where minerals are in the hands of the Crown and obliges the government to grant exploration and development rights if the miner applies for them.” BARTON, supra note 107, at 151.

112. Mining Act, c. M.14, ss. 18–19, 27, 30.

113. *Id.* s. 27.

114. The provisions of the Mining Act cited herein are those in force or that will enter into force following the completion of the modernization process. For critiques of the reform of the Mining Act and of the Far North Act of 2010, see Karen Drake, *The Trials and Tribulations of Ontario’s Mining*

and the Far North Act of 2010 introduced limitations on mineral prospecting and extraction in the Far North. These acts bar prospecting and extraction in areas where community-based land use planning has not been completed or where mining is inconsistent with the corresponding community-based land use plan.¹¹⁵ Also, no mining activity is allowed in protected areas.¹¹⁶ However, the province has discretion to allow prospecting if it decides mining is in “the social and economic interests of Ontario,” regardless of it being barred by a community-based land use plan or located in a protected area.¹¹⁷ In addition, existing mining claims in the Ring of Fire predate these reforms and are protected by Section 205 of the Mining Act and Section 14(3) of the Far North Act of 2010.¹¹⁸

The Far North Act of 2010 further regulates the development of community-based land use plans in the Far North, including subjecting the plans to the guidance set in the Far North Land Use Strategy.¹¹⁹ Under the Far North Act of 2010, there are two ecologically based objectives for land use planning in the Far North:

2. The protection of areas of cultural value in the Far North and the protection of ecological systems in the Far North by including at least 225,000 square kilometres of the Far North in an interconnected network of protected areas designated in community based land use plans.

3. The maintenance of biological diversity, ecological processes and ecological functions, including the storage and sequestration of carbon in the Far North.¹²⁰

Act: The Duty to Consult and Anishinaabek Law, 11 MCGILL INT’L J. SUSTAINABLE DEV. L. & POL’Y 183, 185 (2015) (“This paper argues that, despite the[] [2013] amendments, the *Mining Act* is still unconstitutional, as it runs afoul of the Crown’s obligations to consult Aboriginal peoples and accommodate their rights pursuant to section 35(1) of the *Constitution Act, 1982* . . .” (footnote omitted)); see also, e.g., Penelope Simons & Lynda Collins, *Participatory Rights in the Ontario Mining Sector: An International Human Rights Perspective*, 6 MCGILL INT’L J. SUSTAINABLE DEV. L. & POL’Y 177, 183 (2010) (“Although the [Mining] *Act* has recently been amended . . . it continues to under-emphasize public participation and privilege the rights of mining companies to explore and exploit mineral resources.”); Bruce Pardy & Annette Stoehr, *The Failed Reform of Ont.’s Mining Laws*, 23 J. ENVTL. L. & PRAC. 1, 1 (2011) (“Ontario’s mining reforms perpetuate and extend a regime of political management in which discretion reigns, uncertainty persists and a politically-driven hierarchy of interests is pursued.”).

115. Mining Act, c. M.14, ss. 30(g), 204(2); Far North Act, S.O. 2010, c. 18, ss. 12, 14(1) (Can.).

116. Mining Act, c. M.14, s. 31; Far North Act, c. 18, s. 14.

117. Mining Act, c. M.14, s. 204(3); Far North Act, c. 18, s. 14(4).

118. Mining Act, c. M.14, s. 205; Far North Act, c. 18, s. 14.

119. Far North Act, c. 18, s. 8.

120. *Id.* s. 5(2)–(3).

2. Consultation and Free Prior and Informed Consent

The Environmental Bill of Rights establishes mechanisms to inform and allow the public to comment on decisions by the Ontario government that may affect the environment, including many regarding mining.¹²¹ If an Environmental Assessment is carried out for a mining project, the process involves some form of public consultation.¹²² Consultation with indigenous communities is governed by Section 35 of the Constitution Act of 1982; whereby, the Crown has a duty to consult indigenous communities when considering decisions or actions that may affect treaty and Aboriginal rights—including mineral extraction projects, but not prospecting and registering mining claims.¹²³ The 2009 Mining Act amendments require the government to consult indigenous communities before certain steps in the mining process and “delegated certain procedural aspects of the consultation process to project proponents through its statutory scheme.”¹²⁴

For its part, the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) establishes the need to obtain the free prior and informed consent (FPIC) of indigenous peoples to carry out activities affecting their territories, including mining.¹²⁵ Although Canada has signed and promised to implement the UNDRIP, as per Recommendation 43 of the Truth and Reconciliation Commission,¹²⁶ it recognizes FPIC only as a

121. See Environmental Bill of Rights, S.O. 1993, c. 28, s. 3(1) (Can.) (“This Part sets out minimum levels of public participation that must be met before the Government of Ontario makes decisions on certain kinds of environmentally significant proposals for policies, Acts, regulations, and instruments.”); Classification of Proposals for Instruments, O. Reg. 681/94, s. 12 (Can.) (detailing regulations under the Environmental Bill of Rights for developing mining projects).

122. Environmental Assessment Act, R.S.O. 1990, c. E.18, s. 6(1), (3) (Can.) (providing that “[t]he proponent shall give the Ministry proposed terms of reference governing the preparation of an environmental assessment,” which “shall give public notice of the proposed terms”). Provincial environmental assessments are not required for mining but could be carried out on a voluntary basis. Far North Act, c. 18, s. 8(4) (“[T]he Far North land use strategy is not an undertaking as defined in the *Environmental Assessment Act*.”); Environmental Assessment Act, c. E.18, s. 5(1) (“Every proponent who wishes to proceed with an undertaking shall apply to the Minister for approval to do so.”); see also MININGWATCH CAN., *THE BIG HOLE: ENVIRONMENTAL ASSESSMENT AND MINING IN ONTARIO 6* (2014) (explaining that environmental assessments have “extremely limited public consultation and an assumption that impacts will be minimal and only routine mitigation measures may be applied”).

123. MINISTRY OF ENERGY, N. DEV. & MINES, MNDM POLICY: CONSULTATION AND ARRANGEMENTS WITH ABORIGINAL COMMUNITIES AT EARLY EXPLORATION 2, 5–8 (2012) [hereinafter MNDM CONSULTATION POLICY], www.mndm.gov.on.ca/en/mines-and-minerals/mining-act-policies-and-standards. *But see id.* at 4 (“Aboriginal communities and provincial and federal governments do not always share the same perspective which can create challenges in consultation processes.”); Drake, *supra* note 114, at 186 (arguing that in “some areas in Ontario . . . recording a mining claim does in fact satisfy the test for triggering the duty to consult”).

124. MNDM CONSULTATION POLICY, *supra* note 123, at 2.

125. G.A. Res. 61/295, art. 28, United Nations Declaration on the Rights of Indigenous Peoples (Sept. 13, 2007).

126. HONOURING THE TRUTH, *supra* note 109, at 20, 191 (outlining recommendation 43, which “call[s] upon federal, provincial, territorial, and municipal governments to fully adopt and implement

guiding principle that does not amount to the ability of indigenous peoples to deny consent to an extractive project in their territories.¹²⁷ The province of Ontario has a similar position.¹²⁸ In contrast, the Chiefs-in-Assembly of Nishnawbe Aski Nation (NAN), including the Matawa First Nations, passed a resolution establishing that “[p]roposed private development or Canadian government policy that affects any part of the NAN territory cannot proceed without the FPIC of the affected NAN First Nation or First Nations.”¹²⁹ Despite Canada’s adoption of UNDRIP, the constitutional duty to consult is, as Martin Papillon and Thierry Rodon describe it, “at best a weak version of FPIC.”¹³⁰

For their part, Bruce Parly and Annette Stoehr argue that the Far North Act and Mining Act amendments—which restrict mining to areas consistent with community-based land use plans—effectively amount to a requirement of consent from those communities for mining in their territories, establishing an “Aboriginal ‘planning veto.’”¹³¹ Yet as Wapshkaa Ma’iingan observes,¹³² the government ultimately controls the land use planning process and can approve a mining project and other developments that are in the interest of Ontario, despite a conflicting community-based land use plan.¹³³

the United Nations *Declaration on the Rights of Indigenous Peoples* as the framework for reconciliation”).

127. See, e.g., Philippe Hanna & Frank Vanclay, *Human Rights, Indigenous Peoples and the Concept of Free, Prior and Informed Consent*, 31 *IMPACT ASSESSMENT & PROJECT APPRAISAL* 146, 151 (2013) (explaining Canada’s reluctance to support the UNDRIP); see also Tara Ward, *The Right to Free, Prior, and Informed Consent: Indigenous Peoples’ Participation Rights Within International Law*, 10 *NW. J. INT’L HUM. RTS.* 54, 54–55, 70 (2011) (exploring the evolution of indigenous peoples’ development rights in Canada).

128. See *MNDM CONSULTATION POLICY*, *supra* note 123, at 4 (“Canadian courts have generally not recognized a legal right of First Nations to . . . require First Nation consent to proposed activities.”).

129. *Requirement for Free, Prior and Informed Consent in NAN*, NISHNAWBE ASKI NATION, www.nan.on.ca/article/requirement-for-free-prior-andinformed-consent-in-nan-496.as (last visited Apr. 14, 2019).

130. Martin Papillon & Thierry Rodon, *Proponent-Indigenous Agreements and the Implementation of the Right to Free, Prior, and Informed Consent in Canada*, 62 *ENVTL. IMPACT ASSESSMENT REV.* 216, 218 (2016).

131. Parly & Stoehr, *supra* note 114, at 8.

132. See Wapshkaa Ma’iingan (Aaron Mills), *Aki, Anishinaabek, Kaye Tahsh Crown*, 9 *INDIGENOUS L.J.* 107, 113 n.15 (2010), <https://ilj.law.utoronto.ca/volume-9-issue-1-2010> (“The [Far North] Act gives the Minister of Natural Resources absolute discretion over the terms of reference and over final approval of a land use plan and requires that land use plans be developed pursuant to the Far North land use strategy . . .”).

133. Mining Act, R.S.O. 1990, c. M.14, s. 204(3) (Can.) (providing the Lieutenant Governor in Council with the power to approve a new mine “if the project is in the social and economic interests of Ontario”); Far North Act, S.O. 2010, c. 18, s. 14(4) (Can.).

3. Minimizing and Redressing Harm

A number of statutes and regulations—including the Mining Act, the Ontario Environmental Protection Act (OEPA), the Ontario Water Resources Act, and the Species at Risk Act—aim to minimize environmental harm and establish liability during and after mining operations.¹³⁴ Generally, persons carrying out mining activities are responsible for making notifications; submitting documentation; obtaining authorizations; and complying with the substantive requirements in the different statutes, regulations, and their approved plans and permits.¹³⁵ Government officials grant, deny, or amend authorizations; investigate compliance; issue orders requiring or stopping certain actions; and otherwise carry out work to prevent harm, as established in the regulations.¹³⁶ I will touch only on two examples: rehabilitation obligations under the Mining Act and effluent discharge limits under the OEPA.

The Mining Act requires progressive rehabilitation upon closure of mining sites, including for advanced exploration.¹³⁷ “[R]ehabilitate’ means measures, including protective measures, taken in accordance with the prescribed standards to treat a site or mine hazard so that the use or condition of the site, (a) is restored to its former use or condition, or (b) is made suitable for a use that the Director sees fit.”¹³⁸ Rehabilitation must comply with the standards established in the Mine Rehabilitation Code of Ontario or higher standards that may be specifically authorized (for example, in a closure plan).¹³⁹ However, as Pardy and Stoehr note, no substantive standards actually exist, and the rehabilitation required depends on it being “practicable” for the proponent.¹⁴⁰

For its part, the OEPA generally prohibits the discharge of contaminants into the natural environment in amounts greater than the regulations allow or if the discharge “causes or is likely to cause an adverse effect.”¹⁴¹ Specific regulations implementing the OEPA apply to mining of

134. Pardy & Stoehr, *supra* note 114, at 9–11.

135. *See, e.g.*, Mining Act, c. M.14, s. 19(1) (“Any person who is 18 years or older may obtain a prospector’s licence online through the mining lands administration system if the person has successfully completed the prescribed *Mining Act* awareness program . . .”); *id.* s. 26(7) (allowing a Tribunal to cancel a mining claim upon finding “a willful contravention of any of the provisions of this Act or the regulations”).

136. *See, e.g., id.* s. 26(1) (authorizing the Tribunal to revoke a license); *see also infra* notes 139–42 and accompanying text (describing mandatory rehabilitation measures).

137. Mining Act, c. M.14, ss. 139.1(1), 140(1).

138. *Id.* s. 139(1).

139. Mine Development and Closure Under Part VII of the Act, O. Reg. 240/00, s. 4 (Can.).

140. Pardy & Stoehr, *supra* note 114, at 12–13.

141. Environmental Protection Act, R.S.O. 1990, c. E.19, s. 15(1) (Can.).

metals and industrial minerals.¹⁴² These regulations establish effluent discharge limits for a number of parameters;¹⁴³ lethality limits;¹⁴⁴ and sampling, monitoring,¹⁴⁵ assessment, and reporting requirements.¹⁴⁶

C. Lens of Ecological Law Analysis

In contrast to El Salvador's conclusions that mining could not be carried out without causing serious harm to people and transgressing ecological limits,¹⁴⁷ Ontario has developed a legal framework that purportedly ensures mineral extraction in Ontario's Ring of Fire will be sustainable.¹⁴⁸ However, as the analysis below shows, some of the elements of Ontario's framework are far from an example of ecological law. Generally speaking, the Ring of Fire's framework has no elements of *ecocentrism*;¹⁴⁹ contains important obstacles for *ecological primacy* and *ecological justice*;¹⁵⁰ and opens only a few modest opportunities for ecological law from the perspective of these three principles.¹⁵¹

142. See, e.g., Effluent Monitoring and Effluent Limits — Industrial Minerals Sector, O. Reg. 561/94, s. 2 (Can.) (providing that “[t]he purpose of this Regulation is to monitor and control the quality of effluent discharged from” plants that produce, among other things, cement, lime, magnesium, graphite, and gypsum); Effluent Monitoring and Effluent Limits — Metal Mining Sector, O. Reg. 560/94, s. 3(1) (Can.) (“This Regulation applies with respect to every plant that is a metal mining plant and that . . . discharges a total volume of process effluent . . . of more than 50 cubic metres.”).

143. See, e.g., Effluent Monitoring and Effluent Limits — Metal Mining Sector, O. Reg. 560/94, s. 18(1) (Can.) (“Each discharger shall ensure that each analytical result obtained for each limited parameter from each sample collected from a process effluent monitoring stream at the discharger’s plant does not exceed the daily concentration limit specified for the parameter . . .”).

144. See, e.g., *id.* s. 19 (providing that “each rainbow trout acute lethality test and each *Daphnia magna* acute lethality test performed on any grab sample collected at a process effluent sampling point . . . at the plant results in mortality for no more than 50 per cent of the test organisms in 100 per cent effluent”).

145. See, e.g., *id.* ss. 20–30 (providing a detailed set of monitoring and sampling requirements).

146. See, e.g., *id.* ss. 20–30 (describing requirements for collecting and reporting effluent samples).

147. See *supra* Part II.B.2 (summarizing how El Salvador banned mining due to numerous environmental and health concerns).

148. See N. DEV. & MINES, *supra* note 89, at 18 (explaining that Ontario adopted a “comprehensive mineral development strategy” with the goal of being a “global leader in sustainable mineral development and production”).

149. See *infra* Part III.C.1 (contrasting the principle of ecocentrism with Ontario’s mining framework).

150. See *infra* Parts III.C.2–3 (considering whether Ontario’s mining framework contains elements of ecological primacy and justice).

151. See *supra* Part I (summarizing the three principles of ecological law, which are ecocentrism, ecological primacy, and ecological justice).

1. Ecocentrism

The legal framework governing mining in Ontario is anthropocentric and utilitarian. Land and minerals are the property of humans—either directly or through the state and corporations.¹⁵² Regulation of mineral extraction focuses on the interests of people; land and other beings are not legal persons.¹⁵³ The human-Earth relationship underlying the Mining Act is about ownership and use of the land by humans with no reciprocal responsibilities owed to the land.¹⁵⁴

In contrast, the principle of *ecocentrism* has some resonance with indigenous legal traditions that may be relevant in the Ring of Fire. For example, the Chief of Webequie First Nation has noted that at the core of his nation's laws is a belief in the interconnectedness of beings.¹⁵⁵ Also, legal scholar John Borrows has described Anishinabek beliefs concerning the Earth as a living being and the agency of rocks,¹⁵⁶ both of which resonate with *ecocentrism*.¹⁵⁷

Among the specific rules noted, the mine effluent regulations under the OEPA stand out as incompatible with *ecocentrism*. Effluent monitoring requires routinely submerging rainbow trout and *Daphnia magna* in mine effluent to test its toxicity, with an acceptable mortality rate of “no more than 50 per cent of the test organisms in 100 per cent effluent.”¹⁵⁸ Under the principle of *ecocentrism*, it would not be justified for a law to require the routine killing of other beings to determine compliance with an acceptable limit of toxic discharge into the environment.¹⁵⁹ These provisions reflect an

152. Constitution Act, 1867, 30 & 31 Vict., c. 3, s. 92A(1) (U.K.), *reprinted in* R.S.C. 1985, c. 40 (Can.).

153. *See, e.g.*, Mining Act, R.S.O. 1990, c. M.14, s. 2 (Can.) (“The purpose of this Act is to encourage . . . the development of mineral resources, in a manner consistent with the recognition and affirmation of existing Aboriginal and treaty rights . . . and to minimize the impact of these activities on public health and safety and the environment.”).

154. *See, e.g., id.* s. 19 (authorizing “[a]ny person” over 18 years of age to obtain a prospector’s license provided certain criteria are met); *see also id.* s. 1 (defining “owner” as “every current owner, lessee or occupier of all or part of a mine, mine hazard or mining lands”).

155. *See* Wabasse, *supra* note 97 (“We believe that all things in creation are connected. As part of our responsibilities to the Creator, we work to protect and nurture these connections and relationships.”).

156. *See* JOHN BORROWS, CANADA’S INDIGENOUS CONSTITUTION 244–45 (2010) (“The active nature of rocks means that they have an agency of their own that must be respected when Anishinabek people use them.”).

157. Sbert Carlsson, *supra* note 3, at 8.

158. Effluent Monitoring and Effluent Limits — Metal Mining Sector, O. Reg. 560/94, s. 19 (Can.).

159. *See* Sbert Carlsson, *supra* note 3, at 8–9 (“*Ecocentrism* primarily illuminates the law’s ability to support and promote a worldview in which humans are part of nature and no more important than other life forms and systems.”).

anthropocentric and utilitarian view of the human-Earth relationship, where the environment is a receptacle for toxic effluent and fish and crustaceans are disposable “test organisms.”¹⁶⁰ These tests are also unacceptable from an *ecological justice* perspective, as they negate interspecies equity.¹⁶¹ Ecological law would, instead, allow only the generation of recycled or neutralized effluent before discharge and require testing procedures that do not involve destroying living beings.¹⁶²

2. Ecological Primacy

To recall, restoring and maintaining ecological integrity is a key element of the principle of *ecological primacy*.¹⁶³ Because of the relative intactness of the Far North, the standard of ecological integrity seems particularly appropriate in this case; although, much remains to be learned to establish proper baselines for monitoring ecosystem responses to changing conditions in the Far North (including those linked to climate change and human activities) and to understand the potential impacts of different types of development.¹⁶⁴

A Draft Far North Land Use Strategy (Draft FNLUS) was released in September 2015, which explicitly refers to ecological integrity in its description of the Far North as “one of the world’s largest, most intact ecological systems, reflecting a high level of ecological integrity and providing ecosystem services of global significance far beyond its borders.”¹⁶⁵ The Draft FNLUS provides some support for prioritizing ecological values, even though it does not establish constraints on development in the Far North to maintain its ecological integrity.¹⁶⁶ For example, the Draft FNLUS’s guidance for community-based land use plan development in areas where mining is a desired land use recognizes

160. See, e.g., Effluent Monitoring and Effluent Limits — Metal Mining Sector, O. Reg. 560/94, s. 19 (Can.) (allowing fish and crustaceans to be used as test organisms for effluent monitoring).

161. See Sbert Carlsson, *supra* note 3, at 12 (explaining that ecological law is based on the notion that “humans and other species hav[e] equal intrinsic value”).

162. See *id.* at 20 (“The challenge of incorporating *ecological primacy* into law involves setting benchmarks for ecological integrity and mechanisms to measure whether ecological integrity is being maintained and restored.”).

163. *Id.*

164. See, e.g., ANNUAL REPORT, *supra* note 98, at 75 (expressing concerns with impacts from mining in the Ring of Fire).

165. ONT. MINISTRY OF NAT. RES. & FORESTRY, FAR NORTH LAND USE STRATEGY: A DRAFT 7 (2015) [hereinafter DRAFT FAR NORTH LAND USE STRATEGY], www.ontario.ca/page/far-north-land-use-strategy.

166. See *id.* at 25 (identifying “[c]aring for the land,” protecting water sources, and sustainability as guiding principles).

ecological constraints may render areas that have mineral potential off limits (except for areas where there are existing rights).¹⁶⁷

Another opportunity for *ecological primacy* is the Far North Science Advisory Panel recommendation to use a “conservation-matrix model” for land use planning in the Far North.¹⁶⁸ As described elsewhere:

The Conservation Matrix Model represents a paradigm shift from reactive conservation planning in degraded systems to proactive conservation planning in large, intact systems. Rather than addressing “how much is enough?” with regards to protection, this model addresses “how much is too much?” with regards to human development on the landscape.¹⁶⁹

Despite these opportunities to favor ecological considerations in determining how land may be used, the Far North Act of 2010 also includes provisions that are inconsistent with *ecological primacy*. In particular, as already noted, it prioritizes mining interests by granting government discretion to allow mining in areas subject to a community-based land use plan—that does not allow mining—and in protected areas if the mining “is in the social and economic interests of Ontario.”¹⁷⁰ Also, the Act provides processes to amend community-based land use plans, including the boundaries of planning areas, independent of ecological considerations.¹⁷¹ *Ecological primacy* would require all amendments to consider the impact on ecological integrity (taking into account cumulative effects).¹⁷²

I now turn to the rehabilitation requirements applicable to mining in the Far North. From the perspective of *ecological primacy*, rehabilitation measures for new, ongoing, and abandoned mines (like those required by the Mining Act¹⁷³) would be important tools for restoring and maintaining ecological integrity, if they were tied to substantive, rather than procedural,

167. *Id.* at 42.

168. ADVISORY PANEL, *supra* note 20, at xv. The Draft Far North Land Use Strategy proposes a “stewardship” approach that it deems similar to this model. DRAFT FAR NORTH LAND USE STRATEGY, *supra* note 165, at 28.

169. *Conservation Matrix Model*, CAN. BEACONS PROJECT, www.beaconsproject.ca/cmm (last visited Apr. 14, 2019) [hereinafter *Conservation Matrix Model*].

170. Far North Act, S.O. 2010, c. 18, s. 14(4) (Can.); Mining Act, R.S.O. 1990, c. M.14, s. 204(3) (Can.).

171. See Far North Act, c. 18, s. 10(3) (allowing the Minister to amend “the boundaries of a planning area after a community based land use plan is approved” provided certain criteria are met, including First Nations approval).

172. Sbert Carlsson, *supra* note 3, at 11.

173. See Mining Act, c. M.14, s. 139–139.1 (outlining the requirements for rehabilitating mining sites).

standards.¹⁷⁴ Also, the standards for remediation should be based, not on what is achievable by the proponent, but on what is needed for functioning ecosystems to retain their integrity.¹⁷⁵ However, while some heavily contaminated former mining sites have been reclaimed,¹⁷⁶ actually restoring them is a different matter: “‘Restoration’, especially of mining disturbances, is essentially impossible. No matter how much money is spent on the ‘reclamation’, the complete restoration of the previous ecosystem is impossible.”¹⁷⁷ Instead, the best to be expected is “a productive and suitable ecosystem that will replace the pre-mine ecosystem and achieve the desired post-mining land use (PMLU).”¹⁷⁸ Clearly, if fully restoring a mined site is deemed impossible, then—from the perspective of *ecological primacy*—mining should not be allowed in areas with high levels of ecological integrity.¹⁷⁹ Under the current legal framework within the Ring of Fire, however, even areas critical to ecological integrity may not be excluded from mining because they are covered under pre-existing mining claims.¹⁸⁰

3. Ecological Justice

Community participation in mineral extraction is a critical element of *ecological justice* because it allows those impacted to influence decisions on whether to disrupt the land and how to distribute the benefits and harms

174. Compare Pardy & Stoehr, *supra* note 114, at 13 (“The purpose of the [Mining] Act is not to protect against environmental impact or provide for public safety, but to facilitate mining.”), with *supra* notes 165–69 and accompanying text (outlining substantive standards based on *ecological primacy* for authorizing mining and restoring old mines).

175. Compare Pardy & Stoehr, *supra* note 114, at 12–13 (explaining that the Mining Act “does not contain standards for rehabilitation of mining sites” and that the regulations only apply to mines if “they are found to be ‘practicable’”), with Sbert Carlsson, *supra* note 3, at 10–11 (providing that one of the purposes of ecological law is to restore and maintain ecological integrity); see also *supra* notes 6–14 and accompanying text (describing how ecological primacy focuses on promoting ecological integrity).

176. See NAT’L ORPHANED/ABANDONED MINES INITIATIVE, NOAMI PERFORMANCE UPDATE 2009-2015, at 13 (2015), www.abandoned-mines.org/wp/wp-content/uploads/2015/08/NOAMI-2015-UPDATE-ENG-WEB.pdf (“[Ontario’s Abandoned Mine Rehabilitation Program] has conducted rehabilitation projects on more than 80 of the highest priority abandoned mines sites located throughout Ontario.”).

177. Subijoy Dutta, Raj Rajaram & Bonnie Robinson, *Mineland Reclamation*, in SUSTAINABLE MINING PRACTICES – A GLOBAL PERSPECTIVE 179 (Vasudevan Rajaram et al. eds., 2005) (citation omitted).

178. *Id.*

179. See Sbert Carlsson, *supra* note 3, at 11 (explaining that ecological primacy requires governments to “forego non-essential benefits that may be harmful to the Earth community”).

180. See Far North Act, S.O. 2010, c. 18, s. 14(3) (Can.) (“If a community based land use plan is made or amended after a mining claim . . . is recorded, issued, or granted in an area to which the plan applies . . . [it] shall [not] affect, (a) the validity of the mining claim . . .”).

the disruption entails.¹⁸¹ In the Ring of Fire, this means, at a minimum, requiring the FPIC of Indigenous communities. But, as described above, the rules and practices currently in place in Canada do not meet this standard.¹⁸²

Another aspect of the framework that is not consistent with *ecological justice* is the protection of existing mining claims because it favors extraction of resources mostly for the short-term gain of mining companies and their shareholders, instead of promoting the equitable use of the Far North region by present and future humans and other beings.¹⁸³ Considering the importance of the region for (pre-existing) biodiversity,¹⁸⁴ no mineral extraction should be carried out in the Ring of Fire, regardless of pre-existing mining claims.¹⁸⁵ More fundamentally, from the perspective of *ecological justice*, if mining draws on the Earth's sustaining capacity by extracting non-renewable minerals and destroying the land, there should be a very good reason to undertake it.¹⁸⁶

Yet a question rarely posed of a mining project is what are the minerals for? This question is key from the perspective of *ecological justice*.¹⁸⁷ If it is impossible to mine without causing harm to other beings and restoring mined sites is deemed impossible,¹⁸⁸ then mining can only be justified to obtain minerals to satisfy basic human needs and when there are no

181. See Sbert Carlsson, *supra* note 3, at 12 (explaining that ecological justice requires fair distribution of benefits and harms and “includes the concept of environmental justice”). Cf. Gabriela Ratulea & Daniel Sorea, *Ecological Justice and the Matter of Fair Distribution*, in LEGAL PRACTICE & INTERNATIONAL LAWS 297, 298 (2011) (“[S]ocial justice focuses on distribution but is also concerned with individual recognition, participation and the functioning of the community’, which means that social justice equally applies to ecological problems. Hence we can extrapolate and speak about an ‘ecological justice’, as subset of social justice which is a distributive one.” (footnote omitted) (quoting DAVID SCHLOSBERG, *DEFINING ENVIRONMENTAL JUSTICE* 8 (2007))).

182. See *supra* Part III.B.2 (describing how Canada has implemented the concept of FPIC into its regulations governing mining).

183. See Far North Act, c. 18, s. 14(3) (exempting existing mining claims from community-based land use planning); ANNUAL REPORT, *supra* note 98, at 149 (commenting that “the environmental sensitivity of an area” and “the potential for environmental impacts” “play no role in determining whether a permit is required”). Cf. MINING ASS’N OF CAN., *FACTS AND FIGURES OF THE CANADIAN MINING INDUSTRY* 12 (2017) (“The extractive industry, which combines mineral extraction with oil and gas extraction, contributed \$124.8 billion, or 7.5%, to Canada’s GDP in 2016.”).

184. See ADVISORY PANEL, *supra* note 20, at xi (detailing the Far North’s unique natural landscapes).

185. Sbert Carlsson, *supra* note 3, at 11.

186. See *supra* notes 15–18 and accompanying text (explaining how ecological justice is centered around fair distribution and taking of the Earth resources for necessary reasons).

187. See Sbert, *Re-imagining*, *supra* note 66, at 84–85 (articulating a needs-based approach to mining, which would only permit the extraction of non-renewable resources to satisfy “the reasonable needs of living generations”).

188. See *supra* notes 176–79 and accompanying text (explaining why fully restoring mines is basically impossible).

alternative means of obtaining them.¹⁸⁹ Under the current system, the reason for mining is that companies and their shareholders profit from extracting minerals for a wide array of uses, including speculation that may or may not relate to the satisfaction of basic needs.¹⁹⁰

This is true in the Far North, where commodity markets—not community needs—drive extraction,¹⁹¹ and the benefits accrue to mining companies.¹⁹² Many basic needs are not met in the communities of the Far North, including safe drinking water,¹⁹³ and some argue that mineral extraction in the region will contribute resources to address these basic needs.¹⁹⁴ However, the wealth from mineral extraction usually benefits corporations and their shareholders, rather than the communities, despite arrangements that could be put in place for mines to be “bridges to more desirable and sustainable futures,” as Professor Robert Gibson suggests.¹⁹⁵ Moreover, there are other sources of wealth that could be more easily tapped to satisfy these basic needs; for example, corporations and the extremely rich could be taxed more effectively.¹⁹⁶ Proponents argue that mining contributes to economic growth; provides revenue to governments and communities; and provides minerals that are needed for infrastructure,

189. Sbert Carlsson, *supra* note 3, at 11.

190. *Id.* at 20 (“Globally, the [mining] sector is driven by the demand for commodities and the pursuit of profit . . .”).

191. Under the Far North Act of 2010, for example, community needs are not the starting point for the land use planning process, but only a consideration in a decision to allow some types of development in the absence of a land use plan. *See, e.g.*, Far North Act, S.O. 2010, c. 18, s. 14 (Can.) (allowing the Lieutenant Governor to approve mining in both protected areas and when mining would be inconsistent with a community-based land use plan).

192. *Cf.* MINING ASS’N OF CAN., *supra* note 183 (highlighting that mining makes up a significant portion of the Canadian economy).

193. Most Matawa First Nations communities are under boil water advisories. *See Advisories for Ontario*, WATERTODAY, www.watertoday.ca/maptest4.asp?province=8 (last visited Apr. 14, 2019) (indicating the communities that lack access to safe drinking water). Neskantaga has been under a boil water advisory since 1995. *Advisory for Neskantaga First Nation, Ontario*, WATERTODAY, <http://www.watertoday.ca/textm-a.asp?province=8&advisory=989> (last visited Apr. 14, 2019).

194. CHONG, *supra* note 87, at 7–8.

195. Robert B. Gibson, *Turning Mines into Bridges: Gaining Positive Legacies from Non-renewable Resource Projects*, J. ABORIGINAL MGMT., Oct. 2014, at 4, 7; *see also* Atlin & Gibson, *supra* note 104, at 49 (“While it is challenging for mining developments to generate sustainable outcomes . . . mining development can be designed and undertaken in ways that enhance prospects for lasting regional wellbeing.”).

196. *See, e.g.*, MAX LAWSON ET AL., OXFAM INT’L, REWARD WORK, NOT WEALTH 8 (2018), https://www.oxfam.org/sites/www.oxfam.org/files/file_attachments/bp-reward-work-not-wealth-220118-summ-en.pdf (reporting that the 2017 increase in wealth of the “2,043 dollar billionaires worldwide” could “end extreme poverty seven times over”); *see also id.* (“82% of all of the growth in global wealth in the last year went to the top 1%, whereas the bottom 50% saw no increase at all.”); *see also* Atlin & Gibson, *supra* note 104, at 49 (explaining how the Canadian Government should allocate a portion of its funds to creating sustainable mining features).

goods, and services that maintain and increase wellbeing.¹⁹⁷ The Library of Parliament estimates that “[t]he chromite in the Ring of Fire could meet North American needs for two centuries.”¹⁹⁸ Also, the minerals discovered in the Ring of Fire include copper and nickel¹⁹⁹—which are used in lithium-ion batteries for electric vehicles²⁰⁰—and copper and titanium, which are needed for solar panels.²⁰¹ These metals are supposedly needed for the fight against climate change.²⁰² The question is whether solar panels and electric cars are basic needs that should be satisfied to ensure wellbeing or mere wants, which are the result of demand generated by commodity markets and consumer preferences, including for individually owned (electric) cars. What would the *need* for chromite and the other metals in the Ring of Fire look like in a degrowth economy? Overcoming profit-based extraction is one of the major challenges in a shift to ecological law and an ecologically sustainable economy.²⁰³ But developing an alternative framework for needs-based extraction requires much further research, debate, and experimentation.

In summary, the framework governing mining in the Ring of Fire region is largely inconsistent with ecological law.²⁰⁴ However, tools that various groups have recommended to guide development in the region, like the conservation matrix and sustainability-based regional assessments, provide an opportunity to further *ecological primacy*.²⁰⁵ Moreover, if

197. See, e.g., CHONG, *supra* note 87, at 5, 7–8 (discussing multiple ways mining in the Ring of Fire could benefit First Nations); N. DEV. & MINES, *supra* note 89, at 11, 18 (proclaiming that mining in the Ring of Fire “presents a multi-generational economic opportunity” that will “[a]ttract jobs and investment”).

198. CHONG, *supra* note 87, at 3.

199. ADVISORY PANEL, *supra* note 20, at 16.

200. Mark Burton & Eddie van der Walt, *Electric-Car Revolution Shakes Up the Biggest Metals Markets*, BLOOMBERG NEWS (Aug. 2, 2017), www.bloomberg.com/news/articles/2017-08-02/electric-car-revolution-is-shaking-up-the-biggest-metals-markets.

201. CLEAN ENERGY CAN., MINING FOR CLEAN ENERGY: TRACKING THE CLEAN ENERGY REVOLUTION 4 (2017), <http://cleanenergycanada.org/wp-content/uploads/2018/03/MiningCleanEnergy2017.pdf>.

202. See WORLD BANK GRP., THE GROWING ROLE OF MINERALS AND METALS FOR A LOW CARBON FUTURE 26 (2017) (identifying copper, nickel, and titanium as “commodities assumed to play a potentially prominent role in the energy shift to a carbon constrained future”).

203. See Sbert Carlsson, *supra* note 3, at 12 (positing that ecological law “implies a society that aims to attain sufficient—not maximum—wealth”).

204. See *supra* Parts III.C.1–3 (describing how the elements of ecological law are absent from Canada’s framework).

205. See *supra* notes 168–69 and accompanying text (describing how the Far North Science Advisory Panel recommended the use of the conservation-matrix model in the Far North); see also *supra* note 104 and accompanying text (explaining the idea of Regional Strategic Environmental Assessments).

demands for indigenous jurisdiction over the Ring of Fire succeed,²⁰⁶ indigenous laws might foster values that resonate with ecological law²⁰⁷ or present different obstacles.²⁰⁸ But as it stands today, the Ontario framework that purportedly ensures that mining in the Ring of Fire is sustainable is anthropocentric; prioritizes economic interests over ecological integrity; and favors a few mining claims over current and future generations of humans—the majority of whom are First Nations on whose traditional territories the mining would occur regardless of their FPIC—and other beings.

CONCLUSION

This paper uses the *lens of ecological law* to consider aspects of two very different legal frameworks governing mining to consider some of challenges and opportunities associated with a shift to ecological law.

El Salvador's mining ban provides an example of an opportunity to adopt ecological law that arises in the context of critical environmental problems, such as water pollution and scarcity.²⁰⁹ However, it is questionable whether these openings provide solid foundations for a transition to ecological law. Although the decision to ban metal mining was based in great part on the need to avoid breaching ecological limits, especially regarding water, it does not appear that this derived from an understanding of sustainability as ecological sustainability. Rather, the decision to ban metal mining seems to have resulted from a calculation in which the government determined that the negative ecological and social impacts of mining were not worth the economic benefits.²¹⁰ Thus, this calculation might have led to a different result if El Salvador had a tradition

206. See *supra* notes 107–09 and accompanying text (discussing indigenous jurisdictional claims to land in the Ring of Fire).

207. For example, Patrick Glenn argues that under indigenous–chthonic–law: “You don’t simply have to repair damage to the environment; you and your kind have to live entire lives which accord as much respect to the natural world as to yourself.” H. PATRICK GLENN, *LEGAL TRADITIONS OF THE WORLD: SUSTAINABLE DIVERSITY IN LAW* 76 (Oxford University Press 5th ed. 2014).

208. At the same time, other scholars caution that indigenous legal traditions should not be assumed to be either ecologically based or inherently sustainable. See, e.g., Benjamin J. Richardson, *The Ties that Bind: Indigenous Peoples and Environmental Governance*, in *INDIGENOUS PEOPLES AND THE LAW: COMPARATIVE AND CRITICAL PERSPECTIVES* 337, 340–44 (Benjamin J. Richardson, Shin Imai & Kent McNeil eds., 2009) (arguing that indigenous law does not always result in environmentally sustainable outcomes).

209. See *supra* Parts II.A–B (describing some of the reasons why El Salvador decided to ban metal mining).

210. See *supra* Parts II.B.1–3 (outlining how El Salvador’s metal mining ban lacks the elements of ecocentrism, ecological primacy, and ecological justice).

of mining and if profitable mines were operating at the time.²¹¹ Still, choosing “water over gold” and the role of science in enacting this ban are important precedents for ecological law.²¹²

The Ring of Fire case study focuses on opportunities for an ecological law framework which promises sustainable mining in one of the planet’s last remaining areas with ecological integrity.²¹³ Despite some tools that could promote *ecological primacy* and *ecological justice*,²¹⁴ this framework ultimately prioritizes economic interests over both ecological imperatives and First Nations’ consent for activities that might impact their traditional territories.²¹⁵ Finally, the case study also demonstrates that the framework, and various environmental laws, governing mining in the Ring of Fire have anthropocentric and utilitarian characteristics that are incompatible with *ecological justice*.²¹⁶

The underlying question is under what circumstances would ecological law allow mineral extraction. These two case studies show that mining would not be permitted in areas where ecological limits are being pushed to the brink (as in El Salvador) and in areas where ecological integrity remains high (as in the Far North of Ontario). Yet a mining ban cannot be the only possible way to observe *ecological primacy*. Some form of mining could be allowed in already disturbed sites with ecological conditions determinative in each case. In addition, another decisive element is what purpose the extracted minerals are used for, which is a question current law does not address.²¹⁷ Minerals are used directly and as part of goods and services to satisfy basic human needs and will likely always be required for this to some extent.²¹⁸ Thus, key questions for ecological law and democratic

211. See *supra* Part II.B.3 (arguing that the metal mining ban is subject to shifting interests because it is based on an anthropocentric worldview).

212. Broad & Cavanagh, *supra* note 45; see also *supra* Part II.B.2 (discussing some of the ways El Salvador used science in deciding to ban metal mining).

213. See *supra* Part III.A (describing Canada’s efforts to balance mineral development with environmental protection).

214. See *supra* notes 104, 168–69 and accompanying text (discussing tools such as conservation-matrix model and Regional Strategic Environmental Assessments).

215. See *supra* Parts III.C.1–3 (explaining how Canada’s framework governing mineral development prioritizes the economic interests of corporations); see also *supra* Part II.B.2 (criticizing the Far North Act and Mining Act because they fail to require the FPIC of First Nations over decisions that may affect their lands).

216. See *supra* Parts III.C.1–3 (concluding that the laws governing mineral development in the Ring of Fire are neither ecocentric nor based on ecological justice).

217. See, e.g., Far North Act, S.O. 2010, c. 18, s. 14(4) (Can.) (allowing the Lieutenant Governor to approve mines that are “in the social and economic interests of Ontario”).

218. See WORLD COMM’N ON ENV’T AND DEV., OUR COMMON FUTURE, FROM ONE EARTH TO ONE WORLD, CH. 8: INDUSTRY: PRODUCING MORE WITH LESS, ¶ 2 (1987) (“Many essential human needs can be met only through goods and services provided by industry.”).

debate are: (1) what a needs-based extraction framework would look like and (2) the specific conditions under which ecological law would allow for mineral extraction to satisfy basic needs.

I have suggested elsewhere that needs-based mining implies reducing mineral demand; relying primarily on existing stocks and landfill mining; and only allowing new extraction in exceptional circumstances and under strict measures to avoid serious harm.²¹⁹ Ecological law would require the consent of potentially impacted people and the FPIC of indigenous peoples if extraction would affect their traditional territories.²²⁰ Ecological law also considers the implications for the ability of other beings to access the sustaining capacity of the Earth.²²¹ Perhaps by limiting extraction to small volumes over long periods of time and using low impact technologies, mining is possible without diminishing the ecological integrity of the ecosystem in which minerals are located.²²² However, this is unthinkable under the current capitalist logic that drives mining—a reminder that a shift to ecological law is part of a much broader shift in worldview and socio-economic paradigm.²²³

219. Sbert, *Re-imagining*, *supra* note 66, at 85.

220. *See supra* notes 125–33 and accompanying text (discussing the concept of FPIC of indigenous peoples).

221. Sbert Carlsson, *supra* note 3, at 11.

222. Sbert, *Re-imagining*, *supra* note 66 (outlining how mining could promote “sustainability and equity”).

223. JOEL KOVEL, *THE ENEMY OF NATURE: THE END OF CAPITALISM OR THE END OF THE WORLD?* 97 (2007); *see, e.g.*, Geoffrey Garver, *The Rule of Ecological Law: The Legal Complement to Degrowth Economics*, 5 *SUSTAINABILITY* 316, 317 (2013) (claiming that “contemporary environmental law is deficient as a means to enclose and regulate the human enterprise” and advocating instead for a “degrowth movement,” which “provides a specific context for the emergence of the rule of ecological law”); CORMAC CULLINAN, *WILD LAW: A MANIFESTO FOR EARTH JUSTICE* 59–61 (2d ed. 2011) (“Shifting the paradigm of the homosphere to an Earth-centred worldview will take the efforts of many people in many fields . . .”); Michael M’Gonigle & Paula Ramsay, *Greening Environmental Law: From Sectoral Reform to Systemic Re-formation*, 14 *J. ENVTL. L. & PRAC.* 333, 335 (2004) (developing a “green legal theory,” which “examine[s] the role of law . . . in both creating systemic unsustainability, and in impeding or facilitating its resolution”).