

Mining from the Lens of Ecological Law:
Obstacles and Opportunities for Re-formation

Carla Sbert Carlsson

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Department of Graduate and Postdoctoral Studies
Faculty of Law, Common Law
University of Ottawa

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RÉSUMÉ

Le droit écologique est un paradigme juridique qui émerge en réponse à la crise écologique actuelle. Cette thèse explore les principaux défis et opportunités des lois existantes, en particulier dans le contexte de l'exploitation minière, pour passer à ce nouveau paradigme. Une synthèse des principales critiques, concepts scientifiques et économiques, études juridiques et propositions contribuant à la théorie du droit écologique est présentée, ainsi qu'une discussion sur les relations et les synergies potentielles du droit écologique avec les traditions juridiques autochtones et avec la Théorie juridique verte (Green Legal Theory). Un outil analytique permettant de mieux comprendre ce qu'impliquerait un passage au droit écologique - la *lentille du droit écologique* - est proposé, en s'appuyant sur les travaux du droit écologique. La *lentille du droit écologique* repose sur trois principes du droit écologique: l'*écocentrisme*, la *primauté écologique* et la *justice écologique*. Cette lentille s'applique à trois approches juridiques différentes de l'exploitation minière afin de réfléchir aux implications d'un changement vers le droit écologique dans ce secteur: l'interdiction de l'extraction minière des métaux au El Salvador; l'extraction minière proposée dans la ceinture de feu de l'Ontario; et l'exploitation minière dans le contexte des droits de la Mère nourricière et du concept andin de *vivir bien* reconnu par la législation bolivienne. Des conclusions sur les obstacles et les possibilités de passer au droit écologique minier, ainsi que des recommandations sur la réforme radicale de l'extraction minière s'appuyant sur le droit écologique et sur des recherches plus poussées sont proposées en conclusion. Le droit écologique promet d'être un élément important de la construction d'une société écologiquement juste.

ABSTRACT

Ecological law is a legal paradigm that is emerging in response to the current ecological crisis. This thesis explores the main challenges and opportunities in existing laws, particularly in the context of mining, for a shift to this new paradigm. A synthesis of the main critiques, scientific and economic concepts, legal scholarship and proposals that contribute to the theory of ecological law is presented, along with a discussion of the relationship and potential synergies of ecological law with Indigenous legal traditions and with Green Legal Theory. An analytical tool to help improve the understanding of what a shift to ecological law would entail—a *lens of ecological law*—is proposed, building on ecological law scholarship. The *lens of ecological law* consists of three principles of ecological law: *ecocentrism*, *ecological primacy* and *ecological justice*. This lens is applied to three different legal approaches to mining in order to reflect on the implications for a shift to ecological law in this sector: El Salvador’s ban on metal mining; mineral extraction proposed in Ontario’s Ring of Fire; and mining in the context of the rights of Mother Earth and *vivir bien* recognized in Bolivian law. Conclusions on the obstacles and opportunities for a shift to ecological law in mining, and recommendations on the ecological law re-formation of mining and on further research are offered in closing. Ecological law promises to be an important part of building an ecologically just society.

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DEDICATION

For my mother

In memory of my father

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INTRODUCTION

Ecological law is a legal paradigm that is emerging in response to the current ecological crisis. This thesis explores the main challenges and opportunities in existing laws, particularly in the context of mining, for a shift to this new paradigm. In Part 1, the first chapter summarizes the main critiques, scientific and economic concepts, legal scholarship and proposals that contribute to the theory of ecological law. It also discusses the relationship and potential synergies of ecological law with Indigenous legal traditions and with Green Legal Theory. The second chapter proposes a *lens of ecological law* as an analytical tool to help improve the understanding of what a shift to ecological law would entail. In particular, it builds on Geoffrey Garver's work regarding "the rule of ecological law as a legal complement to degrowth economics," Klaus Bosselmann's concept of ecological justice, and Cormac Cullinan's advocacy for an Earth jurisprudence and wild law. The *lens of ecological law* consists of three principles of ecological law: *ecocentrism*, *ecological primacy* and *ecological justice*.

In Part 2, three case studies examine the implications for a shift to ecological law by applying this lens to three different legal approaches to mining. Mining is a fitting focus for this preliminary exercise given the ubiquity of minerals in the lives of practically all humans today, the often devastating impact of mining on the landscape and neighbouring communities and the nonrenewable nature of minerals. Chapter three queries whether El Salvador's ban on metal mining (the first worldwide) is a step towards ecological law. In considering mineral extraction proposed in Ontario's Ring of Fire, chapter four searches for elements of ecological law in a legal framework that purportedly ensures mineral extraction would be sustainable in one of the few

ecologically intact regions remaining in the world. Finally, chapter five examines mineral extraction in the context of the rights of Mother Earth and the Andean concept of *vivir bien/buen vivir* (living well), both recognized in Bolivian law, and considers their significance for ecological law, with particular focus on the lithium industrialization project in the *Salar de Uyuni*. The conclusion provides a summary, a preliminary assessment of the *lens of ecological law* as an analytical tool, and an overview of the key obstacles and opportunities for a shift of ecological law identified through the case studies. It closes with some thoughts on the ecological law re-formation of mining and on further research.

Ecological law would demand that mining be carried out without causing serious harm to humans (workers, neighbours and users/consumers) and other beings, and without diminishing the ecological integrity of the ecosystem in which it takes place. These are no minor demands that will involve profound changes in the way mining is currently carried out (scale, timeframes and technologies), as well as with respect to the reasons minerals are dug up, how they are traded and the relationships between a mine and its miners, neighbors and ecological context.

This thesis contributes a synthesis of ecological law theory; a tool to reflect on the transition from current laws to ecological laws (the *lens of ecological law*); and some preliminary conclusions about what the obstacles and opportunities are in the context of mining. It aims to contribute both to the transformation of law towards ecological law, and to the transformation of mining so it may be part of an ecological and convivial society (roughly in the sense proposed by Ivan Illich). These transformations are paths towards the mutually enhancing human-Earth relationship Thomas Berry argues is

forthcoming as part of the evolution of the Universe. They are radical transformations that will most certainly be very difficult to achieve, but that need to be imagined, analyzed and debated.

PART 1 – ECOLOGICAL LAW

CHAPTER 1 – THE EMERGING THEORY OF ECOLOGICAL LAW

This chapter provides an overview of the theory of ecological law. First, it describes the science, economics and critiques of environmental law underpinning this new approach to law. Section two reviews the main scholarship contributing to the theory of ecological law. The third section addresses questions of terminology and definition, and the fourth examines the paradigm shift ecological law entails. Sections five and six briefly consider, respectively, the relationships between ecological law and Indigenous legal traditions, and between ecological law and Green Legal Theory.

1.1 *Underpinnings*

The ecological crisis is reaching some of the tipping points that may lead to catastrophic change in the Earth System.¹ At the core of this crisis is the intensification of materials and energy use since the 1950s resulting from an economic model based on constant and unlimited economic growth.² An anthropocentric, mechanistic worldview underlies this economic paradigm and its response to environmental harm.³ While

¹ See e.g. Johan Rockström et al., “Planetary Boundaries: Exploring the Safe Operating Space for Humanity,” (2009) 14: 2 Ecology & Society 32.

² James Gustave Speth, *The Bridge at the Edge of the World: Capitalism, the Environment, and Crossing*

² James Gustave Speth, *The Bridge at the Edge of the World: Capitalism, the Environment, and Crossing from Crisis to Sustainability*, (New Haven: Yale University Press, c2008); Will Steffen et al, “The Anthropocene: From Global Change to Planetary Stewardship,” (2011) 40 AMBIO 739; Will Steffen et al, “The Trajectory of the Anthropocene: The Great Acceleration,” (2015) The Anthropocene Review 1.

³ Stuart Kauffman, *At Home in the Universe: The Search for the Laws of Self-Organization and Complexity*, (New York: Oxford University Press, 1995), cited in Carolyn Merchant, *Reinventing Eden: The Fate of Nature in Western Culture*, (New York; London: Routledge, 2003) at 206; Clive Ponting, *A Green History of the World: The Environment and the Collapse of Great Civilizations*, (Penguin Books, 1993) at 141-160; Klaus Bosselmann, “Losing the Forest for the Trees: Environmental Reductionism in the Law,” (2010) 2:8 Sustainability 2424 at 2430-2431; Peter Boulot, “A New Legal Paradigm: Towards a Jurisprudence Based on Ecological Sovereignty,” (2012) 8:1 Macq J Int’l & CEnv’tl L 1 at 9-10; Fritjof Capra & Ugo Mattei, *The Ecology of Law: Toward a Legal System in Tune with Nature and Community*, (Oakland, CA: Berrett-Koehler Publishers, 2015) at 13.

contributing to important improvements in local environmental quality and conservation, environmental law has ultimately failed to prevent or respond to this crisis.⁴ A new approach to law is emerging in response, as a growing number of scholars point to the need for Earth-centered law that gives preeminence to ecological limits over other interests.⁵ The picture of the underpinnings of ecological law presented below is only a snapshot of what are complex interrelated topics and it does not include (or mentions only in passing) critiques of capitalism, debates on development and ecology, environmental ethics, ecofeminism, and other cultural and political debates that are part of the contextual and theoretical background of emerging ecological law.⁶ The focus in sections 1.1.1 through 1.1.3 is, instead, on what I have found to be the primary non-legal footings of ecological law.

⁴ In addition to *infra* note 5, see e.g. Hans Christian Bugge, “Twelve Fundamental Challenges in Environmental Law,” in Christina Voigt, ed, *Rule of Law for Nature: New Dimensions and Ideas in Environmental Law*, (Cambridge, UK; NY, NY: Cambridge University Press, 2013); Stepan Wood, Georgia Tanner & Benjamin J Richardson, “What Ever Happened to Canadian Environmental Law?,” (2010) 37:4 Ecology LQ 981; Mary Christina Wood, “Ecological Realism and the Need for a Paradigm Shift. (Advancing the Sovereign Trust of Government to Safeguard the Environment for Present and Future Generations, part 1),” (2009) 39:1 Env’tl L 43.

⁵ Cormac Cullinan, *Wild Law: A Manifesto for Earth Justice*, (White River Junction, VT: Chelsea Green Pub., c2011); David R Boyd, “Sustainability Law: (R)Evolutionary Directions for the Future of Environmental Law. (Future Directions?),” (2004) 14 J Env’tl L & Prac 357; Klaus Bosselmann, “Ecological Justice and Law,” in Benjamin J Richardson & Stepan Wood, eds, *Environmental Law for Sustainability: A Reader*, (Portland, OR: Hart Pub., 2006) 129; Geoffrey Garver, “The Rule of Ecological Law: The Legal Complement to Degrowth Economics,” (2013) 5 Sustainability 316.

⁶ To name a few: Joel Kovel, *The Enemy of Nature: The End of Capitalism or the End of the World?*, (Halifax, NS: Fernwood, c2002); Wolfgang Sachs, ed, *Global Ecology: A New Arena of Political Conflict*, (London; Atlantic Highlands, NJ: Zed Books; Halifax, NS: Fernwood Pub., c1993); Edward Goldsmith et al, *The Future of Progress: Reflections on Environment and Development*, (Totnes, Devon: Green Books, Ltd; Bristol; Berkeley, CA: International Society for Ecology and Culture, 1995); Bill Devall & George Sessions, *Deep Ecology*, (Salt Lake City, Utah: G.M. Smith, c1985); Carolyn Merchant, *The Death of Nature: Women, Ecology, and the Scientific Revolution*, 1st ed, (San Francisco: Harper & Row, c1980); Murray Bookchin, *Post-scarcity Anarchism*, (London: Wildwood House, 1974); Clarence J Glacken, *Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century*, (Berkeley: University of California Press, 1967).

1.1.1 The Universe Story, the Anthropocene and Planetary Boundaries

The anthropocentric, mechanistic worldview in which humans⁷ are separate from nature, and nature is there for humans to master through technology, is based, among other thinking, on pre-Copernican astronomy, Christian theology and Cartesian philosophy.⁸ This worldview largely remains the mainstream Western paradigm for the human-nature relationship, despite the fact that it has lost its basis in science in the wake of theories of relativity, evolution, ecology, chaos, complexity, self-regulating life (Gaia hypothesis), etc.⁹ The “Universe story” revealed by these theories—to use the framing by Brian Swimme and Thomas Berry—negates a conception of humans as being at the center of the universe and separate from nature.¹⁰ This scientific knowledge also disproves the idea that humans can fully understand and control nature.¹¹ “The new sciences,” Carolyn Merchant writes, “are based on a different set of assumptions about the nature of reality than mechanism: wholeness rather than atomistic units, process rather than the rearrangement of parts, internal rather than external relations, the nonlinearity and nonpredictability of fundamental change, and pluralism rather than reductionism.”¹²

⁷ I have phrased this in a gender-neutral way, but anthropocentric thinking was generally conceived and expressed in terms of the place of ‘man’ in the world. For a feminist critique see, e.g. Carolyn Merchant, *The Death of Nature*, *supra* note 6.

⁸ Peter Burdon, “Eco-Centric Paradigm,” in Peter Burdon, ed, *Exploring Wild Law: The Philosophy of Earth Jurisprudence*, (Kent Town, South Australia: Wakefield Press, 2011) 85; Olivia Woolley, “Scientific and Ethical Foundations,” in *Ecological Governance: Reappraising Law’s Role in Protecting Ecosystem Functionality*, (Cambridge University Press, 2015) 15.

⁹ Brian Swimme & Thomas Berry, *The Universe Story: From the Primordial Flaring Forth to the Ecozoic Era—A Celebration of the Unfolding of the Cosmos*, (New York: Harper San Francisco, 1992); Merchant, *Reinventing Eden*, *supra* note 3 at 205-220; Stephan Harding, “Gaia and Earth Jurisprudence,” in Burdon, ed, *Exploring Wild Law*, *supra* note 8, 79; Woolley, “Scientific and Ethical Foundations,” *supra* note 8.

¹⁰ Swimme & Berry, *The Universe Story*, *supra* note 9.

¹¹ See e.g. William Leiss, *The Domination of Nature*, (Canada: McGill-Queen’s University Press, 1994).

¹² Merchant, *Reinventing Eden*, *supra* note 3 at 220.

At the same time, it is increasingly clear that, while humans are but a part of nature and cannot fully control it, the scale and nature of human activity is impacting nature in ways that can lead to dramatic change. The concept of the Anthropocene, first proposed by Paul Crutzen in 2000, conveys this new reality.¹³ It refers to a new geological epoch in which humans have become drivers of global Earth System changes.¹⁴ This potential new epoch follows the Holocene – the last roughly 10,000-year period presenting the set of stable planetary conditions in which human civilizations have been able to flourish.¹⁵ Based on what have come to be known as the “Great Acceleration graphs,”¹⁶ Steffen, et al highlight the increasing rate of change in the human enterprise since industrialization followed by

[t]he remarkable discontinuity in the human enterprise about the middle of the twentieth century [which] defines the beginning of the second stage of the Anthropocene. The speeding up of just about everything after the Second World War [...] Human population has tripled, but the global economy and material consumption have grown many times faster. The connectivity of humanity has grown at an astounding rate since 1950, as seen in foreign direct investment, international tourism and the numbers of motor vehicles and telephones.¹⁷

¹³ PJ Crutzen & EF Stoermer, “The Anthropocene,” (2000) 41 *Global Change Newsletter* 17. For a discussion of the origins of the concept and an update of the relevant data see Steffen et al, “The Trajectory of the Anthropocene,” *supra* note 2.

¹⁴ Working Group on the ‘Anthropocene,’ “What is the ‘Anthropocene’?: Current Definition and Status,” online: International Commission on Stratigraphy (ICS), Subcommittee on Quaternary Stratigraphy (SQS) <<http://quaternary.stratigraphy.org/workinggroups/anthropocene/>> (accessed 20 August 2015). Debates are ongoing about when the Anthropocene started—whether in the mid-Twentieth Century, with industrialization in the 1800s, with the invention of agriculture, or at a different point in time. See e.g. SL Lewis, & MA Maslin, “Defining the Anthropocene,” (2015) 519 *Nature* 171

¹⁵ Steffen et al, “The Anthropocene,” *supra* note 2 at 741.

¹⁶ Steffen et al, “The Trajectory of the Anthropocene,” *supra* note 2 at 2.

¹⁷ Steffen et al, “The Anthropocene,” *supra* note 2 at 743.

These authors also examine the Great Acceleration through an environmental impact analysis using the $I=f(PAT)$ ¹⁸ formula and find, in addition to the “enormous increase” in environmental impact from 1950 to 2011 relative to the 1900–1950 period,¹⁹ a change in “the relative importance of the factors. From 1900 to 1950 population, consumption and technology had roughly equal effects, while from 1950 to the present increases in consumption and technology have become the dominant factors driving environmental impact.”²⁰ Steffen et al conclude, among other things, that “[w]e are the first generation with widespread knowledge of how our activities influence the Earth System, and thus the first generation with the power and the responsibility to change our relationship with the planet,”²¹ and that “[w]ithout [effective planetary] stewardship, the Anthropocene threatens to become for humanity a one-way trip to an uncertain future in a new, but very different, state of the Earth System.”²²

The concept of the Anthropocene is increasingly being used to frame discussions of environmental governance.²³ It is also often characterized as the epoch in which humans are in the “driver’s seat.”²⁴ In my view, this characterization makes sense only if

¹⁸ The $I=f(PAT)$ formula is a calculation of environmental impact (I) as a function (f) of population (P), affluence (A) and technology (T). Barry Commoner, “The Environmental Cost of Economic Growth” in *Population, Resources and the Environment*, (Washington, DC: Government Printing Office, 1972) 339; Paul R Ehrlich & John P Holdren, “Impact of Population Growth,” (1971) 171 *Science* 1212.

¹⁹ Steffen et al, “The Anthropocene,” *supra* note 2 at 743.

²⁰ Steffen et al, “The Anthropocene,” *supra* note 2 at 743.

²¹ This statement could be challenged for its blindness to Indigenous knowledge and its own understanding of the Earth System (under different names) in relation to people, in the many variations across the diversity of Indigenous people. Indigenous knowledge is discussed further in section 1.5 below.

²² Steffen et al, “The Anthropocene,” *supra* note 2 at 757.

²³ E.g. Louis Kotzé, “Rethinking Global Environmental Law and Governance in the Anthropocene,” (2014) 32:2, *J Energy & Nat’l Res L* 121; Victor Galaz, *Global Environmental Governance, Technology and Politics: the Anthropocene Gap*, (Cheltenham: Edward Elgar Pub Ltd, 2014); Frank Biermann, *Earth System Governance: World Politics in the Anthropocene*, (Cambridge, Massachusetts: The MIT Press, 2014).

²⁴ For example, in the inaugural issue of the magazine “Anthropocene” the editor-in-chief compares humans to the cyanobacteria that dramatically altered the planet over 2 billion years ago, but notes that our species can become aware of its power and, thus, of its responsibility. She concludes: “There’s been an ongoing debate in environmental circles about whether the Anthropocene is good or bad. Our take on the

it is understood that humans are in the driver's seat with regard to human behavior that impacts the planet, and not with the planet as a whole.

Closely linked to the notion of the Anthropocene is the Planetary Boundaries (PB) framework proposed in 2009 by a group of 28 scientists in a paper titled "Planetary Boundaries: Exploring the Safe Operating Space for Humanity."²⁵ This framework, updated in 2015,²⁶ provides a synthesis of the extensive multidisciplinary scientific understanding of the global ecological crisis. In the context of the impact of human activities on climate and ecosystems (as reported by the IPCC and the MEA 2005) and the advent of the Anthropocene, the authors presented "a novel concept, 'planetary boundaries', for estimating a safe operating space for humanity with respect to the functioning of the Earth System."²⁷ In their 2009 report, they "make a first preliminary effort at identifying key Earth System processes and attempt to quantify for each process the boundary level that should not be transgressed if we are to avoid unacceptable global environmental change."²⁸ Planetary Boundaries for nine Earth System processes were identified, and refined in the 2015 update: climate change, ocean acidification, stratospheric ozone depletion, biogeochemical flows (focused on the phosphorus and nitrogen cycles), global freshwater use, land-system change, biosphere integrity, atmospheric aerosol loading, and novel entities.²⁹ Further, the 2015 update identified "a two-level hierarchy of boundaries, in which climate change and biosphere integrity

question is that it is inherently neither. It simply *is*: it is the rather extraordinary time in history in which we find ourselves. And for good or ill, we are now in the driver's seat. So let's start talking about where we want to go." Kathryn Kohm, "Welcome to the Anthropocene," (2016) *Anthropocene* 1 at 4.

²⁵ Rockström et al, "Planetary Boundaries," *supra* note 1.

²⁶ Will Steffen et al, "Planetary Boundaries: Guiding Human Development on a Changing Planet," (2015) January 15 *Science* 1.

²⁷ Rockström et al, "Planetary Boundaries," *supra* note 1 at 2.

²⁸ Rockström et al, "Planetary Boundaries," *supra* note 1 at 2.

²⁹ Steffen et al, "Planetary Boundaries," *supra* note 26 at 3-6.

should be recognized as core PBs through which the other boundaries operate.”³⁰ The group estimates that humanity has already transgressed four Planetary Boundaries: climate change, biosphere integrity, interference with biogeochemical flows and land-system change.³¹

Planetary Boundaries provide a new reference point for discussions about changes to policy, governance, and law in order to confront the ecological crisis. The framework claims to favour no specific policy approaches, but it provides an increasingly urgent warning that human activities cannot continue down the current path of material and energy intensive economic growth if catastrophic global environmental changes are to be avoided. The authors argue that the framework “suggests the need for novel and adaptive governance approaches at global, regional, and local scales.”³² How to relate domestic policy to Planetary Boundaries, and how to create a global legal framework based on Planetary Boundaries, are among the questions being explored by some scholars,³³ even though governments themselves and global institutions have not seriously taken up the concept of Planetary Boundaries (or other expression of non-negotiable ecological limits to human activity).

A holistic vision of the world and the deepening understanding of the interconnected, complex systems of which humans are an integral part is one of the foundations on which ecological law is developing. Another important and related foundation is the critique of the economic growth paradigm.

³⁰ Steffen et al, “Planetary Boundaries,” *supra* note 26 at 6-7.

³¹ Steffen et al, “Planetary Boundaries,” *supra* note 26 Figure 3 at 15.

³² Rockström et al, “Planetary Boundaries,” *supra* note 1 at 22-23 [references omitted].

³³ E.g. Björn Nykvist et al, “National Environmental Performance on Planetary Boundaries: A Study for the Swedish Environmental Protection Agency,” (SEPA Report 6576, June 2013); Paulo Magalhães et al, eds, *The Safe Operating Space Treaty: A New Approach to Managing Our Use of the Earth System*, (Newcastle upon Tyne, UK: Cambridge Scholars Publishing, 2016).

1.1.2 Questioning the Economic Growth Paradigm

Critiques of the dominant paradigm of continuous economic growth³⁴ as a societal priority are not new, but they are mounting. As often pointed out, in the 19th century John Stuart Mill was already questioning whether infinite economic growth is possible or desirable on a finite planet.³⁵ More recently the Club of Rome,³⁶ Herman Daly,³⁷ Peter Victor,³⁸ and Tim Jackson,³⁹ are among those making this argument.⁴⁰

Ecological economics has shown that “[w]ith continued growth in production, the economic subsystem must eventually overwhelm the capacity of the global ecosystem to sustain it”⁴¹ and that increased material and energy throughput (causing pollution and resource depletion) is inherent to economic growth, despite technological innovation, greater efficiency and absolute de-coupling (understood as growth in GDP while resource use decreases or remains stable).⁴² Ecological economists have developed the theoretical

³⁴ According to Peter A Victor, “[e]conomic growth is usually defined as an increase in the goods and services produced by an economy in a given period of time, typically a year. The essence of economic growth, as normally understood, is the increase in Gross Domestic Product – GDP – in a country.” Peter A Victor, “Growth,” in Giacomo D’Alisa, Federico Demaria & Giorgos Kallis, eds, *Degrowth: A Vocabulary for a New Era*, (Abingdon, Oxon, UK: Routledge, 2015) 109 at 109.

³⁵ John Stuart Mill, *Principles of Political Economy*, (New York, NY: D Appleton & Company, 1884).

³⁶ Donella H Meadows & Club of Rome, *Limits to Growth: A Report for the Club of Rome's Project*, (New York, NY: Universe Books, 1972).

³⁷ Herman E Daly, *Steady-State Economics*, (Washington, DC: Island Press, 1991).

³⁸ Peter Victor, *Managing without Growth: Slower by Design, Not Disaster*, (Cheltenham, UK: Edward Elgar, c2008).

³⁹ Tim Jackson, *Prosperity without Growth: Economics for a Finite Planet*, (London, UK: Earthscan 2009).

⁴⁰ For a brief but more detailed account, see Samuel Alexander, “Earth Jurisprudence and the Ecological Case for Degrowth,” in Burdon, ed, *Exploring Wild Law*, *supra* note 8, 293 at 296-8.

⁴¹ Herman E Daly & Joshua C Farley, *Ecological Economics: Principles and Applications*, 2nd ed, (Washington, DC: Island Press, c2011) at 64.

⁴² Daly & Farley, *Ecological Economics*, *supra* note 41 at 64; Stefan Giljum, Monika Dittrich, Mirko Lieber & Stephan Lutter, “Global Patterns of Material Flows and their Socio-Economic and Environmental Implications: A MFA Study on All Countries World-Wide from 1980 to 2009,” (2014) 3 Resources 319.

foundations for a “steady-state”⁴³ or “no-growth”⁴⁴ economy, and along with others have put forth proposals for implementing them.⁴⁵

Research, debate, activism and experimentation challenging the growth paradigm are also flourishing within the Degrowth movement. Degrowth is described as “a downscaling of production and consumption that increases human well-being and enhances ecological conditions and equity on the planet.”⁴⁶ It “signifies, first and foremost, a critique of growth”⁴⁷ but it has many aspects, and is about more than economics:

Degrowth ... is not only about reduced throughput. It is about imagining and constructing a different society – a society that manages to convince itself that it has enough and that it no longer has to accumulate. ... A degrowth transition is not a sustained trajectory of descent, but a transition to convivial societies who live simply, in common and with less.⁴⁸

However, degrowth is anything but fully defined and static. The movement “is a frame, where different lines of thought, imaginaries, or courses of action come together,”⁴⁹ debating even the ‘degrowth’ label itself.⁵⁰

⁴³ Daly, *Toward a Steady-state Economy*, *supra* note 37.

⁴⁴ Victor, *Managing without Growth*, *supra* note 38 Jackson, *Prosperity without Growth*, *supra* note 39.

⁴⁵ In addition to those cited in *supra* 44, see Peter G Brown & Peter Timmerman, eds, *Ecological Economics for the Anthropocene: An Emerging Paradigm*, (La Vergne, US: Columbia University Press, 2015); Peter Brown & Geoffrey Garver, *Right Relationship: Building a Whole Earth Economy*, (San Francisco, CA: Berrett-Koehler Publishers, 2009); William E Rees, “Avoiding Collapse: An Agenda for Sustainable Degrowth and Relocalizing the Economy,” (Canadian Centre for Policy Alternatives, 2014).

⁴⁶ Research and Degrowth, “Definition, Sustainable Degrowth,” online: Research and Degrowth <www.degrowth.org/definition-2> (accessed 18 December 2014).

⁴⁷ D’Alisa, Demaria & Kallis, eds, *Degrowth*, *supra* note 34 at 3.

⁴⁸ D’Alisa, Demaria & Kallis, eds, *Degrowth*, *supra* note 34 at 11.

⁴⁹ D’Alisa, Demaria & Kallis, eds, *Degrowth*, *supra* note 34 at xxi.

⁵⁰ Stefan Drews & Miklós Antal, “Degrowth: A ‘Missile Word’ that Backfires?,” (2016) 126 *Ecological Economics* 182; also Miklós Antal, “D.E.growth: A Small Change in the Slogan with Large Benefits,” (blog post 11 October 2016), online: Degrowth <www.degrowth.de/en/2016/10/d-e-growth-a-small-change-in-the-slogan-with-large-benefits/> (accessed 17 November 2016).

Another important proposal challenging the growth paradigm is Kate Raworth's "Doughnut Economics."⁵¹ Focusing on social and economic development, Raworth builds on the Planetary Boundaries framework described earlier. She highlights the need for the fair distribution of the limited "safe operating space for humanity" to "enable humanity to thrive [...] ending deprivation and keeping within sustainable limits of natural resource use."⁵² Raworth argues for adding a social floor (economic justice) to the Planetary Boundaries framework to define a "safe *and just* operating space for humanity."⁵³ In other words, economic activities need to respect ecological limits but they also should benefit people equitably, and the safe space in which humanity can operate should be used in ways that ensure every person has access to the minimum requirements to flourish.

The Planetary Boundaries, Doughnut Economics and Degrowth approaches all share the pre-analytic vision of ecological economics: that the economy does not stand alone, but is embedded within society, which is itself embedded within the environment.⁵⁴ However, they engage differently with the limits to economic growth implied in this vision. Their treatment of the market economy and capitalism also varies.

The ecological economics of Daly and Farley calls for an end to growth, but not to markets; although they do question the premises that markets reveal all desires, are ideal for distributing resources justly and automatically limit the economy to a

⁵¹ Kate Raworth, "A Safe and Just Space for Humanity: Can We Live within the Doughnut?," (Oxfam Discussion Paper, 2012), online: <www.kateraworth.com/doughnut/> (accessed 19 January 2015); Kate Raworth, *Doughnut Economics: Seven Ways to Think Like a 21st Century Economist*, (Chelsea Green Publishers, 2017).

⁵² Raworth, "A Safe and Just Space for Humanity," *supra* note 51 at 20.

⁵³ Raworth, "A Safe and Just Space for Humanity," *supra* note 51 at 20 [emphasis added].

⁵⁴ Daly & Farley, *Ecological Economics*, *supra* note 41 at 23.

sustainable physical scale.⁵⁵ Daly and Farley define “growth” as “an increase in throughput, which is the flow of natural resources from the environment, through the economy, and back to the environment as waste” and as a “quantitative increase in the physical dimensions of the economy and/or of the waste stream produced by the economy.”⁵⁶ These authors distinguish growth from “development,” which they understand as an increase in the quality of goods and services (measured by the ability to increase human wellbeing) provided by a given throughput; that is, as evolution toward an improved—but not larger—structure or system.⁵⁷

Steffen, et al posit that the Great Acceleration has been driven by the “core value of post-World War II contemporary society [which] is ever-increasing material wealth generated by a growth-oriented economy based on neoliberal economic principles and assumptions” and that “climate change and other global changes are calling [this value] into question.”⁵⁸ The Planetary Boundaries framework, however

... does not offer a roadmap for sustainable development; it merely provides, in the context of the human predicament in the Anthropocene, the first step by identifying biophysical boundaries at the planetary scale within which humanity has the flexibility to choose a myriad of pathways for human well-being and development.⁵⁹

For Raworth “[t]he critical economic question is whether or not global GDP growth can be harnessed as a tool for moving into the doughnut – or whether a different

⁵⁵ Daly & Farley, *Ecological Economics*, *supra* note 41 at 6.

⁵⁶ Daly & Farley, *Ecological Economics*, *supra* note 41 at 6. See footnote 34 above regarding how economic growth is more commonly understood.

⁵⁷ Daly & Farley, *Ecological Economics*, *supra* note 41 at 6.

⁵⁸ Steffen et al, “The Anthropocene,” *supra* note 2 at 751.

⁵⁹ Rockström et al, “Planetary Boundaries,” *supra* note 1 at 5-6.

approach to economic development is needed.”⁶⁰ For their part, degrowth proponents (while not homogeneous in their views) fully engage with limits to economic growth,⁶¹ calling for the abolition of growth as a social objective,⁶² and critiquing both the use of GDP as a measure of wellbeing,⁶³ and capitalism itself.⁶⁴ To be sure, while the economic growth paradigm is increasingly being questioned, there are many differences in approach, emphasis and focus, as well as debates on how to abandon this paradigm.

Without pretending to present a comprehensive picture, the brief account in this section has highlighted some of the key critiques of economic growth that (along with the science-based frameworks roughly described in the previous section) implicitly or explicitly underpin ecological law proposals. The final theoretical foundation of ecological law is the critique of environmental law, outlined in the next section.

1.1.3 The Shortcomings of Environmental Law⁶⁵

We have to admit that to a large extent the environmental problems of our time are the negative side effects, and as such to a large extent an expected consequence, of our economic and social goals and ambitions. They are thus not only consciously ‘accepted’, but also – implicitly – wanted.

⁶⁰ Raworth, “A Safe and Just Space for Humanity,” *supra* note 51 at 20.

⁶¹ Geoffrey Garver, “Moving Forward with Planetary Boundaries and Degrowth,” in Laura Taylor Westra & Agnès Prudence Michelot, eds, *Confronting Ecological and Economic Collapse: Ecological Integrity for Law, Policy and Human Rights*, (Florence, KY, USA: Taylor and Francis, 2013) 203 at 203.

⁶² D’Alisa, Demaria & Kallis, eds, *Degrowth*, *supra* note 34 at 3.

⁶³ Dan O’Neill, “Gross Domestic Product,” in D’Alisa, Demaria & Kallis, eds, *Degrowth*, *supra* note 34, 103.

⁶⁴ Diego Andreucci & Terrence McDonough, “Capitalism,” in D’Alisa, Demaria & Kallis, eds, *Degrowth*, *supra* note 34, 59; *C.f.* Michael M’Gonigle & Louise Takeda, “The Liberal Limits of Environmental Law: A Green Legal Critique,” (2013) 30 Pace Envtl L Rev 1004 at 1098 (arguing the degrowth movement challenges capitalism only “within careful bounds”).

⁶⁵ This section surveys some of the major critiques of environmental law that have arisen in the past decade or so, focusing on those most relevant in contrasting it with ecological law. It is not a comprehensive review of the vast literature on this topic.

At this fundamental level, what is needed is to give environmental protection higher priority as a political goal, and limit economic growth and consumption in the traditional (material) sense.⁶⁶

Hans Christian Bugge

The starting point for most critics of environmental law and sustainable development is that the growing global ecological crisis signals the overall failure of these approaches despite many successes in tackling specific (mostly pollution) issues.⁶⁷ Hans Christian Bugge points to “the most recent UNEP (United Nations Environment Programme) Global Environmental Outlook (GEO5) [as evidence] that in spite of all the political objectives adopted, the economic and legal instruments established and changes in attitudes and efforts made, the most important trends continue to go in the wrong direction.”⁶⁸ This evidence keeps growing, as recent reports show, for example: 15 consecutive months of record-breaking high temperatures to July 2016,⁶⁹ greenhouse gas emissions continuing to rise,⁷⁰ threats to biodiversity increasing,⁷¹ unprecedented human-

⁶⁶ Bugge, “Twelve Fundamental Challenges in Environmental Law,” *supra* note 4 at 5.

⁶⁷ Nicholas A Robinson, “Reflecting on Rio: Environmental Law in the Coming Decades,” in Jamie Benidickson, Ben Boer, Antonio Herman Benjamin & Karen Morrow, eds, *Environmental Law and Sustainability after Rio*, (Cheltenham, UK; Northampton, MA: 2011) 9; ELGA, “Text of the Oslo Manifesto – ELGA’s Founding Document. From Environmental Law to Ecological Law: A Call for Re-Framing Law and Governance,” online: Ecological Law and Governance Association <www.elga.world/oslo-manifesto/> (accessed 25 July 2018) [Oslo Manifesto].

⁶⁸ Bugge, “Twelve Fundamental Challenges in Environmental Law,” *supra* note 4 at 4.

⁶⁹ NOAA, “Global Summary Information - July 2016,” State of the Climate Summary Information, online: National Oceanic and Atmospheric Administration (NOAA) <www.ncdc.noaa.gov/sotc/summary-info/global/201607> (accessed 12 September 2016).

⁷⁰ Richard A Betts et al, “El Niño and a Record CO₂ Rise,” (6 September 2016) *Nature Climate Change* 6; see also Damian Carrington, “Shattered Records Show Climate Change Is an Emergency Today, Scientists Warn,” (17 June 2016), online: The Guardian <www.theguardian.com/environment/2016/jun/17/shattered-records-climate-change-emergency-today-scientists-warn> (accessed 12 September 2016).

⁷¹ IUCN, “Four Out of Six Great Apes One Step Away from Extinction-IUCN Red List,” (4 September 2016), online: IUCN <iucnworldconservationcongress.org/news/20160904/article/four-out-six-great-apes-one-step-away-extinction-iucn-red-list> (accessed 12 September 2016).

induced loss of wildlife and wilderness areas,⁷² growing numbers of toxic spills from mining operations,⁷³ and the spiraling degradation of the oceans.⁷⁴

Most critics also agree with the quote opening this section that the central problem is the preeminence of economic growth over other societal goals and values (as discussed in the preceding section), which is fully reflected in environmental law.

Michael M’Gonigle and Paula Ramsay argue that:

As part of the modern, Western, developed, democratic world, environmental law is inherently embedded within many of the paradigmatic assumptions of that world. Relations between humans and nature are divided, hierarchical, and utilitarian in character, even when we “protect” “wilderness.” Despite criticisms of unsustainable growth, our well-being is intimately bound up with the acquisition and consumption of material goods; wealth *as capital* is us. So too, when we petition governments and turn to the courts, we implicitly accept a whole history of the central state and its unique sources of authority and legitimacy. An examination of any number of sectors of traditional environmental law reveals the embedded nature of these assumptions--and their untouchability.⁷⁵

David Boyd points out that the root cause of the ecological crisis is “the ongoing subordination of environmental concerns to economic priorities, including trade

⁷² James EM Watson et al, “Catastrophic Declines in Wilderness Areas Undermine Global Environment Targets,” (9 September 2016), online: Current Biology <[dx.doi.org/10.1016/j.cub.2016.08.049](https://doi.org/10.1016/j.cub.2016.08.049)> (accessed 12 September 2016).

⁷³ EarthWorks, “Catastrophic Mine Waste Spills Increasing in Frequency, Severity and Cost World-wide,” (29 July 2017), online: Mining.com <www.mining.com/web/catastrophic-mine-waste-spills-increasing-in-frequency-severity-and-cost-world-wide/> (accessed 23 September 2016).

⁷⁴ IUCN, *Explaining Ocean Warming: Causes, Scale, Effects and Consequences*, (Gland: IUCN, 2016).

⁷⁵ Michael M’Gonigle & Paula Ramsay, “Greening Environmental Law: From Sectoral Reform to Systemic Re-formation. (Future Directions?),” (2004) 14 J Envtl L & Prac 333 at 335-6 [emphasis in the original].

liberalization”⁷⁶ and the fundamental problem with environmental law “is that the root causes of environmental degradation are never addressed. All of the effort is directed toward treating the symptoms of environmental harm, a strategy that may mask or mitigate the damage, but will never prevent it.”⁷⁷ M’Gonigle and Takeda examine the history of US environmental law and policy in five primary resource sectors (oil and gas, biofuels, forestry, agriculture and water) and highlight their “productionist orientation,” arguing that environmental law functions as a “*law of mitigated production*, the primary goal of which is to improve existing processes and structures of production but without fundamentally challenging the context in which they operate.”⁷⁸ In Canada, a clear example is the environmental assessment process of the Mackenzie Gas Project. According to professor Robert Gibson, this process was exemplary for emphasizing sustainability in both its approach and resulting recommendations.⁷⁹ The panel that conducted the review concluded that “the Project as Filed, if built and operated *with full implementation of the Panel’s recommendations*, would deliver valuable and lasting overall benefits, and avoid significant adverse environmental impacts...”⁸⁰ The final decision, however, rested with the National Energy Board who dismissed many of those recommendations on the basis that the environmental impacts were justified given the

⁷⁶ David R Boyd, *Unnatural Law: Rethinking Canadian Environmental Law and Policy*, (Vancouver, BC: UBC Press, c2003) at 212.

⁷⁷ Boyd, *Unnatural Law*, *supra* note 76 at 277.

⁷⁸ M’Gonigle & Takeda, “The Liberal Limits of Environmental Law,” *supra* note 64 at 1020-1054, 1022, 1037, 1067 [emphasis in the original].

⁷⁹ Robert B Gibson, “Sustainability Assessment in Canada,” in Alan Bond, Angus Morrison-Saunders & Richard Howitt, eds, *Sustainability Assessment: Pluralism, Practice and Progress*, (New York, NY: Routledge, c2013) 167 at 170; Robert B Gibson, “Application of a Contribution to Sustainability Test by the Joint Review Panel for the Canadian Mackenzie Gas Project,” (2011) 29:3 Impact Assessment & Project Appraisal 231.

⁸⁰ Joint Review Panel for the Mackenzie Gas Project, “Foundation for a Sustainable Northern Future: Report of the Joint Review Panel for the Mackenzie Gas Project,” (March 2010), online: Government of Canada <http://www.reviewboard.ca/upload/project_document/EIR0405-001_JRP_Report_of_Environmental_Review_Executive_Volume_I.PDF> (accessed 24 August 2015) at vi [emphasis added].

socio-economic benefits of the project.⁸¹ Another evident example is the 2012 *Jobs, Growth and Long-term Prosperity Act*,⁸² which scaled back Canada's environmental laws explicitly because the government saw them as an obstacle to economic growth.⁸³

There are other reasons for environmental law's failure to halt ecological degradation. According to Bugge, environmental law faces twelve fundamental problems, ranging from the complexity of nature, to the difficulty in pricing environmental values and harms, to corruption, to name a few.⁸⁴ Rebecca Bratspies describes sustainability as a "super wicked problem."⁸⁵ Focusing on international environmental law, she points to two key problems or fallacies "that must be confronted in order to turn law into a more effective tool for sustainability. The first is the belief that we can achieve sustainability by tinkering at the margins of the existing social, economic, and legal systems (the

⁸¹ National Energy Board, "Mackenzie Gas Project - Reasons for Decision," (December 2010), online: Government of Canada <<https://www.neb-one.gc.ca/pplctnflng/mjrpp/mcknzgs/rfd/rfdv1-eng.pdf>> (accessed 24 August 2015) at 76.

⁸² *Jobs, Growth and Long-term Prosperity Act*, SC 2012, c 19.

⁸³ See e.g. Aaron Wherry, "Q & A: Peter Van Loan," (Interview), (7 May 2012), online: Maclean's <www.macleans.ca/politics/ottawa/qa-peter-van-loan> (accessed 14 August 2015).

⁸⁴ The twelve problems in environmental law are: 1) "Nature is self-regulating and complex; we cannot influence the laws of nature;" 2) "Many environmental problems are invisible;" 3) "Many environmental problems are marked by uncertainties;" 4) "Nature cannot itself act legally; nature, the environment, does not itself have a voice in decision-making;" 5) "Many environmental goods and services are public goods in the economic sense;" 6) "Environmental values – and environmental harms – are difficult to price correctly in decision-making;" 7) "The problem of 'the small decisions paradox';" 8) "Many environmental problems cross economic and social sectors both in their causes and their effects;" 9) "The most serious environmental problems cross administrative borders;" 10) "Many environmental effects are long term;" 11) "Corruption;" and 12) "Plurality of values and complexity in decision-making." Bugge, "Twelve Fundamental Challenges in Environmental Law," *supra* note 4 at 9-21.

⁸⁵ Bratspies argues sustainability is a problem for which "coming up with new possible solutions causes the very definition of the problem to change," and that it "lack[s] a definite formulation, lack[s] a clear set of possible solutions, and offer[s] no obvious means of determining whether or not the problem has been resolved." In addition, it is a problem for which there is "a clear indication that time is running out, the lack of any central authority, the confounding factor that those seeking to solve the problem are also causing it, and hyperbolic discounting." Rebecca M Bratspies, "Sustainability: Can Law Meet the Challenge?" (2011) 34:2 *Suffolk Transnat'l L Rev* 283 at 292 [references omitted].

Marginal Fallacy). The second is the tendency to splinter each problem into discrete pieces to be dealt with one at a time (the Splintered Fallacy).”⁸⁶

Environmental law is also criticized for its anthropocentricity. Bosselmann points out that “[t]raditionally, legal relationships—including those of justice—are perceived as relationships purely between people: people have no legal obligations towards nature and nature has no rights towards people” and that “[e]nvironmental law has been molded in this anthropocentric perception of law.”⁸⁷ Cormac Cullinan further argues that “[o]ur governance systems are based on false premises. [...] The core falsehood is that we humans are separate from our environment and that we can flourish even as the health of our Earth deteriorates.”⁸⁸

Several authors offer critiques of environmental law that are specific to Canada.⁸⁹ David Boyd has diagnosed the problems facing Canadian environmental law and prescribed remedies to address both the fundamental issues and the “root causes” of the failure of environmental law;⁹⁰ Mark S. Winfield has critiqued Canadian environmental law and policy from the perspective of policy instruments used abroad;⁹¹ and Stepan Wood, Georgia Tanner and Benjamin J. Richardson analyzed the stagnation of Canada's environmental law, and the influence of federal-provincial relations, neo-liberal ideology, Canada's resource-based economy, and electoral politics in environmental law and

⁸⁶ Bratspies, “Sustainability,” *supra* note 85 at 304.

⁸⁷ Klaus Bosselmann, *The Principle of Sustainability: Transforming Law and Governance* (Aldershot, England; Burlington, VT: Ashgate, c2008) at 80.

⁸⁸ Cullinan, *Wild Law*, *supra* note 5 at 44.

⁸⁹ These critiques predate the weakening of some of these environmental laws by the Harper government, which was the subject of much concern among scholars and others. See e.g. Lynda Collins & David Boyd, “Non-Regression and the Charter Right to a Healthy Environment,” (2016) 29 *J Envtl L & Prac* 285, and other papers presented at the *Journal of Environmental Law and Practice's* (JELP) 5th biennial conference, ‘Après...le Déluge’: Future Directions for Environmental Law and Policy in Canada, Calgary, AB, June 5-7, 2015.

⁹⁰ Boyd, *Unnatural Law*, *supra* note 76.

⁹¹ Mark S Winfield, “An Unimaginative People: Instrument Choice in Canadian Environmental Law and Policy,” (2008) 71 *Sask L Rev* 79 at 81.

policy.⁹² The failure to prevent the negative environmental impacts of growth-driven economic activities—instead of trying to mitigate them—is a common thread in these assessments.

Critiques of environmental law are often accompanied by proposals for change. Wood, Tanner and Richardson point to the “need for institutional frameworks that can assist people to transcend the tension between short-term, individual self-interest and broader, long-term social welfare.”⁹³ Alan Bond, Angus Morrison-Saunders and Richard Howitt, along with Robert Gibson, explore the role sustainability assessment could play in efforts to address the ecological crisis, namely “by requiring and guiding adoption of a way of thinking, planning, evaluating, choosing and acting that is fundamentally different from conventional approaches – so different that it will result in the undertakings that contribute to sustainability rather than to the prevailing trends.”⁹⁴ Bratspies argues that “[t]he outdated thinking that divides law into international law, which governs the relationship between states, and domestic law, which governs within states, must give way to a more integrated vision.”⁹⁵ M’Gonigle and Ramsay go further to propose a profound “re-formation” of law through Green Legal Theory, an assertion analyzed in section 1.6 below.⁹⁶ They argue that there is a need “to examine the role of law [...] in both creating systemic unsustainability, and in impeding or facilitating its resolution.”⁹⁷

⁹² Wood, Tanner & Richardson, “What Ever Happened to Canadian Environmental Law?,” *supra* note 4.

⁹³ Richardson & Wood, eds, “Environmental Law for Sustainability”, *supra* note 5 at 17.

⁹⁴ Robert B Gibson, “Why Sustainability Assessment?,” in Bond, Morrison-Saunders & Howitt, eds, *Sustainability Assessment*, *supra* note 79 at 9. Also, Gibson argues that “The core rationale and fundamental standard for sustainability assessment should be to ensure that every one of our potentially significant undertakings is designed to deliver positive contributions to sustainability – multiple, mutually reinforcing, fairly distributed and lasting positive contributions to sustainability – while avoiding persistent damages.” Gibson, “Why Sustainability Assessment?,” this note at 3.

⁹⁵ Bratspies, “Sustainability,” *supra* note 85 at 292.

⁹⁶ M’Gonigle & Ramsay, “Greening Environmental Law,” *supra* note 75.

⁹⁷ M’Gonigle & Ramsay, “Greening Environmental Law,” *supra* note 75 at 2.

The following section examines the main proposals for change contributing to the emerging new approach of *ecological law*.

1.2 Converging Proposals for a New Approach

A growing body of legal scholarship argues for a new approach to overcome the shortcomings of environmental law and confront the ecological crisis. Several scholars have pointed to the need for law to give preeminence to ecological limits over other interests, establishing the foundations of what is increasingly called *ecological law*. David Boyd calls for “sustainability law,”⁹⁸ Cormac Cullinan proposes adopting “wild laws,”⁹⁹ and Klaus Bosselmann argues for understanding justice as “ecological justice”¹⁰⁰ and for recognizing the “principle of sustainability” as a principle of law.¹⁰¹ Geoffrey Garver synthesizes much of this scholarship and further argues for a “rule of ecological law” as a complement to degrowth economics.¹⁰² In addition, under the notion of the “rule of law for nature” Christina Voigt and other scholars have also made contributions to the development of ecological law.¹⁰³ The main contributing elements of these proposals to the theory of ecological law are briefly summarized below.

1.2.1 Sustainability Law

In his proposal for sustainability law, David Boyd calls for a profound transformation of environmental law towards a science-based legal framework that promotes sustainable behavior. Essentially, Boyd proposes a way to incorporate into law

⁹⁸ Boyd, “Sustainability Law,” *supra* note 85.

⁹⁹ Cullinan, *Wild Law*, *supra* note 5.

¹⁰⁰ Bosselmann, “Ecological Justice and Law,” *supra* note 5.

¹⁰¹ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 80.

¹⁰² Garver, “The Rule of Ecological Law,” *supra* note 5.

¹⁰³ Voigt, ed, *Rule of Law for Nature*, *supra* note 4.

“The Natural Step framework,” which is a framework for defining and implementing sustainability crystallized in the early 1990s by Karl-Henrik Robèrt.¹⁰⁴

After reviewing the shortcomings of environmental law from the perspective of ecological sustainability (both in Canada and more broadly in industrial societies),¹⁰⁵ Boyd argues that a “revolutionary new approach called sustainability law”¹⁰⁶ is required.

Sustainability law would not be about merely *mitigating* the damage inflicted by industrial economies and western lifestyles. Sustainability law would focus on *transforming* the relationship between humans and the natural environment from one based on minimizing harm to one based on maximizing harmony. Instead of asking if we can limit the ecological damage caused by contemporary industrial society, sustainability law asks if we can do things in a completely different way that avoids creating environmental problems in the first place. Sustainability law will challenge the belief that human activities must inevitably damage the natural world.¹⁰⁷

Thus, he writes, “sustainability law would represent an attempt to imagine a system of laws and policies that facilitate processes, products, and patterns of behaviour which are good for the planet.”¹⁰⁸ Boyd reviews several “contrasting characteristics of environmental law and sustainability law”¹⁰⁹ and notes that “[t]he single greatest weakness of environmental law and policy is its failure to recognize the laws of nature

¹⁰⁴ Karl-Henrik Robèrt, “Educating a Nation: The Natural Step,” (1991), online: Context Institute <<https://www.context.org/iclib/ic28/robert/>> (accessed 21 January 2019).

¹⁰⁵ Boyd understands sustainability to have “three critical components: the *ecological* imperative--living within the Earth's physical limits; the *social* imperative--developing democratic systems of governance that enshrine and respect basic human rights; and the *economic* imperative--ensuring that human needs can be met worldwide, both now and in the future [emphasis in the original, reference omitted].” Boyd, “Sustainability Law,” *supra* note 5 at 360.

¹⁰⁶ Boyd, “Sustainability Law,” *supra* note 5 at 364.

¹⁰⁷ Boyd, “Sustainability Law,” *supra* note 5 at 364-5 [emphasis in the original].

¹⁰⁸ Boyd, “Sustainability Law,” *supra* note 5 at 365.

¹⁰⁹ Boyd, “Sustainability Law,” *supra* note 5 at 365.

and the fact that the Earth is finite.”¹¹⁰ He argues that the “four system conditions” identified by The Natural Step based on the laws of nature “establish the normative basis for sustainability law.”¹¹¹ The system conditions are as follows:

In the sustainable society, nature is not subject to systematically increasing ...

1. ... concentrations of substances extracted from the Earth’s crust
2. ... concentrations of substances produced by society
3. ... degradation by physical means and, people are not subject to conditions that systematically
4. ... undermine their capacity to meet their needs.¹¹²

Law, then, must be transformed to ensure these system conditions are respected, promoting a sustainable society. Boyd argues that because “sustainability has three aspects--social, economic, and environmental [...] sustainability law will have three principal design criteria for judging its success--effectiveness, efficiency, and equity.”¹¹³ While he seems to suggest that sustainability law follows the three-pillared sustainable development vision, he does not argue that these three concerns should be balanced:

Sustainability law will strive to be effective in attaining ecological objectives, efficient in minimizing the economic costs to society, and equitable in the sense that costs and benefits should be justly distributed, both temporally and spatially ... The effectiveness of sustainability law will be measured by monitoring concrete progress toward long-term objectives and fulfilling the system conditions ... Sustainability law will also incorporate recognized and emerging legal norms including the precautionary principle, the polluter pays and user pays principles, the concept of common but differentiated

¹¹⁰ Boyd, “Sustainability Law,” *supra* note 5 at 366.

¹¹¹ Boyd, “Sustainability Law,” *supra* note 5 at 369.

¹¹² Boyd, “Sustainability Law,” *supra* note 5 at 369-370.

¹¹³ Boyd, “Sustainability Law,” *supra* note 5 at 383.

responsibility, intergenerational equity, and intra-generational equity.¹¹⁴

Boyd's sustainability law thus appears based on "strong sustainability" which places economic and social concerns, within ecological constraints.¹¹⁵

1.2.2 Earth Jurisprudence and Wild Law

Like Boyd's sustainability law, Earth jurisprudence underscores the dissociation between law and the reality of how the physical world works. But rather than focusing on how to redesign law based on science, Earth jurisprudence emphasizes the need to regain awareness of the human place in the universe and of our relationship to the Earth community.¹¹⁶ It is a deeply ecocentric critique of our current approach to the natural world as it is reflected in law.

Earth jurisprudence is being developed by a growing number of scholars and practitioners (principally in the fields of theology, philosophy and law) inspired by the work of Thomas Berry.¹¹⁷ Berry argued that in this moment of ecological crisis our species has a "Great Work" before it, which consists of "moving the human project from

¹¹⁴ Boyd, "Sustainability Law," *supra* note 5 at 384.

¹¹⁵ As Bosselmann explains: "For the sake of simplicity, we can distinguish between the ecologist approach and the environmental approach to sustainable development. The ecologist approach is critical of growth and favours ecological sustainability ('*strong sustainability*'). The environmental approach assumes the validity of growth and places equal importance on environmental sustainability, social justice and economic prosperity ('*weak sustainability*'). The difference between them is not just gradual, but fundamental, as becomes clear when we follow the sustainability debate through to the 1980s and 1990s." Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 26-27.

¹¹⁶ Cullinan, *Wild Law*, *supra* note 5 at 117-118.

¹¹⁷ Thomas Berry (1914-2009) was a Catholic priest, historian, theologian, "geologist," critic of modernity, and the founder and inspirer of several organizations and movements (online: <thomasberry.org>); for an intellectual biography of Thomas Berry, see appendix in Thomas Berry, (Mary Evelyn Tucker, ed), *Evening Thoughts: Reflecting on Earth as Sacred Community*, (San Francisco: Sierra Club Books, c2006); for accounts of the emergence of Earth Jurisprudence see Cormac Cullinan, "A History of Wild Law," and Liz Hosken, "Reflections on an Inter-cultural Journey into Earth Jurisprudence," in Burdon, ed, *Exploring Wild Law*, *supra* note 8, 12 and 24, respectively.

its devastating exploitation to a benign presence”¹¹⁸ and finding a way “to become present to the Earth in a mutually enhancing manner.”¹¹⁹ To achieve this, Berry urged, we have to recognize our place in the universe, abide by its laws, and develop jurisprudence consistent with the laws of the universe to govern ourselves.¹²⁰ As in many Indigenous legal traditions,¹²¹ for Berry, nature is the primary source of law; the universe is the primary lawgiver.¹²² Berry “called the ‘Great Jurisprudence’, the inherent order and lawfulness of the cosmos which structures and sustains all life within it.”¹²³

The jurisprudence humans must develop based on the Great Jurisprudence has been termed “Earth Jurisprudence.”¹²⁴ This is perhaps the form of emerging ecological law scholarship and practice that is most developed as a coherent framework. It includes the work of authors like Peter Burdon, Cormac Cullinan, Judith Koons, Michelle Maloney and Mari Margil, among others.¹²⁵ This section focuses primarily on the work of Cullinan, who produced *Wild Law* in order to publicize the vision of Earth jurisprudence at the Johannesburg Rio+10 summit in 2002.¹²⁶ The main argument presented in *Wild Law* is, in Cullinan’s own words, as follows:

1. We humans are an integral and inseparable part of the Earth system.
2. This essential unity means that humans and our social systems are inextricably embedded within and influenced by the context of the larger Earth Community.

¹¹⁸ Thomas Berry, *The Great Work: Our Way Into the Future*, (New York: Three Rivers Press, 1999) at 7.

¹¹⁹ Berry, *The Great Work*, *supra* note 118 at 80.

¹²⁰ Berry, *The Great Work*, *supra* note 118 at 61, 161.

¹²¹ See section 5 below for further discussion on Indigenous legal traditions and ecological law.

¹²² Berry, *The Great Work*, *supra* note 118 at 64.

¹²³ Jules Cashford, “Dedication to Thomas Berry,” in Burdon, ed, *Exploring Wild Law*, *supra* note 8, 3 at 7.

¹²⁴ Cullinan, “A History of Wild Law,” *supra* note 117 at 12.

¹²⁵ E.g. Burdon, ed, *Exploring Wild Law*, *supra* note 8; Michelle Maloney & Peter Burdon, eds, *Wild Law: In Practice*, (Abingdon, Oxon; New York, NY: Routledge, 2014); Center for Earth Jurisprudence, online: <www.earthjurist.org>.

¹²⁶ Cullinan, “A History of Wild Law,” *supra* note 117 at 16.

3. Therefore, the way we govern ourselves must of necessity be consistent with this context and must have as its purpose to ensure that the pursuit of human well-being does not undermine the integrity of Earth, which is the source of our well-being.
4. Human fulfillment is unattainable outside of the web of healthy relationships with the wider community of life on Earth.
5. Only by creating a jurisprudence that reflects the reality that human societies are part of a wider Earth Community and must observe certain universal principles will we be able to begin a comprehensive transformation of our societies and legal systems.
6. In order to reorient our governance systems to reflect this Earth jurisprudence we need to establish laws that are 'wild' at heart in the sense that they foster, rather than stifle, creativity and the human connection to nature.
7. To implement wild laws effectively, we will need to cultivate personal and social practices that respect Earth, and social structures based on communities, and communities of communities, as found in nature.¹²⁷

Different nations or human communities will have different expressions of Earth jurisprudence.¹²⁸ However, a core of common elements would be found in this diversity:

... a recognition that the source of the fundamental 'Earth rights' of all members of the Earth Community is the universe rather than human governance systems; a means of recognizing the roles of non-human members of the Earth Community and of restraining humans from unjustifiably preventing them fulfilling those roles; a concern for reciprocity and the maintenance of a dynamic equilibrium between all the members of the Earth

¹²⁷ Cullinan, *Wild Law*, *supra* note 5 at 172.

¹²⁸ Cullinan, *Wild Law*, *supra* note 5 at 110.

Community determined by what is best for the system as a whole (Earth justice); and an approach to condoning or disapproving human conduct on the basis of whether or not the conduct strengthens or weakens the bonds that constitute the Earth Community.¹²⁹

Cullinan does not elaborate on the circumstances under which it is justifiable or not for humans to prevent non-humans fulfilling their roles, but this may be drawn from other parts of his argument. In my view, in the text quoted above by “unjustifiably” he means in a way that is contrary to the role of humans and other beings in the Earth community and to the strengthening of their “intimate relationships” (including predator/prey relationships).¹³⁰ Cullinan makes reference to the Earth-centered practices of groups like the Tukano who “consciously and continually participate in a process of adapting human practices to Earth rather than vice versa,” explaining that this doesn’t imply that there should be no human-induced change in the Earth community, but that what matters is “the purpose or intention.”¹³¹ For example, “developing seed varieties in a manner that will benefit a human community by producing more food within the constraints of a particular social and ecological system” is altogether different from “genetically engineering seeds that can be mass-produced and owned for the purpose of increasing profits and the price of shares on a stock exchange.”¹³²

Earth jurisprudence places considerable emphasis on rights. Cullinan stresses the need for an ecocentric shift in consciousness, allowing us to recognize that all beings

¹²⁹ Cullinan, *Wild Law*, *supra* note 5 at 117.

¹³⁰ Cullinan, *Wild Law*, *supra* note 5 at 111.

¹³¹ Cullinan, *Wild Law*, *supra* note 5 at 111.

¹³² Cullinan, *Wild Law*, *supra* note 5 at 111.

have rights,¹³³ and enabling humans to enact *wild laws* that protect these rights from human encroachment and can foster a positive relationship between humans and the rest of the Earth community.¹³⁴ However, this doesn't simply involve "extending" rights to other beings. It requires a new way of understanding rights, beyond the legal conception of rights. Cullinan clarifies that he uses the term "right" for lack of a better word, in order to remain within recognizable legal language.¹³⁵ Following Berry, he uses the term to mean "the freedom of humans to fulfill their duties, responsibilities and essential nature and by analogy, the principle that other natural entities are entitled to fulfill their role within the Earth Community."¹³⁶ For his part, Berry synthesized his proposal on rights as follows:

The primary supposition of this article is that the interdependence of every mode of being on every other mode of being requires humans to recognize that every living being has rights that are derived from existence itself. Otherwise, the ordered structure and functioning of the entire planet are endangered. ...

The well-being of each member of the Earth community is dependent on the well-being of the Earth itself. Within this context, then, I would make the following set of proposals expressed in terms of rights, which should be recognized in national constitutions and in courts of law:

1. The natural world on the planet Earth has rights, which come with existence. These rights come from the same source from which humans receive their rights, from the universe that brought them into being.

¹³³ Cullinan uses "the term Earth right, in order to emphasise the distinction between a fundamental right of a member of the Earth Community derived from the universe, and other rights created by our legal systems." *Wild Law*, *supra* note 5 at 98.

¹³⁴ Cullinan, *Wild Law*, *supra* note 5.

¹³⁵ Cullinan, *Wild Law*, *supra* note 5 at 97-99.

¹³⁶ Thomas Berry cited in Cullinan, *Wild Law*, *supra* note 5 at 97.

2. Every component of the Earth community has three rights: the right to be, the right to habitat, and the right to fulfill its role in the ever-renewing processes of the Earth community.
3. All rights are specific and limited. Rivers have river rights. Birds have bird rights. Insects have insect rights. Humans have human rights. Difference in rights is qualitative, not quantitative. The rights of an insect would be of no value to a tree or a fish.
4. Human rights do not cancel out the rights of other modes of being to exist in their natural state. Human property rights are not absolute. Property rights are simply a special relationship between a particular human 'owner' and a particular piece of 'property' so that both might fulfill their roles in the great community of existence.
5. Since species exist only in the form of individuals, rights refer to individuals and to those natural groupings of individuals into flocks, herds, packs, not simply in a general way to species.
6. These rights are based on the intrinsic relations that the various components of Earth have to each other. The planet Earth is a single community whose members are bound together with interdependent relationships. No living being nourishes itself. Each component of the Earth community is dependent on every other member of the community for the nourishment and assistance it needs for its own survival. This mutual nourishment, which includes predator-prey relationships, is integral with the role that each component of the Earth has within the comprehensive community of existence.

It is our responsibility to make these six principles the foundation of the new legal system all over the world. The time has come when human laws and Earth laws must be brought together.¹³⁷

Cullinan explains that if our current laws do not recognize the rights of other beings it is only because our legal systems are not designed to do so (and should thus be radically transformed), not because the other members of the Earth community do not have rights.¹³⁸ Recognition of these rights starts with Earth's rights, on which humans and all other members of the Earth community depend: "the relationship between humans and Earth ... is not a relationship between equals but between the whole and a part. Accordingly, while the needs of the part must be respected, attempting to balance them against the rights of the whole is inappropriate. The rights of the whole cannot be compromised."¹³⁹

The rights of humans are constrained by the rights of other beings. As Cullinan argues,

humans must have no right to prevent another member of the Community from fulfilling its role. This means that we must establish governance systems that prevent humans from being able to dam a river to the extent that it can no longer fulfill its role in an ecosystem, or from destroying the habitat on which a species depends for its survival. However, it does not mean that we must ensure that, for example, a species continues to play a role or even to exist.¹⁴⁰

¹³⁷ Thomas Berry, "Rights of the Earth: We Need a New Legal Framework Which Recognises the Rights of All Living Beings," in Burdon, ed, *Exploring Wild Law*, *supra* note 8, 227 at 229.

¹³⁸ Cullinan, *Wild Law*, *supra* note 5 at 108.

¹³⁹ Cullinan, *Wild Law*, *supra* note 5 at 100.

¹⁴⁰ Cullinan, *Wild Law*, *supra* note 5 at 105.

Another important aspect of Earth jurisprudence is that it is deeply relational,¹⁴¹ emphasizing the need to foster connections, processes, creativity and diversity. This is patent in the way Cullinan describes *wild law*:

[T]he term ‘wild law’ cannot easily be snared within the strictures of a conventional legal definition. It is perhaps better understood as an approach to human governance, rather than as a branch of law or a collection of laws ... Wild law expresses Earth jurisprudence. It recognises and embodies the qualities of the Earth system within which it exists. As an approach it seeks both to foster passionate and intimate connections between people and nature and to deepen our connection with the wild aspect of our own natures. It tends to focus more on relationships and on the processes by which they can be strengthened, than on end-points and ‘things’ like property. It protects wilderness and the freedom of communities to self-regulate. It aims to encourage creative diversity rather than to impose uniformity ... Wild laws are laws that regulate humans in a manner that creates the freedom for all the members of the Earth Community to play a role in the continuing co-evolution of the planet.¹⁴²

Cullinan does not particularly focus on a critique of the economic growth paradigm, which is an element of ecological law underscored in this thesis. However, Samuel Alexander does explore “the Earth Jurisprudence of economic growth.”¹⁴³ He argues “that Earth Jurisprudence, by situating itself outside the growth model, has a very important role to play in the critique of growth and in the provision of an alternative

¹⁴¹ This relational emphasis resonates with Merchant’s “partnership ethic,” that sees nature and humans as partners, and which—she writes—“is grounded in the concept of relation rather than in the ego, society, or the cosmos. Merchant, *Reinventing Eden*, *supra* note 3 at 232.

¹⁴² Cullinan, *Wild Law*, *supra* note 5 at 30-31.

¹⁴³ Alexander, “Earth Jurisprudence and the Ecological Case for Degrowth,” *supra* note 40 at 293.

conceptualisation of ‘nature’ in law, especially property law, where human-centred economic analysis dominates.”¹⁴⁴

Two jurists have identified principles of Earth jurisprudence. Judith Koons proposes three principles of Earth jurisprudence, as follows: 1) the intrinsic value of Earth; 2) the relational responsibility of humans towards Earth; and 3) democratic governance of the Earth community.¹⁴⁵ Ian Mason proposes a triumvirate of principles of Earth jurisprudence: wholeness, lawfulness, and care.¹⁴⁶ Koons’ proposal is briefly summarize here, but both proposals are noted later, in the context of the proposed *lens of ecological law*. Koons draws on the “functioning of the universe” (and on the ideas of Thomas Berry, like all of Earth jurisprudence) for her proposed principles of Earth jurisprudence, which she then illustrates “through a legal framework of rights responsibilities and duties, and through the representative legal doctrines of standing, the public trust doctrine and intergenerational equity.”¹⁴⁷ Regarding the three principles she proposes, she writes:

According to Thomas Berry, the universe is organized according to three main themes – subjectivity, communion, and differentiation. As precepts that arise out of scientific theory and philosophy, these themes could serve as a platform for rethinking law and governance. ...

A jurisprudential reflection of subjectivity may lie in the principle that all beings, systems, and entities in Nature have intrinsic value, to be expressed in law and governance. The theme of communion may be translated into jurisprudence as the

¹⁴⁴ Alexander, “Earth Jurisprudence and the Ecological Case for Degrowth,” *supra* note 40 at 293.

¹⁴⁵ Judith E Koons, “Key Principles to Transform Law for the Health of the Planet,” in Burdon, ed, *Exploring Wild Law*, *supra* note 8, 45.

¹⁴⁶ Ian Mason, “One in All: Principles and Characteristics of Earth Jurisprudence,” in Burdon, ed, *Exploring Wild Law*, *supra* note 8, 35.

¹⁴⁷ Koons, “Key Principles to Transform Law for the Health of the Planet,” *supra* note 145 at 45.

responsibility of humanity to appreciate our relationship with Earth as a sacred trust. Finally, differentiation may be reflected in the notion of an Earth democracy that supports, at all levels of governance, legal recognition of all components of our Earth community, both present and future.¹⁴⁸

Before closing, the rest of this subsection briefly discusses whether *wild law* could be accused of “environmental fascism”—the subordination of individual humans to the welfare of the Earth community, including by sacrificing individual humans— as other holistic ecocentric approaches prioritizing the wellbeing of the Earth community have.¹⁴⁹ Cullinan does not discuss this potential critique, which could be raised with regards to the primacy of Earth’s rights and what he identifies as Earth justice: “a concern for reciprocity and the maintenance of a dynamic equilibrium between all the members of the Earth Community determined by what is best to the system as a whole.”¹⁵⁰ But Cullinan does explain that “[g]iving effect to this principle is actually also the best way of securing the long-term interests of humans [because it] is only our failure to appreciate that we are part of the Earth Community that has led us to believe and act as if the reverse were true.”¹⁵¹

Also, Cullinan notes that the approach to ethics of Earth jurisprudence is similar to Aldo Leopold’s holistic “land ethic,” by which “[a] thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it

¹⁴⁸ Koons, “Key Principles to Transform Law for the Health of the Planet,” *supra* note 145 at 46 [reference omitted] & 47.

¹⁴⁹ See K Shrader-Frechette, “Individualism, Holism, and Environmental Ethics,” (1996) 1:1 *Ethics & the Environment* 55 at 63; and F Ferré, “Persons in Nature: Toward an Applicable and Unified Environmental Ethics,” (1996) 1:1 *Ethics & the Environment* 15 at 18.

¹⁵⁰ Cullinan, *Wild Law*, *supra* note 5 at 117-118.

¹⁵¹ Cullinan, *Wild Law*, *supra* note 5 at 110.

tends otherwise.”¹⁵² Tom Regan first made the environmental fascism charge arguing that by viewing “man [as] ‘*only* a ‘member of the biotic team’” Leopold’s land ethic could justify killing individual humans if doing so would preserve the biotic community.¹⁵³ In response, J. Baird Callicott’s main defence is that “[t]he land ethic is intended to supplement, not replace, the more venerable community-based social ethics, in relation to which it is an accretion or addition.”¹⁵⁴ Callicott further proposes two “second order principles” to resolve conflicts between “holistic environment-oriented duties” and “individualistic human-oriented duties,” so as to prevent abuse.¹⁵⁵

Whether Callicott’s (in my view convincing) response could be applied to Earth jurisprudence and wild law is a question of ethics that this thesis is not conceived to pursue in length, although it merits the following brief discussion. I have found no arguments in Cullinan equivalent to Callicott’s defense that Leopold intended the land ethic as an accretion to other ethics. On ethics, Cullinan says that “thinking in terms of a strict division between right and wrong is generally unhelpful, particularly when the

¹⁵² Cullinan, *Wild Law*, *supra* note 5 at 114; Aldo Leopold, *A Sand County Almanac and Sketches Here and There*, (London; Oxford; New York: Oxford University Press, 1949) at 224.

¹⁵³ T Regan, *The Case for Animal Rights*, (Berkeley: University of California Press, 1983) at 362 [emphasis in the original].

¹⁵⁴ JB Callicott, “Holistic Environmental Ethics and the Problem of Ecofascism,” in JB Callicott, *Beyond the Land Ethic: More Essays in Environmental Philosophy* (Albany: State University of New York Press, 1999) 59-76 at 75.

¹⁵⁵ Callicott’s reasoning is as follows: “Choice among which community related principle should govern a moral agent’s conduct in a given moral quandary may be determined by the application of two second-order principles. The first, SOP-1, requires an agent to give priority to the first-order principles generated by the more venerable and more intimate community memberships. Thus, when holistic environment-oriented duties are in direct conflict with individualistic human-oriented duties, the human-oriented duties take priority. The land ethic is, therefore, not a case of ecofascism. However, the second second-order principle, SOP-2, requires an agent to give priority to the stronger interests at issue. When the indication determined by the application of SOP-1 is reinforced by the application of SOP-2, an agent’s choice is clear. When the indication determined by the application of SOP-1 is contradicted by the application of SOP-2, an agent’s choice is equally clear: SOP-2 countermands SOP1. Thus, when holistic environment-oriented duties are in conflict with individualistic human-oriented duties, and the holistic environmental interests at issue are significantly stronger than the individualistic human interests at issue, the former take priority.” Callicott, “Holistic Environmental Ethics and the Problem of Ecofascism,” *supra* note 154 at 75–76.

distinction is based on inflexible standards determined solely by humans.”¹⁵⁶ His claim is that “[i]f our concern is to maintain the integrity or wholeness of the Earth Community, it is more useful to evaluate the extent to which an action increases or decreases the integrity and health of the whole system and the quality or intimacy of the relationships between the component parts.”¹⁵⁷ Cullinan also speaks to the importance of human rights along with the need for “balancing and limiting human rights in practice.”¹⁵⁸ As an example, he evokes a relationship between a group of humans and a river that floods seasonally. The human group is settled in the floodplain of the river and it experiences recurring losses, which lead to the proposal that the river be canalized.¹⁵⁹ Cullinan argues that a better solution is to relocate the group of humans, and he rests his hope with human ingenuity to figure out how to do this fairly and in a way respectful of the wellbeing of the group. He argues:

Earth jurisprudence demands that we do not respond by exterminating the aardvarks, or controlling the rivers until they cease to be rivers and virtually become sewers boxed in concrete. It requires that we develop and implement wild laws that are able to recognise and celebrate the unique qualities of rivers and aardvarks. This may mean finding suitable land for landless people, preventing the construction of dwellings within the floodplain, or restoring wetlands to help prevent floods. I have little doubt that once canalization is no longer an option, human ingenuity will find better ways of co-habiting with the rest of the Earth family.¹⁶⁰

¹⁵⁶ Cullinan, *Wild Law*, *supra* note 5 at 114.

¹⁵⁷ Cullinan, *Wild Law*, *supra* note 5 at 114.

¹⁵⁸ Cullinan, *Wild Law*, *supra* note 5 at 105.

¹⁵⁹ Cullinan, *Wild Law*, *supra* note 5 at 106-7.

¹⁶⁰ Cullinan, *Wild Law*, *supra* note 5 at 107.

In this context, one can argue that Cullinan’s vision for wild laws does not include any support for the extermination of humans or other ecofascist measures violating human rights. What he seems to imply is that there is little use engaging with hypothetical scenarios in which the only two options are the destruction of humanity or the destruction of the Earth. Instead, humans can and should ingeniously address the many, tangible, smaller expressions of the tension between humans and non-humans in ways that favour the wellbeing of all members of the Earth community. This seems fully compatible with Callicott’s suggested second order principles. Also, according to Koons: “as Cullinan understands it, diversified systems of Earth governance would be of the people and by the people, but *for* the whole Earth community.”¹⁶¹

1.2.3 The Principle of Sustainability, Ecological Justice, Ecological Human Rights and Ecological Integrity

From the rich scholarship on sustainability and ecological governance produced by Klaus Bosselmann, this section focuses on that relating to four concepts at the core of ecological law: the principle of sustainability, ecological justice, ecological human rights and ecological integrity.

Bosselmann explores the history of the concept of sustainability in Europe and concludes that at its core is the idea that one is “to live from the yield, but not from the substance.”¹⁶² He defines the *principle of sustainability* “as the duty to protect and restore the integrity of the Earth’s ecological systems.”¹⁶³ Bosselmann advocates its recognition

¹⁶¹ Koons, “Key Principles to Transform Law for the Health of the Planet,” *supra* note 145 at 53 [emphasis in the original].

¹⁶² Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 22.

¹⁶³ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 53.

as a principle of law, arguing that it meets all the standards of a legal principle,¹⁶⁴ that is: “[t]he principle has a normative quality. It is reflective of a fundamental morality (respect for ecological integrity), requires action (‘protect and restore’) and is, therefore, capable of causing legal effect.”¹⁶⁵ Importantly, because the effects of a legal principle are systemic, “[w]hen accepted as a recognized legal principle, sustainability informs the entire legal system, not just environmental laws or not just at the domestic level.”¹⁶⁶ According to Bosselmann, the principle of sustainability “provides crucial guidance for the interpretation of legal norms and sets the benchmark for the understanding of justice, human rights and state sovereignty. In doing so, sustainability represents the foundational concept of emerging ‘sustainability law’ based on ecological justice, human rights and institutions.”¹⁶⁷

Bosselmann maintains that the true meaning of the concepts of “sustainability law” and “sustainable development,” implies prioritizing *environmental* sustainability.¹⁶⁸ He argues “that sustainability is a meaningful and powerful idea” and that criticism that it

¹⁶⁴ There is no consensus about what a legal principle is. Humberto Avila, *Theory of Legal Principles*, (Springer Netherlands, 2007) at 8, 45-50. Bosselmann understands a legal principle in Ronald Dworkin’s terms as “a standard that is to be observed not because it will advance or secure an economic, or social situation deemed desirable, but because it is a requirement of justice or fairness or some other dimension of morality.” Ronald Dworkin, *Taking Rights Seriously*, (Cambridge, MA: Harvard University Press, 1977), at 22, cited in Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 46 (See pages 44-50 for Bosselmann’s full discussion of the concept of ‘principle’ underlying his argument to consider sustainability as a legal principle.) According to Avila: “Principles are immediately finalistic, primarily future regarding norms which intend to be complementary and partial, whose application requires assessing [sic] the correlation between the state of affairs to be promoted and the effects of the conduct seen as necessary to its advancement.” Avila, *Theory of Legal Principles*, above in this note at 40.

¹⁶⁵ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 53.

¹⁶⁶ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 4.

¹⁶⁷ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 41 [reference omitted].

¹⁶⁸ Klaus Bosselmann, “From Reductionist Environmental Law to Sustainability Law,” in Burdon, ed, *Exploring Wild Law*, *supra* note 8, 204.

has become meaningless because it is used in a wide range of meanings “confuses the idea with the term.”¹⁶⁹

No state and no corporate organization denies the importance of ‘sustainable development’, and the vast literature surrounding the subject would not exist, if sustainable development held no promise for saving us from collapse. Considering such basic consensus, it would be irresponsible to dismiss the concept of sustainable development purely because there is no agreement on what it means. It is crucial, however, to realize the ecological core of the concept. Not realizing it means that social, economic and environmental interests have nowhere to go. There is only ecologically sustainable development or no sustainable development at all. To perceive environmental, economic and social as equally important components of sustainable development is arguably the greatest misconception of sustainable development and the greatest obstacle to achieving social and economic justice.¹⁷⁰

Regarding the impact of the principle of sustainability on governance Bosselmann argues that to implement this principle the State must assume its role as trustee. Territorial sovereignty needs to be redefined to reflect the fact that “national territories are part of the global environment and therefore restricted in their use and exploitation.”¹⁷¹ He argues that:

The incorporation of ecological sustainability into the concept of territorial sovereignty creates a fundamental duty to protect the integrity of Earth’s ecosystems. This duty would exist independently of treaty obligations or any other consensus-building process in international law. It would exist by virtue of

¹⁶⁹ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 9.

¹⁷⁰ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 23.

¹⁷¹ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 149

being a sovereign state. No state or legally recognized territorial entity can claim sovereign rights over natural resources without accepting the duty to use them sustainably. The state is owner of resources and, at the same time, trustee or guardian of the environment.¹⁷²

Bosselmann further advocates for state trusteeship of the global commons.¹⁷³ In the United States, Joseph Sax and Mary Christina Wood have also promoted the notion of environmental trusteeship.¹⁷⁴ Wood argues for a paradigm shift in natural resources management towards a public trust model: “This is the moment to be resolute and clearly frame government’s trustee duty to protect generational inheritance of natural assets.”¹⁷⁵

Another important concept for ecological law articulated by Bosselmann is *ecological justice*.¹⁷⁶ After examining the implications of sustainability for the idea of justice Bosselmann argues “that conventional theories of justice have been insufficient to conceptualize the environmental dimension of justice.”¹⁷⁷ Reflecting on the “concern for the poor” and the “concern for future generations” derived from the Brundtland definition of sustainable development¹⁷⁸ he finds that a third element, “concern for the non-human natural world (interspecies justice or equality)” needs to be added “for a theory on

¹⁷² Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 169.

¹⁷³ Klaus Bosselmann, *Earth Governance: Trusteeship of the Global Commons*, (Cheltenham: Edward Elgar Pub Ltd, 2015).

¹⁷⁴ Wood, “Ecological Realism and the Need for a Paradigm Shift,” *supra* note 4; also Mary Christina Wood, *Nature’s Trust: Environmental Law for a New Ecological Age*, (Cambridge Books Online; Cambridge University Press, 2015); Joseph L Sax, “The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention,” (1970) 68 Mich L Rev 471.

¹⁷⁵ Mary Christina Wood, “Nature’s Trust: Reclaiming an Environmental Discourse,” (2007) 25 Va Env’t LJ 243, at 276.

¹⁷⁶ Bosselmann, “Ecological Justice and Law,” *supra* note 5; Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 79.

¹⁷⁷ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 79.

¹⁷⁸ Brundtland Commission, “Report of the World Commission on Environment and Development: Our Common Future,” (Annex to UN Doc A/42/427 1987), online at: <www.un-documents.net/wced-ocf.htm> (accessed 1 December 2014).

ecological justice as distinct from mere social justice.”¹⁷⁹ Bosselmann concludes that “interspecies justice should be a benchmark for any form of ecological justice” and that because “it implies the recognition of the intrinsic value of the non-human natural world, interspecies justice can be very effective in law.”¹⁸⁰

Bosselmann also argues for an “ecological approach to human rights [that] acknowledges the interdependence of rights and duties.”¹⁸¹ His assessment is that

[t]here is as yet no theory on how environmental rights may be related to environmental duties. While the former appear as legal entitlements, the latter are, at best, referred to as moral obligations. From an ecological perspective, such imbalance reveals utilitarianism and anthropocentrism ... Human rights operate not only in a social, but also in an ecological context. This reality has yet to be reflected in human rights theory and practice.¹⁸²

Thus, *ecological human rights* are human rights that are constrained by ecological limits. In the specific case of *environmental* human rights, Bosselmann argues that “[a] better option is the development of all human rights in a manner which demonstrates that humanity is an integral part of the biosphere, that nature has an intrinsic value and that humanity has obligations towards nature.”¹⁸³ Bosselmann and Cullinan agree on the need for law to establish limits on the ability of humans to affect nature and to foster their responsibility towards the natural world. However, Bosselmann advocates a focus on human responsibilities, while Cullinan favours a rights-based approach, as discussed above.

¹⁷⁹ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 99.

¹⁸⁰ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 101.

¹⁸¹ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 143.

¹⁸² Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 127.

¹⁸³ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 129.

Finally, another important concept that Bosselmann has promoted is *ecological integrity*, which he argues should be recognized as an overarching norm or *grundnorm*.¹⁸⁴ He claims that “the notion of ‘ecological integrity’ is emerging as a common conceptual denominator” in international law as “more than a dozen multilateral environmental agreements contain some reference to the integrity of ecosystems in their preamble or the operative part,” in addition to many other implied references.¹⁸⁵ Bosselmann argues that “[i]nternational law needs to accept preservation of the Earth’s integrity as the foremost ‘common concern of humanity’, simply because we must.”¹⁸⁶ (Concerns regarding the meaning of ecological integrity and its role in ecological law are discussed in section 2.2.2 below.)

1.2.4 The Rule of Ecological Law

Building on the scholarship described in previous sections, Geoffrey Garver proposes the “rule of ecological law” which he describes as the “legal complement to degrowth economics.”¹⁸⁷ He frames his call for the rule of ecological law as “an opportunity for transformation of humanity’s normative paradigms” that

... emerges from the tension between opposing narratives of impossibility. On the one hand is the seeming impossibility of

¹⁸⁴ “The concept of a *grundnorm* is commonly understood as a fundamental legal principle or norm against which all other legal norms can be assessed and validated. ... More specifically, it should be seen as a basic norm to bind and guide governmental power. ... Examples include the rule of law, the idea of justice or human rights. This understanding differs from Kelsen and is closer to Kant’s argument that any positive law must be grounded in a ‘natural’ norm of general acceptance and reasonableness (*Vernunft*) to prevent pure arbitrariness (*blosse Willkür*). The existence of an environmental *grundnorm*, therefore, rests on the assumption that respecting planetary boundaries is a dictate of reason (*Gebot der Vernunft*) and general acceptance (*allgemeine Gültigkeit*) [references omitted].” Rakhyun E Kim & Klaus Bosselmann, “Operationalizing Sustainable Development: Ecological Integrity as a Grundnorm of International Law,” (2015) 24:2 RECIEL 194; Klaus Bosselmann, “The Rule of Law Grounded in the Earth: Ecological Integrity as a Grundnorm,” in L Westra and M Vilela, eds, *The Earth Charter, Ecological Integrity and Social Movements*, (Routledge, 2014).

¹⁸⁵ Kim & Bosselmann, “Operationalizing Sustainable Development,” *supra* note 184 at 201.

¹⁸⁶ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 173 [reference omitted].

¹⁸⁷ Garver, “The Rule of Ecological Law,” *supra* note 5.

ending the current intransigent commitment to infinite economic growth, the primacy of short-term economic interests and the overriding belief in technological solutions to ecological challenges. Contemporary environmental law is embedded firmly in this narrative. On the other hand are the systemic impossibilities and long-term catastrophic socio-ecological consequences if the economy grows infinitely and economic and political trade-offs continue to outweigh non-negotiable ecological limits. This narrative is at the heart of the degrowth movement.¹⁸⁸

Garver's rule of ecological law is built upon several concepts. He first explains the term "ecological law" with reference to "Thomas Berry's ecologically imbued notion of law" that views "law [as] an extension of ecology,"¹⁸⁹ and secondly, as a means to avoid the ambiguity of the term "sustainability" which has allowed the prioritization of economic concerns over ecological ones. Garver explains his choice of "ecological law" as a term that "emphasizes [the primacy of ecological integrity] by making clear that global ecological limits constrain the economic and social spheres."¹⁹⁰ In the concept of the "rule of law," Garver combines the traditional notion that "legal institutions and norms, from the global to the local level, should provide a coherent, reliable, fair and just framework for managing human affairs," with the notion that "the scientific laws that govern how the Earth works necessarily constrain the legal architecture for ecological law."¹⁹¹ Limits derived from the evolving scientific understanding of the planet's limits

¹⁸⁸ Garver, "The Rule of Ecological Law," *supra* note 5 at 330.

¹⁸⁹ Berry, *The Great Work*, *supra* note 118 at 61, cited in Garver, "The Rule of Ecological Law," *supra* note 5 at 318.

¹⁹⁰ Garver, "The Rule of Ecological Law," *supra* note 5 at 319.

¹⁹¹ Garver, "The Rule of Ecological Law," *supra* note 5 at 319.

and human interactions with them, such as those captured in the Planetary Boundaries framework described earlier, are thus integral to the rule of ecological law.¹⁹²

Garver refers to Boyd's "sustainability law", Cullinan's "wild law" and Bosselmann's "principle of sustainability" as "broadly captur[ing] Berry's ecological conception of law" and sharing with the "rule of ecological law" the recognition of "the essential primacy of ecological integrity," but he emphasizes that "the rule of ecological law calls into question the current insistence on perpetual economic growth."¹⁹³ This clarification and the framing of the rule of ecological law as the "legal complement of degrowth economics"¹⁹⁴ are fundamental. Ecological law rests on the assumption that infinite economic growth is not possible because it is incompatible with a finite planet, and therefore ecological law prioritizes respect of the planet's ecological limits.

Garver further discusses ten "mutually reinforcing features" of the rule of ecological law,¹⁹⁵ including the fundamental recognition "that humans are part of Earth's life systems"¹⁹⁶ and "precaution about crossing planetary boundaries."¹⁹⁷ Under the rule of ecological law the economy is constrained within ecological limits; the current fragmentation of environmental law is overcome; global, regional and local governance structures are transformed to adaptively restore and maintain ecological balance;¹⁹⁸ and ecological justice is pursued.¹⁹⁹ As explained in Chapter 2, the rule of ecological law is the basis for the *lens of ecological law* proposed in this thesis.

¹⁹² Garver, "The Rule of Ecological Law," *supra* note 5 at 319.

¹⁹³ Garver, "The Rule of Ecological Law," *supra* note 5 at 319.

¹⁹⁴ Garver, "The Rule of Ecological Law," *supra* note 5.

¹⁹⁵ Listed in text to *infra* note 418.

¹⁹⁶ Garver, "The Rule of Ecological Law," *supra* note 5 at 325.

¹⁹⁷ Garver, "The Rule of Ecological Law," *supra* note 5 at 329.

¹⁹⁸ Garver, "The Rule of Ecological Law," *supra* note 5 at 326-329.

¹⁹⁹ As understood in Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 79.

1.2.5 The Rule of Law for Nature

Under the concept of a “rule of law for nature,” Cristina Voigt has brought together the perspectives of a number of scholars whose works are substantial contributions to ecological law. In the following subsections, I briefly review three I have deemed most relevant in identifying the core principles for the *lens of ecological law* proposed in Chapter 2.

1.2.5.1 The Principles of Cooperation, Biophilia and Resilience

Nicholas A. Robinson puts forth a proposal for “identifying new legal principles based upon instinctive norms, which have evolved within all humans.”²⁰⁰ In particular, he discusses three “evolved norms”—cooperation, biophilia and resilience—which he argues “will constitute the foundations for a new rule of law for nature.”²⁰¹ Robinson points to sociobiology for identifying these norms²⁰² and argues that they already inform laws in all legal traditions.²⁰³ He writes:

Evolved norms about nature are prompting identification of new legal principles in many nations. This trend can be acknowledged empirically, whether or not lawyers accept the sociobiological perspectives discussed here.

As manifestations of evolved “hard-wired” norms, the three legal principles of cooperation, biophilia, and resilience already function. In all countries, laws exist to protect nature. Their weakness does not negate their promise.²⁰⁴

²⁰⁰ Nicholas A Robinson, “Evolved Norms: A Canon for the Anthropocene,” in Voigt, ed, *Rule of Law for Nature*, *supra* note 4, 46.

²⁰¹ Robinson, “Evolved Norms,” *supra* note 200 at 46.

²⁰² Robinson, “Evolved Norms,” *supra* note 200 at 48.

²⁰³ Robinson, “Evolved Norms,” *supra* note 200 at 55.

²⁰⁴ Robinson, “Evolved Norms,” *supra* note 200 at 55.

Robinson argues that cooperation, biophilia, and resilience should be formally recognized as general principles of law “because they are of fundamental importance in motivating humans to cope effectively with the ambient environment of the Anthropocene, to magnify their instincts for survival.”²⁰⁵ He explains that these three principles are already reflected in law. In the case of cooperation, he argues that it is “acknowledged to be a customary norm in all legal systems (e.g. *droit de voisinage*)”²⁰⁶ and is recognized in international law.²⁰⁷ Regarding biophilia, he posits that it is implicit in laws establishing protected areas and providing for the conservation of nature.²⁰⁸ Finally, he claims that resilience is implied notably in insurance laws, the Precautionary Principle and environmental assessment laws.²⁰⁹

In a later work, Robinson argues in greater detail for the “Resilience Principle,”²¹⁰ which he articulates as follows: “Governments and individuals shall take all available measures to enhance and sustain the capacity of social and natural systems to maintain their integrity.”²¹¹ He defines resilience as “an inherent capacity to react to disruptions of human or ecological systems to sustain their health, wellbeing or integrity.”²¹² As in the case of the other “evolved norms” discussed above, his argument is that as humanity faces the challenges of disruption posed by the Anthropocene, resilience needs to be

²⁰⁵ Robinson, “Evolved Norms,” *supra* note 200 at 60. In a footnote to this paragraph (69), Robinson states: “Cooperation, biophilia, resilience, foresight, sharing (or sufficiency), and justice (including equity and environmental rights) can be restated as general principles of law.”

²⁰⁶ Robinson, “Evolved Norms,” *supra* note 200 at 60 (emphasis in the original, reference omitted).

²⁰⁷ Robinson, “Evolved Norms,” *supra* note 200 at 62.

²⁰⁸ Robinson, “Evolved Norms,” *supra* note 200 at 62-65.

²⁰⁹ Robinson, “Evolved Norms,” *supra* note 200 at 65-68.

²¹⁰ Nicholas A Robinson, “The Resilience Principle,” (2014) 5 IUCN AEL EJournal 19; Lia Helena Monteiro de Lima Demange, “The Principle of Resilience,” (2013) 30 Pace Env'tl L Rev 695.

²¹¹ Robinson, “The Resilience Principle,” *supra* note 210 at 24.

²¹² Robinson, “The Resilience Principle,” *supra* note 210 at 20.

fostered, not assumed as a given trait of nature and society.²¹³ Robinson has presented his proposal in several fora of diplomats and scholars and claims that “there is general acceptance of the proposition that Resilience may be usefully stated to be a principle of law.”²¹⁴ He argues that, as a general principle of law, it would broadly affect decisions, for example, by promoting decentralized services and adaptive planning.²¹⁵

Resilience is increasingly referred to in diverse contexts, most often with a positive connotation, as in Robinson’s proposed resilience principle. However, the term “resilient” may also describe social and natural systems that we do not value. For example, oppressive dictatorships may be resilient.²¹⁶ Likewise, an ecosystem transformed by alien invasive species may be resilient while at the same time detrimental to native biodiversity.²¹⁷ Should the integrity of such systems be maintained as per the resilience principle?

In contrast to Robinson’s definition of resilience, which refers to *maintaining* or *sustaining* “health, wellbeing or integrity,” the definition offered by Carl Folke—a leading scientists working on “resilience thinking”—focuses on the capacity to *change* and maintain the same *identity*, not health or integrity:

Resilience is the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure and feedbacks, & therefore identity, that is, the capacity to change in order to maintain the same identity, i.e. resilience is a dynamic concept

²¹³ Robinson, “The Resilience Principle,” *supra* note 210 at 21-23; Robinson, “Evolved Norms,” *supra* note 200.

²¹⁴ Robinson, “The Resilience Principle,” *supra* note 210 at 23-24.

²¹⁵ Robinson, “The Resilience Principle,” *supra* note 210 at 24-27.

²¹⁶ E.g. Laurence Whitehead, “The ‘Puzzle’ of Autocratic Resilience/Regime Collapse: The Case of Cuba,” (2016) 37:9 Third World Quarterly 1666.

²¹⁷ E.g. JO Luken & DT Mattimiro, “Habitat-Specific Resilience of the Invasive Shrub Amur Honeysuckle (*Lonicera Maackii*) During Repeated Clipping,” (1991) 1 Ecological Applications 104.

focusing on how to persist with change, how to evolve with change.²¹⁸

From this last perspective, resilience is not an end in itself, but an element of an approach to sustainability research, policy and action. It is a tool for understanding “social-ecological systems”—which are “intertwined systems of people and nature embedded in the biosphere”²¹⁹—in the context of sustainability. Resilience thinking is about change, and sometimes “involves breaking down the specific resilience of the old and building the resilience of the new.”²²⁰ Further discussion of the concept of resilience is beyond the scope of this thesis, but it is a prominent example of the difficulties involved in integrating into law scientific thinking that is crucial for confronting the ecological crisis, and an example of the complex issues ecological law must grapple with.²²¹

1.2.5.2 Rights of Nonuse

In addition to the Earth jurisprudence theorists reviewed earlier, another proponent of an ecocentric rights-based approach is Jan G. Laitos, who advocates for a “rule of law for nature” that recognizes “rights of nonuse” for nature.²²² He traces the evolution of rights regarding natural resources from promoted or required exploitation, to regulated use ensuring future access, to recognition of nonuse values for humans,

²¹⁸ Carl Folke, “Resilience,” in Oxford Research Encyclopedia of Environmental Science (September 2016) online: Oxford Research Encyclopedias <DOI: 10.1093/acrefore/9780199389414.013.8> (accessed 21 January 2019) [references omitted].

²¹⁹ Folke, *Resilience*, *supra* note 218.

²²⁰ Folke, *Resilience*, *supra* note 218 [reference omitted].

²²¹ Scholars are beginning to examine this particular challenge; see, e.g. Melinda Harm Benson & Ahjond S Garmestani, “Embracing Panarchy, Building Resilience and Integrating Adaptive Management Through a Rebirth of the National Environmental Policy Act,” (2011) 92:5 J Environmental Management 1420; JB Ruhl, “Panarchy and the Law,” (2012) 17:3 Ecology & Society 31; Ahjond S Garmestani & Craig R Allen, eds, *Social-ecological Resilience and Law*, (New York: Columbia University Press, 2013).

²²² J Laitos, “Rules of Law for Use and Nonuse of Nature,” in Voigt, ed, *Rule of Law for Nature*, *supra* note 4, 209; Jan G Laitos, *The Right of Nonuse*, (Oxford; New York: Oxford University Press, c2012).

especially ecosystem services and esthetic values. All of these approaches, he notes, are anthropocentric and have failed to prevent use beyond ecological limits.²²³ He claims a new, ecocentric approach is required instead, and shows that “modern regulations have already started to acknowledge purely ecocentric goals whose aim is not simply to benefit humans.” In a nutshell, Laitos

... suggests that the most dramatic, and possibly the most efficient legal change would be to give land and natural resources their own legal rights. Under this model, resources would have the ability to enforce ecocentric nonuse values, irrespective of the consequences of such enforcement actions on any human. If lawsuits were brought, the suit would be in the name of the land or resource, damages would be calculated by loss to that component of nature bringing the suit, and any judgment would be for the benefit of the land and the natural resource, not the humans affected thereby. Such a right of nonuse, held by the resource, would certainly mark a new age of land and resource protection.²²⁴

Laitos’ proposal is a radical extension of rights to nature, along the lines of Christopher Stone’s suggestion that trees be granted standing.²²⁵ It differs from Cullinan’s proposal, however, in that there is no explicit recognition of resources as subjects, and in the fact that the right of nonuse does not involve recognition of a distinct right depending on the nature of each component of the Earth community (recall Berry’s clarification that rivers have river rights, and so on).²²⁶ In this sense, the proposal seems less ecocentric, and more of an extension of anthropocentric-type rights to other beings.

²²³ Laitos, “Rules of Law for Use and Nonuse of Nature,” *supra* note 222 at 214.

²²⁴ Laitos, *The Right of Nonuse*, *supra* note 222 at 185 (Chapter Abstract).

²²⁵ Christopher D Stone, *Should Trees Have Standing? Toward Legal Rights for Natural Objects*, (Los Altos, CA: W Kaufmann, 1974).

²²⁶ Berry, “Rights of the Earth,” *supra* note 137 at 229.

This may be an advantage, in particular as a transitional approach to a more radically ecocentric conception of rights. Ultimately, the point of recognizing the rights of other members of the Earth community is to create wild laws that limit human encroachment on those rights, just as the right of nonuse would limit human encroachment on resources.

1.2.5.3 *Eco-proportionality*

The last of the contributions to ecological law examined in this non-exhaustive review is Gerd Winter's principle of eco-proportionality. Winter proposes a variation on the principle of proportionality—which “is a widely accepted principle of the rule of law”²²⁷ requiring that “that public power when intruding into the rights of citizens in pursuit of public interests shall do so only under certain preconditions.”²²⁸ As Winter explains: “This principle has emerged as a quite sophisticated means of restriction of power within human society [and he suggests] also using it as a means of restriction of power of man over nature.”²²⁹ He thus identifies two types of proportionality: “sociological proportionality (or in short socio-proportionality) shall primarily protect basic rights of citizens against governmental intrusions, [while] ecological proportionality

²²⁷ In contrast, according to Humberto Avila, proportionality is not a principle of law but a “normative postulate” of law. For Avila, principles of law are “immediate finalistic norms, primarily future regarding, [that] expect to be complementary and partial, whose application requires an assessment of the correlation between the state of affairs to be promoted and the effects of the conduct considered necessary to such promotion”). In turn, normative postulates of law are “immediately methodical norms that scaffold the interpretation and application of principles and rules by the more or less specific requirement of relations between elements according to criteria.” Avila, *Theory of Legal Principles*, *supra* note 164 at 133-4.

²²⁸ “These [preconditions] are the following:

- the objective pursued by the government shall be justifiable (1);
- the measure taken shall be
 - effective, i.e., capable of serving the public interest (2),
 - necessary, i.e., not replaceable by an alternative that is equally effective but less intrusive on individual rights (3), and
 - balanced, i.e., not excessively intrusive on individual rights in view of the importance of the public interest (4).”

G Winter, “Ecological Proportionality: An Emerging Principle of Law for Nature?,” in Voigt, ed, *Rule of Law for Nature*, *supra* note 4, 111 at 112.

²²⁹ Winter, “Ecological Proportionality,” *supra* note 228 at 112.

(or eco-proportionality) shall protect nature against intrusions by society (including nature-consuming governments).”²³⁰ Winter argues that

The reason for this new targeting of the principle is the increasing scarcity of natural resources that are available for modern societies, be it biodiversity, water, clean air or a livable climate. The implication is that societal actors are not primarily constructed as right holders but rather as bearers of obligations (although this does not exclude rights-based action against those who do not fulfill their obligations). The crucial point is thus that human society is required to justify its interests in view of nature. Nature is no longer the “environment” of mankind, which is protected by physically limiting human encroachments. Rather it is a resource that must be spared unless there is good reason to consume it.²³¹

Winter proposes the following fourfold test for designing eco-proportionality (which he notes parallels the test for socio-proportionality):

If an activity encroaches on natural resources:
the actor must pursue a justifiable societal objective (1); and
the activity shall prospectively be
– effective, i.e., capable of serving the objective (2);
– necessary, i.e., not replaceable by an alternative that is less intrusive on natural resources (3); and
– balanced, i.e., not excessively intrusive on natural resources in view of the importance of the societal objective (4).²³²

For Winter “a major distinct feature of eco-proportionality is that it puts individual and social welfare interests more radically into question than does socio-

²³⁰ Winter, “Ecological Proportionality,” *supra* note 228 at 114.

²³¹ Winter, “Ecological Proportionality,” *supra* note 228 at 115.

²³² Winter, “Ecological Proportionality,” *supra* note 228 at 115.

proportionality.”²³³ He argues that “[i]n traditional environmental law these interests remain largely unquestioned” and that “eco-proportionality would ask more fundamentally for reflection on goals and giving reasons for them.”²³⁴

As a mechanism for imposing obligations and limitations on human consumption of nature, eco-proportionality is an important contribution to ecological law primarily in support of the values of ecological primacy and ecological justice, discussed in Chapter 2 below. Also of interest is the idea that in their relationship to nature “societal actors are not primarily constructed as right holders but rather as bearers of obligations.”²³⁵ At the same time, Winter refers to nature as a “resource” which implies the anthropocentric and utilitarian approach that ecological law aims to overcome. As evidenced in the summary of the literature in this section, the theory of ecological law is gaining depth and a solid foundation, even though there are nuanced views and differences of approach or emphasis among its proponents.

1.3 Terminology

1.3.1 Why “Ecological Law”?

Whether the new approaches to law reviewed earlier in this chapter will coalesce under the term “ecological law” is still an open question. However, the creation of the Ecological Law and Governance Association, launched in October 2017 by Klaus Bosselmann and Massimiliano Montini, appears posed to settle it.²³⁶ While adoption of a single term may bring clarity and coherence, the nuances and differences of emphasis

²³³ Winter, “Ecological Proportionality,” *supra* note 228 at 118.

²³⁴ Winter, “Ecological Proportionality,” *supra* note 228 at 118.

²³⁵ Winter, “Ecological Proportionality,” *supra* note 228 at 115.

²³⁶ Ecological Law and Governance Association (ELGA, online: <www.elga.world/> (accessed 25 July 2018).

among the many contributions to this new approach might be blurred under a unifying label.

As noted before, Garver chose the term “ecological law” to emphasize the primacy of ecological integrity over economic and social concerns,²³⁷ and argues that this term avoids the ambiguity associated with the term sustainability.²³⁸ Writing in 2013, Garver notes that the use of the term “ecological law” is rare.²³⁹ Things have evolved since then, but he cites two sources that use the term in ways that loosely coincide with the meaning he proposes: In a paper dating back to 1989, Russian scholar Oleg Stepanovich Kolbasov discussed the emergence of “environmental” or “ecological” law in the Russian state and argued for the adoption of the later term to refer to this new body of law.²⁴⁰ The other source is W. Howarth’s 2006 discussion of ecological quality standards, in which he distinguishes “laws relating to living things” as “ecological law” from “those that relate to the inanimate physical media that support them” which are “environmental law.”²⁴¹

As discussed above, Boyd and Cullinan’s proposals for “sustainability law” and “wild law” respectively, share the core elements of this new approach to law even if neither uses the term “ecological law.” As for Bosselmann, his earlier work does not use the term either, but more recently he has used the term “rule of ecological law” in the context of arguing that ecological integrity should be recognized as a *grundnorm*.²⁴² He identified “the rule of ecological law, [along with] a transformed sense of democracy, the

²³⁷ Garver, “The Rule of Ecological Law,” *supra* note 5 at 319.

²³⁸ Garver, “The Rule of Ecological Law,” *supra* note 5 at 319.

²³⁹ Garver, “The Rule of Ecological Law,” *supra* note 5 at 318.

²⁴⁰ OS Kolbasov, “The Concept of Ecological Law,” (1989) 4 Conn J Int’l L 267.

²⁴¹ W Howarth, “The Progression Towards Ecological Quality Standards,” (2006) 18 J Envtl L 3.

²⁴² Bosselmann, “The Rule of Law Grounded in the Earth,” *supra* note 184.

concept of ecological citizenship and responsibility for the Earth's life systems" as "new fundamentals of law and governance" which he describes as "typical categories of law grounded in the Earth, limited by planetary boundaries and shaped around ecological integrity."²⁴³ In addition, as one of the founders of the Ecological Law and Governance Association (ELGA), professor Bosselmann seems to have adopted the term.

Without pretending to provide a comprehensive list of other works using terms that are similar to "ecological law," one can point to many recent and older examples:

- Back in 1979, Jan Schneider discussed the prospects of international "ecological law and organization."²⁴⁴
- Timoshenko took an international perspective on "ecological security."²⁴⁵
- Irina Krasnova offered a "survey of the modern ecological law" in the Russian Federation.²⁴⁶
- Joe Thornton discussed a proposed "Ecological Paradigm" for environmental regulation.²⁴⁷
- Joseph H Guth proposed "ecological integrity" as a rule to constrain the use of property.²⁴⁸
- Speaking of "ecological sovereignty," Peter Boulot "explores the limitations of existing legal systems that are based on out-dated models of scientific and mechanical paradigms" and "concludes that the law should align itself with the complex and holistic set of relationships that are found in nature."²⁴⁹
- Vito De Lucia took a comparative view of an "ecological philosophy of law."²⁵⁰

²⁴³ Bosselmann, "The Rule of Law Grounded in the Earth," *supra* note 184 at 3.

²⁴⁴ Jan Schneider, *World Public Order of the Environment: Towards an International Ecological Law and Organization*, (University of Toronto Press, 1979).

²⁴⁵ AS Timoshenko, "Ecological Security: The International Aspect," (1989) 7 Pace Envtl L Rev 151.

²⁴⁶ Irina Krasnova, "Survey of the Modern Ecological Law," (1999) 29/5 Envtl Pol'y & L 244.

²⁴⁷ Joe Thornton, *Pandora's Poison: Chlorine, Health, and a New Environmental Strategy*, (Cambridge, MA: MIT Press, 2000) at 102 *et seq.*, 345 *et seq.*

²⁴⁸ Joseph H Guth, "Law for the Ecological Age," (2007-2008) 9 Vt J Envtl L 431.

²⁴⁹ Peter Boulot, "A New Legal Paradigm: Towards a Jurisprudence Based on Ecological Sovereignty," (2012) 8 Macq J Int'l & CEnvtl L 1.

²⁵⁰ Vito De Lucia, "Towards an Ecological Philosophy of Law: A Comparative Discussion," (2013) 4:2 *Journal of Human Rights & the Environment* 167.

- Henrik Josefsson “explores the terms and content of ecological quality objectives and ecological quality standards, based on the [European] Water Framework Directive’s legal conceptualization of ‘ecological status’” and discusses “a possible alternative form of regulation.”²⁵¹

At the same time, there is a growing body of scholarship identifying as “Earth jurisprudence” and “wild law” inspired by Thomas Berry and building on the work of Cullinan, as explained in subsection 1.2.2 above. For example, Peter Burdon has further explored the philosophy of Earth jurisprudence,²⁵² and with Michelle Maloney, has brought together authors examining wild law in practice from different perspectives.²⁵³

The term “ecological law” is used in this thesis because it was initially through Garver’s proposal of a “rule of ecological law” that I became interested in the topic, and convinced of the need for this new legal paradigm to focus (at least initially) on constraining economic growth. However, the aim is to contribute to the further development of this new ecocentric approach to law, irrespective of how it is ultimately labeled.

1.3.2 Definition of Ecological Law

There is no generally accepted definition of ecological law, although the *Oslo Manifesto* describes the common elements of the different approaches it aims to unite under the concept of “ecological law and governance.”²⁵⁴ In this section I discuss my understanding, based on an extensive review of the literature, of what defines ecological law.

²⁵¹ H Josefsson, “Good Ecological Status: Advancing the Ecology of Law,” (Dissertation presented at Uppsala University for the degree of Doctor of Laws, 13 May 2015).

²⁵² Burdon, ed, *Exploring Wild Law* *supra* note 8.

²⁵³ Maloney & Burdon, eds, *Wild Law*, *supra* note 125.

²⁵⁴ Oslo Manifesto, *supra* note 67.

Ecological law is a radical approach to understanding, critiquing and imagining law, and is also the norms and legal frameworks that this approach aims to bring about. It is not a new area of law, or a “reform” of environmental law,²⁵⁵ but law that is conceived with an ecological basis regardless of its specific subject matter.²⁵⁶ Ecological law responds to two fundamental concerns: 1) an immediate need to prioritize ecological integrity over economic interests, constraining economic activity within ecological limits to avoid ecological collapse; and 2) a broader need to shift from anthropocentric to ecocentric legal systems as a foundation for an ecologically just society. The objectives of ecological law are thus to provide legal tools that can help constrain the economy within ecological limits and restore ecological integrity, and to develop legal frameworks that will enable an ecologically just society. I thus propose (and use herein) the following tentative definition:

Ecological law is an emerging approach to law aimed at constraining economic activity within ecological limits, restoring and preserving ecological integrity, and building and supporting an ecologically just society.

This definition emphasizes the first of the fundamental concerns noted earlier (the need to develop legal limits on economic growth). In contrast, the *Oslo Manifesto* mentioned earlier, describes ecological law with an emphasis on the latter concern (a shift to an ecocentric legal system):

The ecological approach to law is based on ecocentrism, holism, and intra-/intergenerational and inter species justice. From this perspective, or worldview, the law will recognise ecological interdependencies and no longer favour humans over nature and

²⁵⁵ M’Gonigle & Ramsay, “Greening Environmental Law,” *supra* note 75.

²⁵⁶ Garver, “The Rule of Ecological Law,” *supra* note 5 at 326; Cullinan, *Wild Law*, *supra* note 5 at 30-31.

individual rights over collective responsibilities. Essentially, ecological law internalises the natural living conditions of human existence and makes them the basis of all law, including constitutions, human rights, property rights, corporate rights and state sovereignty.²⁵⁷

Finally, the definition of ecological law proposed here also differs from definitions of Earth jurisprudence. For example, Begonia Filgueira and Ian Mason “define ‘Earth Jurisprudence’ as: *the philosophy of law and regulation that gives formal recognition to the reciprocal relationship between humans and the rest of nature.*”²⁵⁸

And Judith Koons, defines it as follows:

Earth Jurisprudence is an emerging legal theory based on the premise that rethinking law and governance is necessary for the well-being of Earth and all of its inhabitants. Earth Jurisprudence is an inclusive and systems-based theoretical perspective that supports robust environmental regulation and recognizes a kinship with the field of environmental ethics. In addition, Earth Jurisprudence embraces the connection between Earth justice and social justice.²⁵⁹

Clearly, the differences are in emphasis, rather than in substance. In particular, the aim of the definition I propose is to underscore the urgent role for ecological law in constraining economic activity within ecological limits. The further aims of restoring ecological integrity and building an ecologically just society imply the interconnectedness of humans and nature, as well as the ethical concern for equity among all members of the Earth community, and Berry’s vision of a mutually enhancing human-

²⁵⁷ *Oslo Manifesto*, *supra* note 67.

²⁵⁸ Begonia Filgueira & Ian Mason, “Wild Law: Is There Any Evidence of Earth Jurisprudence in Existing Law?,” in Burdon, ed, *Exploring Wild Law*, *supra* note 8, 192.

²⁵⁹ Koons, “Key Principles to Transform Law for the Health of the Planet,” *supra* note 145.

Earth relationship.²⁶⁰ (As noted in section 1.2.3 above, there is a debate surrounding the concept of ecological integrity, but this is discussed below in section 2.2.2.)

That Earth jurisprudence shares the goal of constraining the economy is most evident in the way Samuel Alexander describes it:

Earth Jurisprudence is far from being a homogenous body of literature [citing Burdon], but there do seem to be threads of commonality that unite the various forms. First among them is the idea that nature—the life-support system upon which the entire community of life depends—is more than a ‘resource’ to be exploited for human gratification. Nature is something that should not be, and indeed, cannot be understood merely in economic terms. An old growth forest or a marsh, for example, should be valued, not merely (or at all) in terms of dollars, or treated as resources to be developed in ways that maximize profits, but primarily in terms of the role they play in maintaining the health and integrity of planetary ecosystems. In this sense Earth Jurisprudence treats ecological sustainability as fundamental, and accordingly seeks to construct legal systems in order to achieve that defining goal. If this approach interferes with economic development, then it is ‘development’ that must be reconsidered, not the ‘principle of sustainability.’ From this view, then, law should seek to facilitate the creation of ‘post-growth economies’ that sit safely within ecological limits, rather than trying [to] make ‘growth economies’ sustainable, as mainstream environmentalism tries to do, without success. Earth Jurisprudence must hack at the roots of unsustainability, not merely the branches, and I believe that this means operating beyond the growth paradigm.²⁶¹

²⁶⁰ Berry, *The Great Work*, *supra* note 118 at 11, 80, 201.

²⁶¹ Samuel Alexander, “Wild Law from Below: Examining the Anarchist Challenge to Earth Jurisprudence,” in Maloney & Burdon, eds, *Wild Law*, *supra* note 125 at 37 [references omitted].

The complementary definitions above suffice for the purposes of this thesis, which is not to propose a full theory of ecological law, but to craft and test a lens with which to examine current law from the perspective of ecological law (the *lens of ecological law* proposed below in Chapter 2). The next section examines whether ecological law is realizable and the paradigm shift it entails. This is followed by a discussion of the relationships between ecological law and Indigenous legal traditions, and between ecological law and Green Legal Theory.

1.4 The Ecological Law Paradigm Shift

Ecological law is not an evolution from environmental law. Rather, it is a radical (in the sense of “root”)²⁶² departure from law’s role in mitigating the negative effects of economic activities to addressing its root causes; a paradigm shift from anthropocentricity to interconnectedness and ecocentrism. As discussed further in section 1.6 below, in M’Gonigle and Ramsay’s terms it is a “re-evolution” or “re-formation.”²⁶³

Environmental law tools can be designed consistently with an ecological law approach. Obvious examples of this include the principle of non-regression,²⁶⁴ the precautionary principle²⁶⁵ and some forms of environmental assessment.²⁶⁶ Also, ecological law may share concepts (like environmental externalities) with what is

²⁶² “Ecological integrity is a ‘radical’ concept, radical in the original sense of the word meaning the root, the foundation of the stability that makes it possible for human minds and civilizations to plan and organize.” Jack Manno, “Why the Global Ecological Integrity Group? The Rise, Decline and Rediscovery of a Radical Concept,” in Westra & Michelot, eds, *Confronting Ecological and Economic Collapse*, *supra* note 61 at 10.

²⁶³ M’Gonigle & Ramsay, “Greening Environmental Law,” *supra* note 75.

²⁶⁴ Michel Prieur, “Non-regression in Environmental Law,” (2012) 5:2 S A P I E N S 53.

²⁶⁵ E.g. Jamie Benidickson, *Environmental Law*, 2nd ed, (Toronto: Irwin Law Inc., 2002) at 22.

²⁶⁶ As understood in Robert B Gibson, Meinhard Doelle & A John Sinclair, “Fulfilling the Promise: Basis Components of Next Generation Environmental Assessment,” (2016) 29 J Env’tl L & Prac 257; & Robert B Gibson, “Avoiding Sustainability Trade-offs in Environmental Assessment,” (2013) 31:1 Impact Assessment & Project Appraisal 2. On the limits of environmental assessment, see M’Gonigle & Ramsay, “Greening Environmental Law,” *supra* note 75 at 346.

generally termed sustainability law,²⁶⁷ but it differs from it in explicitly situating itself outside the economic growth paradigm and focusing systemically and proactively on ensuring human activities operate within ecological limits, rather than on enabling “green growth.”²⁶⁸ Ecological law approaches ecological degradation not only as an economic problem that needs correcting but also as a systemic problem rooted in the growth paradigm itself. In contrast, law that promotes “[t]he green economy falls into the trap of placing economic growth as the goal of society.”²⁶⁹ As critics like Mark Wilson recognize, “[t]he proposal of ecological modernization does have some validity,” but ecological law must object to “the new risks introduced through the pricing of ecosystem services ... [as] many aspects of human existence and the natural environment cannot be adequately discussed in economic terms.”²⁷⁰

There are also important differences between ecological law and sustainable development law. According to the Centre for International Sustainable Development Law (CISDL) “[t]he term ‘sustainable development law’ describes an emerging corpus of international legal principles and instruments which address the intersections between international economic, environmental and social law (including human rights law), towards development that can last for the benefit of present and future generations.”²⁷¹

²⁶⁷ See e.g. Benidickson, Boer, Benjamin & Morrow, eds, *Environmental Law and Sustainability After Rio*, *supra* note 61; Nathalie Chalifour, et al, eds, *Critical Issues in Environmental Taxation, International and Comparative Perspectives*, v V, (Oxford University Press, 2008). For critiques of ecological modernization, see e.g. M’Gonigle & Ramsay, “Greening Environmental Law,” *supra* note 75 at 353; and generally Anders Hayden, *When Green Growth Is Not Enough: Climate Change, Ecological Modernization, and Sufficiency*, (Montreal & Kingston; London; Ithaca: McGill-Queen’s University Press, 2014).

²⁶⁸ *The Future We Want*, GA/Res 66/288, UNGAOR, 27 July 2012.

²⁶⁹ Mark Wilson, “The Green Economy: The Dangerous Path of Nature Commoditization,” (2013) 10:1 *Consilience Journal* 85 at 94; see generally Nicholas Kosoy et al, “Pillars for a Flourishing Earth: Planetary Boundaries, Economic Growth Delusion and Green Economy,” (2012) 4 *Current Opinion in Environmental Sustainability* 74.

²⁷⁰ Wilson, “The Green Economy,” *supra* note 269 at 94.

²⁷¹ CISDL, “What is Sustainable Development Law?” (CISDL Concept Paper, Montreal, 2005) at 1, based on MC Cordonier Segger & A Khalfan, *Sustainable Development Law: Principles, Practices & Prospects*

For scholars like Bosselmann, in contrast, ecological law aims to be global law, transcending international law in recognition of the global nature of many of the urgent environmental problems the world faces and of the interconnectedness of social-ecological systems.²⁷² In addition, sustainable development law is anthropocentric, focusing on present and future generations of humans, but not on other life. Instead, ecological law is based on the notion of ecological justice, which as explained earlier, requires the fair sharing of the Earth's sustaining capacity between present and future generations, not only of humans, but also of other beings. To the extent that the "intersections between international economic, environmental and social law (including human rights law)" involve a balancing of these laws rather than prioritizing ecological sustainability, ecological law also differs from this emerging field of sustainable development law. Ecological law rejects the balancing of environmental, economic and social interests commonly (and erroneously) implied in mainstream conceptions of sustainability and sustainable development.²⁷³ It agrees, instead, with those interpretations that prioritize ecological sustainability; such as Nathasha Affolder's, who argues that both Canadian laws and judicial decisions reject a reading of sustainability and sustainable development as requiring a balancing of social, economic and

(Oxford: Oxford University Press, 2004).

²⁷² Klaus Bosselmann, "In Search of Global Law: The Significance of the Earth Charter," (2004) 8:1 Worldviews 62; Garver, "The Rule of Ecological Law," *supra* note 5 at 328; generally Bratspies, "Sustainability," *supra* note 85.

²⁷³ See e.g. Jim MacNeill, "Brundtland Revisited," (4 February 2013), online: Canadian International Council <<http://opencanada.org/features/the-think-tank/essays/brundtland-revisited/>> (accessed 24 April 2014); Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 23; Christina Voigt, "The Principle of Sustainable Development: Integration and Ecological Integrity," in Voigt, ed, *Rule of Law for Nature*, *supra* note 4, 146 at 148.

environmental interests, requiring instead that sustainability be interpreted as ecological sustainability.²⁷⁴

Regarding the feasibility of ecological law, the difficulties lie mostly in the political realm, since from a scientific and an economic perspective ecological law can be interpreted as being broadly realizable. Ecological law is based on scientific and economic ideas that are well established, even if not yet mainstream thinking. Ecological law seeks to establish rules for human behavior that accord with what science tells us about ecological sustainability. Garver explains that “both ecological law and degrowth derive from a fundamental normative choice to manage the human enterprise so as to sustain circumstances to which ecology, thermodynamics and the other sciences will apply in ways that allow the human-Earth relationship to thrive.”²⁷⁵

Ecological law is also feasible in economic terms, even as it “calls into question the current insistence on perpetual economic growth.”²⁷⁶ As noted earlier, ecological economists have developed the theoretical foundations for a “steady-state”²⁷⁷ or “no-growth”²⁷⁸ economy, and proposals for implementing them are on the rise, especially within the degrowth movement.²⁷⁹ There are solid reasons for developed countries to abandon the dominant paradigm of economic growth as a societal priority.²⁸⁰ Emerging evidence that the ideas of degrowth are realizable can be found in diverse “grassroots economic practices” that include “[e]co-communities, online communities ...

²⁷⁴ Natasha Affolder, “The Legal Concept of Sustainability,” (Paper presented at “A Symposium on Environment in the Courtroom: Key Environmental Concepts and the Unique Nature of Environmental Damage,” 23-24 March 2012, U. of Calgary, (Canadian Institute of Resources Law: Calgary, 2012).

²⁷⁵ Garver, “The Rule of Ecological Law,” *supra* note 5 at 319.

²⁷⁶ Garver, “The Rule of Ecological Law,” *supra* note 5 at 319.

²⁷⁷ Daly, *Toward a Steady-state Economy*, *supra* note 37.

²⁷⁸ Victor, *Managing without Growth*, *supra* note 38; Jackson, *Prosperity without Growth*, *supra* note 39.

²⁷⁹ D’Alisa, Demaria & Kallis, eds, *Degrowth*, *supra* note 34.

²⁸⁰ PA Victor & G Rosenbluth, “Managing without Growth,” (2007) 61 *Ecological Economics* 492 at 492.

communities of back-to-the-landers, cooperatives, urban gardens, community currencies, time banks, barter markets, [and] associations of child or health care.”²⁸¹

Nonetheless, ecological law is most likely not imminently realizable in most jurisdictions because, despite the many seeds noted, the paradigm shift away from the prevailing worldview and economic thinking it implies and supports has yet to unfold. Instead, mainstream efforts to address the ecological crisis follow green economy and ecological modernization approaches (perhaps in some cases due to pragmatism),²⁸² which are embedded in the growth paradigm.²⁸³ In addition, broader debates about the role of markets²⁸⁴ and capitalism²⁸⁵ compound the challenge for ecological law.

The scholars advancing ecological law discussed earlier in this thesis, however, do not dwell on the question of whether it is realizable. Their arguments for change are based on necessity and optimism, rather than on pragmatism. Garver claims that if the diagnoses of ecological overshoot threatening planetary stability are correct, then the narrative of indispensable infinite growth “must give way” to the narrative of an economy operating within ecological constraints.²⁸⁶ For his part, Bosselmann argues that “[i]nternational law needs to accept preservation of the Earth’s integrity as the foremost ‘common concern of humanity’, simply because we must” and that “[e]cological

²⁸¹ D’Alisa, Demaria & Kallis, eds., *Degrowth*, *supra* note 34 at 11.

²⁸² Hayden, *When Green Growth Is Not Enough*, *supra* note 267 at ch 4 (examining “the struggle by sufficiency advocates to find ways to put the questioning of growth on the public agenda and open up discussion of the need for alternatives” in Canada).

²⁸³ Wilson, “The Green Economy,” *supra* note 270 at 94; see generally Nicholas Kosoy et al, “Pillars for a Flourishing Earth,” *supra* note 270.

²⁸⁴ See e.g. Jack P Manno, “Commodification and Oppression,” (January 2010) 11851:1 *Annals of the New York Academy of Sciences* 164; Compare Nathaniel O Keohane & Sheila M Olmstead, *Markets and the Environment*, (Washington, DC: Island Press, c2007).

²⁸⁵ See generally Diego Andreucci & Terrence McDonough, “Capitalism,” in D’Alisa, Demaria & Kallis, *Degrowth*, eds, *supra* note 34, 59-62; Kovel, *The Enemy of Nature*, *supra* note 6.

²⁸⁶ Garver, “The Rule of Ecological Law,” *supra* note 5 at 330.

sustainability is the only principle that can reverse the current logic.”²⁸⁷ Boyd is optimistic in light of humanity’s recent achievements and he views “[s]ustainability law [as] an expression of confidence in the innate human capacity for harnessing compassion, ingenuity, and wisdom in pursuit of a better world and a better future.”²⁸⁸ Finally, Cullinan argues that “[s]hifting the paradigm of the homosphere to an Earth-centered worldview will take the effort of many people in many fields, but [he thinks] that there are many encouraging signs that this is well underway.”²⁸⁹

For his part, Samuel Alexander has examined the feasibility question in some detail, specifically with respect to Earth jurisprudence. He raises “the question of ‘strategy’” and “whether ‘top down’ change is really where we should be directing our energies” given the state’s “growth fetishism.”²⁹⁰ Alexander’s premise is that “environmental laws that do not question the growth paradigm have failed and will always fail to achieve sustainability, and that Earth Jurisprudence must therefore be a post-growth jurisprudence if it is to succeed where ‘free market’ and ‘command-and-control’ environmentalism have failed.”²⁹¹ The problem for Earth jurisprudence, then, is “that efforts to convince or pressure the state to adopt a post-growth Earth Jurisprudence might be an exercise in futility, on the basis that governments seem to be fundamentally committed to growth economics.”²⁹² He does not argue that ‘top down’ change is not desirable, but questions that it is the way “to achieve the ‘ends’ of Earth Jurisprudence

²⁸⁷ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 173 [reference omitted].

²⁸⁸ Boyd, “Sustainability Law,” *supra* note 5 at 386.

²⁸⁹ Cullinan, *Wild Law*, *supra* note 5 at 61.

²⁹⁰ Alexander, “Wild Law from Below,” *supra* note 261 at 32.

²⁹¹ Alexander, “Wild Law from Below,” *supra* note 261 at 38.

²⁹² Alexander, “Wild Law from Below,” *supra* note 261 at 41.

most effectively,” so he tentatively proposes, instead, “working toward Wild Law ‘from below’.”²⁹³ Alexander suggests

... building [the new society] beneath the legal structures of the existing society with the aim that one day new societal structures will emerge ‘from below’ to replace the outdated forms we know today. In this sense, it could be said that I am presenting an ‘anarchist’ challenge to Earth Jurisprudence, in the limited sense, at least, that I am proposing that we consider ignoring the state rather than trying to use the state to advance ‘deep green’ causes which it seems wholly uninterested in supporting.²⁹⁴

Law both reflects and shapes how society views and values our relationship to the natural world and it can be an important catalyst as well as an obstacle to changes in behavior. In my view, a change in the law that completely precedes a change in values is not likely to be observed effectively, or at all. However, it might help support the change in values and then gradually gain effectiveness. One of the fundamental challenges in the case of ecological law (and in confronting the ecological crisis) is that the state has a conflict of interest with regard to deep changes to resource use and consumption.²⁹⁵ The recognition that changes in law are important but will not make a difference (even if they were to happen) without a change in consciousness and societal priorities is most emphatic in Cullinan, but present in most ecological law scholars.²⁹⁶

Cullinan argues:

²⁹³ Alexander, “Wild Law from Below,” *supra* note 261 at 41 [emphasis in the original].

²⁹⁴ Alexander, “Wild Law from Below,” *supra* note 261 at 32.

²⁹⁵ As M’Gonigle argues with respect to the climate change crisis, “solving such problems through state-based regulation is the false premise of the environmental law paradigm” because “the state itself is as dependent on environment-destroying economic behavior as any corporation or consumer.” Michael M’Gonigle, “Green Legal Theory: A New Approach to the Concept of Environmental Law,” (2008) 4 *Ökologisches Wirtschaften* 34 at 34.

²⁹⁶ For example, Bugge, “Twelve Fundamental Challenges in Environmental Law,” *supra* note 4 at 5.

The problem is not simply that our laws need refining to be more effective. The fact is that, by and large, these laws do give accurate expression to the defective worldview that underlies them. Our legal and political establishments perpetuate, protect and legitimize the continued degradation of Earth by design, not by accident.²⁹⁷

Possibly a change in our worldview is starting to happen. Proposals like the Earth Charter²⁹⁸ and the Universal Declaration of the Rights of Mother Earth,²⁹⁹ as well as Pope Francis' *Laudato Si'*³⁰⁰ are noticeable examples. Also, as a result of the promotion of Earth jurisprudence and other efforts to recognize the rights of nature since the 2002 Rio+10 Earth Summit in Johannesburg, the United Nations—while still framing sustainability as a question of balancing—has engaged with the rights of nature through the Harmony with Nature initiative:

In 2009, the United Nations General Assembly proclaimed 22 April as International Mother Earth Day. In so doing, Member States acknowledged that the Earth and its ecosystems are our common home, and expressed their conviction that it is necessary to promote Harmony with Nature in order to achieve a just balance among the economic, social and environmental needs of

²⁹⁷ Cullinan, *Wild Law*, *supra* note 5 at 62.

²⁹⁸ Earth Charter Commission, *The Earth Charter*, (2000), online: <www.earthcharterinaction.org/content/pages/Read-the-Charter.html> (accessed 23 September 2014) (*Earth Charter*).

²⁹⁹ *Universal Declaration of the Rights of Mother Earth*, (adopted at the World Peoples Conference on Climate Change and the Rights of Mother Earth in Bolivia 2010), online: <pwccc.wordpress.com/programa/> (accessed 20 April 2016); Cormac Cullinan, “The Legal Case for the Universal Declaration of the Rights of Mother Nature,” in *The Rights of Nature: The Case for a Universal Declaration of the Rights of Mother Earth*, (Council of Canadians, Fundación Pachamama & Global Exchange, 2011) at 89-90.

³⁰⁰ “Encyclical Letter *Laudato Si'* of The Holy Father Francis On Care for Our Common Home” (official English-language text of the encyclical), online: Vatican <http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html> (accessed 12 August 2015); for a critique, see Philippe J Crabbé, *La responsabilité cosmique de l'humanité : un examen critique de Laudato Si'*, (Montréal: Médiapaul, 2018).

present and future generations. The same year, the General Assembly adopted its first resolution on Harmony with Nature.³⁰¹

Likewise, some fundamental changes in the law are already taking place. For example, the United Nations World Charter for Nature recognizes the inherent value of all life,³⁰² the Ecuadorean Constitution was reformed in 2008 to grant rights to nature or *Pacha Mama*³⁰³ and prioritize “the good way of living” or “*buen vivir*,”³⁰⁴ while countries like El Salvador and Costa Rica are prioritizing ecological concerns over economic ones by instituting bans on open pit metal mining.³⁰⁵ On 15 March 2017, New Zealand’s parliament gave legal personhood to the Whanganui River.³⁰⁶

In summary, an ecological law paradigm shift providing tools to constrain the economy within ecological limits and to build and support an ecologically just society is feasible, but dependent on a larger shift of worldview and its social, economic and political dimension. Work to further understand these dimensions (in particular, through Green Legal Theory) and to develop the theory of ecological law and proposals for its implementation can aid in this shift and pave the way for ecological re-formation.³⁰⁷

1.5 Ecological Law and Indigenous Legal Traditions

³⁰¹ United Nations, *Harmony with Nature Initiative*, online: Harmony with Nature, United Nations <www.harmonywithnatureun.org> (accessed 12 December 2016).

³⁰² UN General Assembly, *World Charter for Nature*, (28 October 1982, A/RES/37/7).

³⁰³ *Constitution of the Republic of Ecuador*, 2008, Published in the Official Register October 20, 2008, (English version), online: <<http://pdba.georgetown.edu/Constitutions/Ecuador/english08.html>> (accessed 23 September 2014) at Art. 71.

³⁰⁴ *Constitution of the Republic of Ecuador*, 2008, *supra* note 303 at Chapter 2.

³⁰⁵ Marcel Evans, “Costa Rica Upholds Ban on Open-Pit Mining,” (8 February 2013), online: Costa Rica Star <<http://news.co.cr/costa-rica-upholds-ban-on-open-pit-mining/21901/>> (accessed 23 April 2014); see Chapter 3 below for the ban in El Salvador.

³⁰⁶ “New Zealand’s Whanganui River Granted Legal Status as a Person after 170-year Battle,” (15 March 2017), online: ABC News <www.abc.net.au/news/2017-03-16/nz-whanganui-river-gets-legal-status-as-person-after-170-years/8358434> (accessed 27 July 2018).

³⁰⁷ M’Gonigle & Ramsay, “Greening Environmental Law,” *supra* note 75; and section 1.6 below.

Ecological law has been referred to herein as a new approach to law. It is new in the sense that it emerges in response to the ecological crisis and the failed approach of environmental law to this crisis. It is not new, however, in its recognition of the interconnectedness of humans and nature and its acknowledgement of the need to ensure humans conduct themselves so as to maintain a healthy relationship with nature. These features have been, and still are, part of other legal traditions,³⁰⁸ in particular, of some Indigenous legal traditions.³⁰⁹ H. Patrick Glenn describes Indigenous legal traditions as “chthonic” because they are the traditions of “people who live ecological lives” as they “live in or in close harmony with the earth.”³¹⁰ This suggests that it is fair to expect potentially rich connections between Indigenous legal traditions and ecological law. A thorough examination of this proposition is not the subject of this thesis, yet it is important to outline the main assumptions on which it is based, and some of the challenges it poses, given that occasional references are made to it and to examples of Indigenous laws (as I understand them).

1.5.1 Resurgence of Indigenous Law

³⁰⁸ E.g. Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 10-22 (on the idea of sustainability in Europe since medieval times).

³⁰⁹ E.g. Eugene Richard Atleo, *Tsawalk: A Nuu-chah-nulth Worldview*, (Vancouver: UBC Press, c2004); E Richard Atleo (Umeek), *Principles of Tsawalk: An Indigenous Approach to Global Crisis*, (Vancouver: UBC Press, c2011).

³¹⁰ H Patrick Glenn, *Legal Traditions of the World: Sustainable Diversity in Law*, 5th ed, (Oxford: Oxford University Press, 2014) at 61-62. Glenn argues that terms like ‘Indigenous,’ ‘Aboriginal,’ and ‘native,’ are inaccurate and used inconsistently, so that “... the best description for the law we want to talk about is apparently that used by Edward Goldsmith in describing people who live ecological lives by being chthonic (perhaps more easily phonetically as k’thawnik) which means that they live in or in close harmony with the earth [reference omitted]. To describe a legal tradition as chthonic is thus to attempt to describe a tradition by criteria internal to itself, as opposed to imposed criteria. It is an attempt to see the tradition from within, in spite of all problems of language and perception, and to see it from a time prior to colonial language. ‘Indigenous’ or ‘aboriginal’ traditions are what they are because they have been chthonic, for hundreds of thousands of years, though they also, inevitably, bear new designations since the colonial encounter of the last few hundred.”

Indigenous law is increasingly being studied, recognized and applied worldwide.³¹¹ In Canada, John Borrows has argued for recognition by Canadian courts of Indigenous legal traditions along with civil and common law traditions.³¹² He has shown that Indigenous legal traditions can and should be integrated into the settler legal system³¹³ and argues that “[wh]en First Nations laws are received with greater force in Canadian law, both systems of law will be strengthened concurrently.”³¹⁴ Recognizing and supporting the resurgence of Indigenous laws was among the 2015 recommendations of the Truth and Reconciliation Commission.³¹⁵

1.5.2 Access and Interpretation

The resurgence of Indigenous legal traditions involves finding and articulating Indigenous laws that are not always visible and easy to grasp.³¹⁶ Indigenous legal scholars have discussed the challenges in identifying Indigenous laws and proposed and tested methods for doing so.³¹⁷ The endeavor is challenging for several reasons. Val

³¹¹ John Borrows, *Recovering Canada: The Resurgence of Indigenous Law*, (Toronto, ON: University of Toronto Press, c2002); CF Black, *The Land Is the Source of the Law: A Dialogic Encounter with Indigenous Jurisprudence* (New York: Routledge, 2011); Kerry Sloan, “A Global Survey of Indigenous Legal Education and Research,” (paper prepared for the University of Victoria Indigenous Law Unit, the Indigenous Bar Association, and the Truth and Reconciliation Commission of Canada, 28 July 2013); John Ralston Saul, *The Comeback*, (Toronto, ON: Viking, 2014).

³¹² John Borrows, *Canada’s Indigenous Constitution*, (Toronto: University of Toronto Press, c2010.)

³¹³ John Borrows, “With or Without You: First Nations Law in Canada,” (1996) 41 McGill LJ 629.

³¹⁴ Borrows, “With or Without You,” *supra* note 313 at 664.

³¹⁵ Truth and Reconciliation Commission of Canada, “Honouring the Truth, Reconciling for the Future: Summary of the Final Report of the Truth and Reconciliation Commission of Canada,” (Report, TRC, 2015), online: <http://www.trc.ca/websites/trcinstitution/File/2015/Honouring_the_Truth_Reconciling_for_the_Future_July_23_2015.pdf> (accessed 24 August 2015) at 326, 327.

³¹⁶ In addition to the authors noted in the following discussion, see Christine Zuni Cruz, “Law of the Land—Recognition and Resurgence in Indigenous Law and Justice Systems,” in Benjamin J Richardson & Shin Imai, eds, *Indigenous Peoples and the Law: Comparative and Critical Perspectives* (Oxford; Portland, Or: Hart, 2009) 315 (discussing external and internal recognition of Indigenous legal traditions).

³¹⁷ Borrows, *Canada’s Indigenous Constitution*, *supra* note 312; Val Napoleon, “Thinking About Indigenous Legal Orders” in Rene Provost & Colleen Sheppard, eds, *Dialogues on Human Rights and Legal Pluralism* (New York: Springer, 2012); Hadley Friedland, “Reflective Frameworks: Methods for Accessing, Understanding and Applying Indigenous Laws” (2013) 11 (2) Indigenous LJ 1; see also the “Accessing Justice and Reconciliation” Project, online: University of Victoria <www.uvic.ca/law/about/indigenous/indigenoulawresearchunit/index.php> (accessed 26 September 2016).

Napoleon describes Indigenous law as “law that is embedded in non-state social, political, economic, and spiritual institutions” and part of a “legal order” rather than a “legal system.”³¹⁸ This poses a challenge because, as Aaron Mills explains, “when a legal order is diffuse or decentralized ... [i]n order to understand and work with the law ... one needs to develop an understanding of the broader cultural practices in which law exists.”³¹⁹ Napoleon also points to the great number of aboriginal nations across Canada (more than 50) and the fact that there is no such thing as “indigenous law” but many aboriginal legal orders and laws.³²⁰ Moreover, according to Christine Zuni Cruz, these should be understood to include “both the chthonic or Indigenous legal tradition and the ‘modern’ and emerging law of these Indigenous nations and peoples.”³²¹ In addition to the challenges of finding Indigenous laws and having the knowledge needed to properly interpret them, Borrows warns that “[c]ultural knowledge should remain under community control” to ensure this knowledge is shared without “unjust appropriation.”³²²

In this context, it may be especially difficult for a non-Indigenous person to discover, access, and interpret Indigenous laws. Gordon Christie concludes that whether non-Indigenous people can even really understand what the world looks like to an

³¹⁸ Napoleon, “Thinking About Indigenous Legal Orders,” *supra* note 317 at 231.

³¹⁹ Aaron Mills, “Opichi: A Transformation Story. An Invitation to Anishinaabe (Ojibwe) Legal Order,” (date NA) 34:3 *For The Defence* 40 at 46.

³²⁰ Val Napoleon & Richard Overstall, “Indigenous Laws: Some Issues, Considerations and Experiences” An Opinion Paper prepared for the Centre for Indigenous Environmental Resources (CIER), Feb 2007; see also Benjamin J Richardson, Shin Imai & Kent McNeil, “Indigenous Peoples and the Law—Historical, Comparative and Contextual Issues,” in Richardson & Imai, eds, *Indigenous Peoples and the Law*, *supra* note 316 at 3-21.

³²¹ Christine Zuni Cruz, “Shadow War Scholarship, Indigenous Legal Tradition, and Modern Law in Indian Country,” (2007-2008) 47 *Washburn LJ* 631 at 634 [reference omitted].

³²² Borrows, *Recovering Canada*, *supra* note 311 at 26.

Indigenous person is an open question.³²³ As Zuni Cruz explains, a paradigm shift in thinking is required:

Indigenous tradition is embedded in an Indigenous knowledge system that informs a way of thinking that is different to Western approaches to knowledge. Indigenous legal tradition as it is contained within Indigenous knowledge reaches into time immemorial and has continued as an unbroken strand in spite of national policies aimed at completely assimilating Indigenous peoples. It continues to operate in the social consciousness of Indigenous peoples in their everyday lives, even if this is not recognized as 'law' by the undiscerning.³²⁴

A key part of the challenge is to grasp that the source of the law is the land, nature itself. For Christine Black, an understanding of the law requires a direct connection to the land so that one can have feelings (not emotions)³²⁵ as a way of knowing the law. She argues that "it is in the experience of Land as the source of Law, and the feeling it imbues, that one comes to know the Law."³²⁶ Moreover, "Law is not dependent on human action for its continuity, for the Law is already posited in the Land. ... [T]he human merely actualizes that which is posited in Land ... [T]he focus on the human as the site of ownership or law is misleading."³²⁷

One possible avenue for the non-Indigenous researcher is looking to the written expressions of Indigenous laws that are publicly available.³²⁸ From the perspective of ecological law, statutes that explicitly incorporate or express Indigenous traditions like

³²³ Gordon Christie, "Indigenous Legal Theory: Some Initial Considerations," in Richardson & Imai, eds, *Indigenous Peoples and the Law*, *supra* note 316, 195 at 209 footnote 30.

³²⁴ Zuni Cruz, "Law of the Land," *supra* note 316 at 316.

³²⁵ CF Black, *The Land is the Source of the Law*, *supra* note 311 at 27, 176.

³²⁶ CF Black, *The Land is the Source of the Law*, *supra* note 311 at 181.

³²⁷ CF Black, *The Land is the Source of the Law*, *supra* note 311 at 52.

³²⁸ For example, Atleo, *Principles of Tsawalk*, *supra* note 309.

the Nunavut *Wildlife Act*³²⁹ and the *Traditional Eeyou Hunting Law, 2009* (Eeyou Indoh-Hoh Weeshou-Wehwun)³³⁰ may offer accessible opportunities to consider the intersections between Indigenous legal traditions and ecological law. At the same time, one should not lose sight of inherent limitations in this approach, given that “the most evident feature of chthonic legal tradition is orality,”³³¹ and that as mentioned earlier, in these traditions the law is embedded in culture, “all mixed up with other things—how to cook, how to catch rabbits, how to behave to one’s family (in a very large sense), how to be honourable,”³³² rather than produced through legislated, adjudicated or other written text.

1.5.3 Potential Synergies between Indigenous Laws and Ecological Law

Within the limitations noted above that apply to me as a non-Indigenous person, I believe that Indigenous laws could be a source of inspiration for the development of ecological law, as follows. In addition to the chthonic character of Indigenous legal traditions,³³³ numerous statements from Indigenous peoples worldwide highlight the relationship of Indigenous peoples to the environment³³⁴ and some Indigenous scholars

³²⁹ *Wildlife Act*, SNu 2003, c 26.

³³⁰ This law is a written version of existing customary law and was created as “an exercise of the inherent right of self-government.” Cree Trappers Association, “Traditional Eeyou Hunting Law: Frequently Asked Questions (FAQ),” (July 2010), online: Cree Trappers Association <creetrappers.ca> (accessed 3 May 2014) at 3.

³³¹ Glenn, *Legal Traditions of the World*, *supra* note 310 at 63; see also CF Black, *The Land is the Source of the Law*, *supra* note 311 (warning that written expressions of the law are “a snapshot in time. The contextualized authoritative outspeaks my work and any written works, for it remains connected to the Land”) at 173.

³³² Glenn, *Legal Traditions of the World*, *supra* note 310 at 72.

³³³ Glenn, *Legal Traditions of the World*, *supra* note 310 at 61-62.

³³⁴ For example, the Universal Declaration of the Rights of Mother Earth, *supra* note 299.

argue that common features of Indigenous law include the notion of interconnectedness³³⁵ and strong environmental protection values.³³⁶

Indigenous legal traditions can contribute to the development of ecological law by informing its principles and providing examples of ecologically-based governance.³³⁷ Ecological law is premised on the notion that law ignores the systems and limits of nature at our peril, and thus maintaining ecological integrity is its overarching objective.³³⁸ To the extent that Indigenous laws may share this objective (while expressing it differently) and are based on awareness and understanding of how nature works and of its limits, one could expect that ecological law may find constructive examples and lessons in such Indigenous laws.

Shifting from an anthropocentric to an ecocentric approach is another key element of ecological law. Indigenous legal traditions that emphasize people are “embedded in nature”³³⁹ can contribute to a shift toward ecocentrism in other legal traditions by example or integration, as in the case of recognition of the rights of *Pacha Mama* in the Ecuadorean Constitution,³⁴⁰ or the personhood of the Whanganui River in

³³⁵ Peigi Wilson, “Interconnections: The Symbiosis of Human Rights and Environmental Protection, An Argument for First Nation Environmental Governance,” (Thesis, LLM), (Ottawa, ON: University of Ottawa, 2009); and Borrows, *Recovering Canada*, *supra* note 311.

³³⁶ Borrows, *Recovering Canada*, *supra* note 311 at 47.

³³⁷ Jessica Clogg & Hannah Askew, “The Role of Indigenous Environmental Laws in Canada,” (Paper presented at JELP, *supra* note 89), online: JELP <journalofenvirolaw.files.wordpress.com/2014/02/jelp_wcel_indigenouslaw.pdf>.

³³⁸ Cullinan, *Wild Law*, *supra* note 5 at 82-83 (Wild law is based on Earth Jurisprudence); see also, Boyd, “Sustainability Law,” *supra* note 5 at 366; Garver, “The Rule of Ecological Law,” *supra* note 5 at 319; Voigt, “The Principle of Sustainable Development,” in Voigt, ed, *Rule of Law for Nature*, *supra* note 4, 146 at 153.

³³⁹ Borrows, *Recovering Canada*, *supra* note 311 at 31-32.

³⁴⁰ Cullinan, *Wild Law*, *supra* note 5 at 184; *Constitution of the Republic of Ecuador*, *supra* note 303 at Chapter 7; Karen Morrow, “People’s Sustainability Treaties at Rio+20: Giving Voice to the Other,” in Maloney & Burdon, eds, *Wild Law*, *supra* note 125 at 45-57 [reference omitted].

New Zealand.³⁴¹ Likewise, commons governance and state trusteeship are approaches favoured by ecological law theorists that may benefit from Indigenous governance experience.³⁴²

Earth Jurisprudence scholars have made the most explicit links with Indigenous legal traditions.³⁴³ As noted earlier, one of the tenets of Earth Jurisprudence is that it is based on the laws of the universe, or Great Jurisprudence. Law is understood as existing independently of human legal systems. We learn it from the universe, from the land.

“[L]aw is discovered, not made,” as Ian Mason explains:

Mike Bell, who has worked for many years with the indigenous Inuit of the Canadian Arctic, tells the story of the Inuit carver who, asked how he managed to put such beauty, life and spirit into the polar bear he was carving from stone, replied, ‘I don’t put the spirit of the bear into the stone. It’s already in the stone. I just chip away everything that doesn’t look like a bear.’ This is the real spirit of Earth Jurisprudence. It is only a matter of chipping away the accretions of human-centredness to rediscover the naturalness of relationships with the wider Earth community. The real law of Earth Jurisprudence is that intimate relationship governing all human responses to Nature.³⁴⁴

³⁴¹ “Rivers Are People, Too. (Oceania) (Protection of the Whanganui River),” (2013) 27:4 *Earth Island Journal* 9.

³⁴² See e.g. Prue Taylor, “The Common Heritage: Constructive Utopianism,” in Magalhães et al, eds, *The Safe Operating Space Treaty*, *supra* note 33, 104; Bosselmann, *The Principle of Sustainability*, *supra* note 87 at ch 5; Burns H Weston & David Bollier, eds, *Green Governance, Ecological Survival, Human Rights, and the Law of the Commons*, (Cambridge: Cambridge Univ Press, 2013); Viktoria Kahui & Amanda C Richards, “Lessons from Resource Management by Indigenous Maori in New Zealand: Governing the Ecosystems as a Commons,” (2014) 102 *Ecological Economics* 1; Cullinan, *Wild Law*, *supra* note 5 (“[r]esurrecting and adapting ancient notions of people and communities as guardians of land, with a sacred obligation to care for it in perpetuity is likely to be an important part of emerging Earth Jurisprudence”) at 142.

³⁴³ Hosken, “Reflections on an Inter-cultural Journey into Earth Jurisprudence,” *supra* note 117, 24-34; Herman F Greene, “Cosmology and Earth Jurisprudence,” in Burdon, ed, *Exploring Wild Law*, *supra* note 8, 126.

³⁴⁴ Mason, “One in All,” *supra* note 146 at 40.

In Canada there are meaningful opportunities for ecological law to learn from and intersect with Indigenous legal traditions. For example, *Inuit Qaujimajatuqangit* (IQ) reflects a worldview based on interconnectedness with, and respect and responsibility towards the natural world.³⁴⁵ These “traditional Inuit values, knowledge, behaviour, perceptions and expectations” have been explicitly incorporated into the Nunavut *Wildlife Act*.³⁴⁶ An initial analysis indicates that several of the IQ principles in the Act can be seen as examples of ecological law, in particular the acknowledgement of interconnectedness of people and nature, and a needs-based approach to wildlife harvesting that prohibits wastage and accumulation.³⁴⁷

Another example is Anishinabek law as described by Borrows,³⁴⁸ which contains principles that could inform an ecological law approach to property, extractive activities, resource use, and other important topics of ecological law. He points, for instance, to “a powerful precedent for Anishinabek people in governing their resources,” that states that while “resources have an existence without us, we have no existence without them.”³⁴⁹ Borrows also points to the principle of “the land’s sentence”³⁵⁰ and

³⁴⁵ George W Wenzel, “From TEK to IQ: *Inuit Qaujimajatuqangit* and Inuit Cultural Ecology,” (2004) 41:2 *Arctic Anthropology* 238.

³⁴⁶ *Wildlife Act*, SNu 2003, c 26.

³⁴⁷ See generally Carla Sbert, “The Nunavut *Wildlife Act* from the Lens of Ecological Law,” (6 January 2015) [unpublished]. Further study of whether IQ is being applied and, if so, whether its implementation actually advances ecological law objectives would shed some light on the challenges and opportunities for ecological law. Frank James Tester & Peter Irniq, “Inuit Qaujimajatuqangit: Social History, Politics and the Practice of Resistance,” (2008) 61:1 *Arctic* 48 (noting that there are profound contradictions between IQ and modern bureaucracy); Graham White, “Cultures in Collision: Traditional Knowledge and Euro-Canadian Governance Processes in Northern Land-Claim Boards,” (2006) 59:4 *Arctic* 401 (arguing IQ and Weberian bureaucracy cannot be reconciled).

³⁴⁸ Borrows, *Recovering Canada*, *supra* note 311, and John Borrows, “Living Law on a Living Earth: Religion, Law and the Constitution,” in Borrows, *Canada's Indigenous Constitution*, *supra* note 312, 239.

³⁴⁹ Borrows, *Recovering Canada*, *supra* note 311 at 20.

³⁵⁰ Borrows, “Living Law on a Living Earth,” *supra* note 348 at 245.

“the concept of reciprocal obligations between rocks and humans”³⁵¹ as important parts of Anishinabek law.

As we noted earlier, according to Glenn, the very essence of the chthonic legal tradition is a worldview centered on the relationship with the Earth and for which nature is sacred.³⁵² He argues that this means that “chthonic law ... is not just green, it is dark green. 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.”³⁵³ Yet, other scholars caution that Indigenous legal traditions should not be assumed to be ecologically-based or inherently sustainable. Benjamin Richardson identifies six major theories about “the environmental knowledge and practices of Indigenous peoples and their contributions to sustainability,” that show a range of perspectives, from “ecological guardians” to “environmental victims.”³⁵⁴ Richardson notes that “each appears to hold some truth in some situations, depending on the time place and community” and that “[t]oday, some communities have successfully adapted to new environmental threats and conditions, while others have struggled.”³⁵⁵ He also warns against “implying that Indigenous peoples should be held to a higher environmental standard” and against stereotyping both Indigenous people and non-Indigenous cultures.³⁵⁶ Borrows essentially shares these cautions, but he also argues that

³⁵¹ Borrows, “Living Law on a Living Earth,” *supra* note 348 at 246.

³⁵² Glenn, *Legal Traditions of the World*, *supra* note 310 at 76.

³⁵³ Glenn, *Legal Traditions of the World*, *supra* note 310 at 76; see also e.g. CF Black, *The Land is the Source of the Law*, *supra* note 311 (offering an “encounter with an Indigenous jurisprudence...[that is] a timely theory that can help shape and pattern laws relating to the most pressing issue at the time or writing this book: the imbalance of the *Djang*—or, as it is articulated in the West, *climate change*.”) at 168.

³⁵⁴ Benjamin J Richardson, “The Ties that Bind: Indigenous Peoples and Environmental Governance,” in Richardson & Imai, eds, *Indigenous Peoples and the Law*, *supra* note 316 at 340-349.

³⁵⁵ Richardson, “The Ties that Bind,” *supra* note 354 at 350-351.

³⁵⁶ Richardson, “The Ties that Bind,” *supra* note 354 at 350-351.

“Indigenous environmental protection laws are robust and contain legal principles that can be integrated into U.S. and Canadian institutions.”³⁵⁷

Aside from the inspiration ecological law might draw from Indigenous legal traditions, one of the challenges for ecological law as it further develops will be to ensure it does not replicate oppressive processes and results of Western law with regards to Indigenous peoples.³⁵⁸ One important issue is respecting and integrating different ways of knowing. As discussed in section 1.1.1 above, the scientific understanding of the Earth System, ecosystem functioning and ecological limits is central to ecological law as it aims to constrain the economy within ecological limits. Yet, does ecological law see science as the only source of knowledge about these limits? With the exception of Earth jurisprudence, ecological law scholarship mostly points to Western science as the reference for ecological law.³⁵⁹ Cullinan explicitly argues for “interdisciplinary collaboration between lawyers, scientists and indigenous and local communities that have a deep understanding of ecosystems, to enhance our understanding of the fundamental laws of the universe.”³⁶⁰ In his book *Principles of Tsawalk: An Indigenous Approach to Global Crisis*, professor and Nuu-chah-nulth hereditary chief E. Richard Atleo explores some of the limitations of Western science from the perspective of the

³⁵⁷ Borrows, *Recovering Canada*, *supra* note 311 at 47.

³⁵⁸ Zuni Cruz, “Law of the Land,” *supra* note 316 at 335 (arguing that for integration of traditional law with Western law that enables self-determination “[e]verything should be reconcilable to our legal tradition”, and warning about the “challenge [of] negotiating [the] clash between values and principles embedded in traditional law and those embedded in Western law”).

³⁵⁹ E.g. Magalhães et al, eds, *The Safe Operating Space Treaty*, *supra* note 33 (proposing a treaty for the global governance of the Earth System based on the science-based Planetary Boundaries framework); Garver, “The Rule of Ecological Law,” *supra* note 5 at 319; Boyd, “Sustainability Law,” *supra* note 5 at 385; Voigt, “The Principle of Sustainable Development,” *supra* note 339 at 153; Kim & Bosselmann, “Operationalizing Sustainable Development,” *supra* note 184 at 195-6 (pointing to the planetary boundaries framework as the reference for ecological integrity—which he argues should be recognized as a basic norm); Klaus Bosselmann, “Shifting the Legal Paradigm: Earth-centered Law and Governance,” in Magalhães et al, eds, *The Safe Operating Space Treaty*, *supra* note 33, 64 at 68.

³⁶⁰ Cormac Cullinan, “The Rule of Nature’s Law,” in Voigt, ed, *Rule of Law for Nature*, *supra* note 4, 94 at 108.

cosmology and principles of his people. He argues that the way of knowing of his people offers a better approach to face the ecological crisis created by Western science.³⁶¹

What role should traditional ecological knowledge have in determining the ecological limits the economy should be bounded by? Obviously, this is not a new question.³⁶² There is substantial experience trying to reconcile scientific and Indigenous knowledge that proponents and promoters of ecological law can draw from and build upon to grapple with this issue.³⁶³

In summary, the intersections between Indigenous laws and ecological law should be respectfully explored as part of the development of ecological law. Ecological law has much to learn from Indigenous legal traditions, especially as chthonic or Earth-centered traditions evolving in a world facing the possibility of ecological collapse. This is a promising area for ecological law requiring much further study and practical exploration, albeit beyond the scope of this thesis.

³⁶¹ Atleo, *Principles of Tsawalk*, *supra* note 309.

³⁶² For example, under the Canadian *Species at Risk Act* “the traditional knowledge of the aboriginal peoples of Canada should be considered in the assessment of which species may be at risk and in developing and implementing recovery measures,” and the Act establishes a subcommittee of COSEWIC on traditional aboriginal knowledge and a National Aboriginal Council on Species at Risk who advises the minister responsible for the Act on the matter. *Species at Risk Act*, S.C. 2002, c. 29, Preamble, 8, 18(1), (3).

³⁶³ E.g. Joanne Rathwell, Derek Armitage & Fikret Berkes, “Bridging Knowledge Systems to Enhance Governance of Environmental Commons: A Typology of Settings,” (2015) 9:2 *International Journal of the Commons* 851; Glen S Aikenhead & Herman Jeremiah Michell, *Bridging Cultures: Scientific and Indigenous Ways of Knowing Nature*, (Don Mills, ON: Pearson Canada, c2011); Charles R Menzies, *Traditional Ecological Knowledge and Natural Resource Management*, (University of Nebraska Press, c2006); Jean L Polfus, Kimberly Heinemeyer & Mark Hebblewhite, “Comparing Traditional Ecological Knowledge and Western Science Woodland Caribou Habitat Models,” (2014) 78:1 *The Journal of Wildlife Management* 112; T Thornton & A Scheer, “Collaborative Engagement of Local and Traditional Knowledge and Science in Marine Environments: A Review,” (2012) 17:3 *Ecology and Society* 8.

1.6 Ecological Law and Green Legal Theory

Finally, this section briefly summarizes professor Michael M’Gonigle’s Green Legal Theory and suggests how it may relate to ecological law.

1.6.1 Green Legal Theory

In “Greening Environmental Law: From Sectoral Reform to Systemic Re-formation,” M’Gonigle and Ramsay argue that “[e]nvironmental law has largely addressed the manifestations, not underpinnings, of unsustainability” and they “propose[...] a ‘green theory of law’ that can provide an ‘external’ analysis of the role and limits of law itself.”³⁶⁴ They argue that there is a need for critical green legal analysis of the fundamental normative systems that are at the root of unsustainability, as environmental law has not benefitted from the green critiques undertaken in other disciplines and has practically been left out of critical legal studies analyses.³⁶⁵

In contrast to the ad hoc liberal foundations of environmental law, green legal theory must build on the extensive body of critical social theory that exists in other fields. In particular, it will draw upon four disciplines, namely: legal theory/critical legal studies; ecological political economy, which examines political and economic structures of power from an ecological perspective; environmental philosophy, which examines the ethical relationships between humans and nature; and critical geography, which addresses theories of “space” and “place” as an important emerging context for the study of law and social organization.

Together these four disciplines place green legal theory within a larger transdisciplinary body of scholarship of “green theory.”³⁶⁶

³⁶⁴ M’Gonigle & Ramsay, “Greening Environmental Law,” *supra* note 75 at 333.

³⁶⁵ M’Gonigle & Ramsay, “Greening Environmental Law,” *supra* note 75 at 343, footnote 29

³⁶⁶ M’Gonigle & Ramsay, “Greening Environmental Law,” *supra* note 75 at 352-3.

M’Gonigle and Ramsay describe environmental law as “an especially ironic form of self-regulation that asks a benevolent state to regulate against its own long history of economic growth and expansion, and its own (self-conceived) self-interest.”³⁶⁷

Elsewhere, M’Gonigle describes “environmental law as a prop to an unsustainable political economy” and “an essentially technical discourse operating within the very forces it should be challenging.”³⁶⁸

Green Legal Theory reaches beyond environmental law to understand the root of unsustainable dynamics in a systemic way, particularly by looking at how environmental law is embedded in liberalism:

Nowhere is this legal field [environmental law] explicitly situated within any critical, let alone systematic, understanding of how diverse underlying economic and political forces have created this environmental problematic, or, to put this in GLT language, how their de facto regulatory “logics” have developed “system dynamics” that mandate it. Thus, GLT seeks to re-orient the attention now directed to downstream “legal laws” to develop a new understanding of the upstream constitutive “dynamics” of material and cultural production that today lie largely undisturbed behind the environmental law paradigm. Those few incipient green legal scholars who have looked at this situation confront a common challenge: that we must transcend the liberal paradigm that bounds environmental law.³⁶⁹

Thus, the change needed to confront unsustainability is transformative: not “legal reform” but “systemic re-formation” because the problems rest with economic and

³⁶⁷ M’Gonigle & Ramsay, “Greening Environmental Law,” *supra* note 75 at 12.

³⁶⁸ M’Gonigle, “Green Legal Theory,” *supra* note 295 at 34 & 35.

³⁶⁹ M’Gonigle & Takeda, “The Liberal Limits of Environmental Law,” *supra* note 64 at 1059 [footnote omitted].

political dynamics that “constitute a ‘deeper’ level of ‘regulation’” beyond the “legal law.”³⁷⁰ As M’Gonigle and Takeda define it, Green Legal Theory is “an approach to ‘social regulation’ that moves nature from the periphery to the center of political, economic, and cultural life.”³⁷¹ They also argue that a critique of capitalism is required to solve the environmental crisis and are highly critical of ecological modernization for aiming to green, rather than challenge, capitalism.³⁷² Moreover, they criticize authors like Herman Daly (ecological economics) and Paul Hawken (sustainable business models), non-governmental organizations (including Greenpeace), and even the Degrowth movement, for failing to question the capitalist growth model.³⁷³

1.6.2 Intersections between Green Legal Theory and Ecological Law

There are many commonalities and synergies between Green Legal Theory and ecological law. Both point to the fragmentation of environmental law as one of its major flaws and advocate for a systemic focus.³⁷⁴ They have a common appreciation of the root causes of the ecological crisis: primarily, unfettered economic growth and ever-increasing consumption of energy and materials.³⁷⁵ They share the analysis that environmental law has failed to prevent the ecological crisis because it is embedded in the economic growth paradigm, such that its role is to enable continued production by

³⁷⁰ M’Gonigle & Takeda, “The Liberal Limits of Environmental Law,” *supra* note 64 at 1027.

³⁷¹ M’Gonigle & Takeda, “The Liberal Limits of Environmental Law,” *supra* note 64 at 1014 footnote 24.

³⁷² M’Gonigle & Takeda, “The Liberal Limits of Environmental Law,” *supra* note 64 at 1092-8.

³⁷³ M’Gonigle & Takeda, “The Liberal Limits of Environmental Law,” *supra* note 64 at 1079, 1098.

³⁷⁴ Boyd, “Sustainability Law,” *supra* note 5 at 365; FM Platjouw, “The Need to Recognize a Coherent Legal System as an Important Element of the Ecosystem Approach,” in Voigt, ed, *Rule of Law for Nature*, *supra* note 4, 159; M’Gonigle & Takeda, “The Liberal Limits of Environmental Law,” *supra* note 64 at 1059.

³⁷⁵ Garver, “The Rule of Ecological Law,” *supra* note 5 at 319; M’Gonigle & Takeda, “The Liberal Limits of Environmental Law,” *supra* note 64 at 1012-3, 1021-2, 1028, 1032, 1035, 1041, 1057-8, 1066.

mitigating its resulting ecological degradation, rather than to prevent this degradation by constraining economic activity within ecological limits.³⁷⁶ M’Gonigle and Takeda write:

That we can in fact square the circle of healthy economic growth with healthy environmental stability is the underlying faith of environmental law and its active mission. The goal is not to challenge the liberal economic order, but to make it work in harmony with the environment. In other words, environmental law works as a kind of *law of mitigated production*, the primary goal of which is to improve existing processes and structures of production but without fundamentally challenging the context in which they operate.³⁷⁷

Green Legal Theory and ecological law also converge in rejecting the anthropocentric approach taken by environmental law to the value of nature. M’Gonigle argues that the liberal paradigm in which environmental law is embedded is based on the “labour theory of value where nature has no economic value until it is transformed by labour.”³⁷⁸ As a consequence, environmental law offers mechanisms for monetizing nature as a means to protect it.³⁷⁹ Instead, ecological law aims to ensure nature is valued foremost for its inherent ecological functions and attributes, and to reposition economic

³⁷⁶ Bugge, “Twelve Fundamental Challenges in Environmental Law,” *supra* note 4 at 5; Boyd, *Unnatural Law*, *supra* note 76 at 212.

³⁷⁷ M’Gonigle & Ramsay, “Greening Environmental Law,” *supra* note 75 at 3-8, 12 [emphasis in the original] 1067-8.

³⁷⁸ M’Gonigle, “Green Legal Theory” *supra* note 295 at 35.

³⁷⁹ Criticism of these mechanisms include: “This large scheme [REDD], the many specific projects worldwide, and the whole array of carbon markets and offset mechanisms all reflect a common, double-edged phenomenon. On the one hand is the displacement of substantive action to address real environmental problems and its accompanying problematic. On the other hand is the promotion of the pricing mechanism as a procedural tool with the technical allure that rewards enviro-capitalism while it lets the state off the hook for substantive action. This pervasive process is now reaching into the tiniest of ecological crevices with the growing application of pricing to all manner of ecosystem services. As Dempsey and Robertson note, such strategies ‘simplify the complexity of natural ecosystems, prioritize single exchange values over ecological complexity, and mask the unequal social relations embedded in the process of buying and selling environmental services.’” [footnote omitted] M’Gonigle & Takeda, “The Liberal Limits of Environmental Law,” *supra* note 64 at 1092.

value as value constrained by and derived from ecological value, so that ecological integrity might be preserved.³⁸⁰

Green Legal Theory and ecological law recognize that nature is the material basis upon which all economic and social needs are met and that infinite economic growth is not possible on a finite planet.³⁸¹ The key problem from the perspective of both is the preeminence of economic growth over other societal goals and values.³⁸² They share the understanding that human flourishing depends on restoring nature and respecting ecological limits.³⁸³

Green Legal Theory and ecological law agree that what is needed is not a reform of environmental law, but a deeper transformation of law: Green Legal Theory calls for “re-formation,”³⁸⁴ while ecological law is itself an emerging alternative to environmental law (as discussed earlier in this chapter). Arguably, then, ecological law is part of the “re-formation” proposed by Green Legal Theory.

The differences between Green Legal Theory and ecological law stem primarily from the theoretical character of the former in contrast to the mostly normative character of the latter. Ecological law is normative in the sense that it argues for ecologically-based rules to govern human behavior, particularly economic activity and other ways in which humans relate to the rest of the Earth community. There is of course a theoretical aspect

³⁸⁰ See sections 1.2, 1.3.2 and 1.4 above.

³⁸¹ Garver, “The Rule of Ecological Law,” *supra* note 5 at 330; M’Gonigle & Takeda, “The Liberal Limits of Environmental Law,” *supra* note 64 at 1066.

³⁸² E.g. Boyd, *Unnatural Law*, *supra* note 76 at 212; M’Gonigle & Ramsay, “Greening Environmental Law,” *supra* note 75 at 3; Alexander, “Earth Jurisprudence and the Ecological Case for Degrowth,” *supra* note 40.

³⁸³ E.g. Boyd, *Unnatural Law*, *supra* note 76 at 308; Bosselmann, *The Principle of Sustainability*, *supra* note 76; Wood, Tanner & Richardson, “What Ever Happened to Canadian Environmental Law?,” *supra* note 4 at 1040-41; Cullinan, *Wild Law*, *supra* note 5 at 44; M’Gonigle, “Green Legal Theory” *supra* note 295 at 38.

³⁸⁴ M’Gonigle & Takeda, “The Liberal Limits of Environmental Law,” *supra* note 64 at 1111-4.

of ecological law (discussed in section 1.2 above), but it is not a theoretical field like Green Legal Theory;³⁸⁵ rather, ecological law has a practical aim of becoming law that is observed. Thus, it tends to focus on what M’Gonigle calls the “‘legal’ law,” in contrast to Green Legal Theory, which “seeks to open up the broader and more powerful ‘constitutive’ processes of institutional and cultural ‘regulation’...” which “are of a de facto ‘legal’ (i.e. socially regulative) character but are captured neither by environmental law nor, any form of ‘legal’ law.”³⁸⁶ As M’Gonigle and Takeda explain, “GLT is based on the premise of ‘legal laws’ as not the true (or at least not the most important) sources of social regulation because they are themselves products of ‘higher’ level systems, the needs and dynamics of which provide the truly authoritative momentum and direction of social evolution.”³⁸⁷

Ecological law aims to replace the “legal law”—including, but not limited to, environmental law—that has enabled the ecological crisis. What Green Legal Theory (as I understand it) signals is that a shift to ecological law can only occur subsequent (or at least in parallel) to a change in the “processes of regulation” that drive the social and economic dynamics at the core of that crisis and that the theoretical understanding of these “higher level systems” that Green Legal Theory promises to unveil is critical in preparing the groundwork for a shift to ecological law. As noted above, I agree with this assessment.³⁸⁸

Yet, while Green Legal Theory calls for going beyond the “legal law,” the *lens of ecological law* proposed in the chapter that follows nevertheless maintains a focus on the

³⁸⁵ M’Gonigle, “Green Legal Theory” *supra* note 295 at 35.

³⁸⁶ M’Gonigle & Takeda, “The Liberal Limits of Environmental Law,” *supra* note 64 at 1014.

³⁸⁷ M’Gonigle & Takeda, “The Liberal Limits of Environmental Law,” *supra* note 64 at 1109.

³⁸⁸ See section 1.4 above.

“legal law” because it is conceived as a tool to critique existing law from the perspective of a shift to ecological law. Similarly, in the three case studies in Part 2 below, the focus is on the applicable “legal law.” In addition to the purpose of the *lens*, two other reasons for this focus are that Green Legal Theory has yet to be fully theorized³⁸⁹ and that applying it appears to involve taking a “political ecology perspective,”³⁹⁰ which is beyond my expertise. Therefore, while I endeavored to employ in my analysis directions and insights from Green Legal Theory, as I understand it, I do not pretend to have overcome the challenges of “taking a larger perspective” and “looking beyond our legal system entirely,”³⁹¹ nor of “mak[ing] prescriptions without becoming even more naïve and utopian than environmental law.”³⁹² At the same time, the *lens of ecological law* proposed below is comprised of principles that, in effect and in full agreement with Green Legal Theory, deeply challenge the capitalist growth paradigm by putting nature at the center of law.³⁹³

³⁸⁹ M’Gonigle & Takeda, “The Liberal Limits of Environmental Law,” *supra* note 64 at 1014 footnote 24 and 1109 footnote 407 (pointing to the other GLT references cited in this section and noting that a forthcoming volume will “consider in systematic detail [the] character” of GLT. This work—M’Gonigle, *Earth Rules: On the Natural Law, Behind the Social Laws, that Holds Us to Account*—was yet to be published as I completed this thesis).

³⁹⁰ M’Gonigle & Takeda, “The Liberal Limits of Environmental Law,” *supra* note 64 at 1020.

³⁹¹ M’Gonigle & Ramsay, “Greening Environmental Law,” *supra* note 75 at 355.

³⁹² M’Gonigle & Ramsay, “Greening Environmental Law,” *supra* note 75 at 353.

³⁹³ M’Gonigle & Takeda, “The Liberal Limits of Environmental Law,” *supra* note 64 at 1014 footnote 24.

CHAPTER 2 – THE LENS OF ECOLOGICAL LAW

The previous chapter reviewed arguments for a shift to ecological law as a new legal paradigm needed to face the ecological crisis and build an ecologically just society. This chapter proposes an analytical tool to help improve the understanding of what a shift from existing law to ecological law would entail. Building on existing scholarship, I propose a *lens of ecological law* crafted to critique current laws and identify the major affinities and inconsistencies with ecological law. The *lens of ecological law* is made of three interconnected principles of ecological law.³⁹⁴

The term “lens” is used in the metaphorical sense of “a channel through which something can be seen or understood”³⁹⁵ because the goal is to craft a tool to examine current law or law proposals from the perspective of ecological law.³⁹⁶ I am not proposing a framework for building a new legal system of ecological law, although the principles comprising the *lens of ecological law* could play a role in such a framework.³⁹⁷

To craft the *lens of ecological law* I first define what qualifies as a principle of ecological law for this purpose. Then, based on Garver’s proposal for a rule of ecological

³⁹⁴ This exercise builds on my analysis of the Nunavut *Wildlife Act* from the “lens of ecological law” for which I drew four principles from Geoffrey Garver’s features of the rule of ecological law. Sbert, “The Nunavut *Wildlife Act* from the Lens of Ecological Law,” *supra* note 347; Garver, “The Rule of Ecological Law,” *supra* note 5.

³⁹⁵ TheFreeDictionary, *sub verbo* “lens”, online: <<http://www.thefreedictionary.com/lens>> (accessed 10 September 2016).

³⁹⁶ A study with a similar aim was carried out by Begonia Filgueira and Ian Mason, who looked for evidence of Earth jurisprudence in existing law, based on three main characteristics of wild laws: “Wild laws would centre governance on the Earth, they would provide mutually enhancing relationships to all members of the Earth Community and they would be based on Community Ecological Governance.” The approach I propose (explained in detail below) differs in using core principles of ecological law drawn from scholarship that includes, but is not limited to, Earth jurisprudence. In my view Filgueira and Mason’s approach is no less valid and in building the *lens of ecological law* I take account of it, as appropriate. Filgueira & Mason, “Wild Law,” *supra* note 258.

³⁹⁷ Judith Koons and Ian Mason have separately proposed principles of Earth jurisprudence with this aim, as briefly reviewed later in this section. Koons, “Key Principles to Transform Law for the Health of the Planet,” *supra* note 145; Mason, “One in All,” *supra* note 146. Also, Garver’s features of the rule of ecological law can be interpreted as a proposed framework: Garver, “The Rule of Ecological Law,” *supra* note 5.

law³⁹⁸ and other relevant existing scholarship, I propose a set of core principles of ecological law to form the *lens of ecological law*. Ecological law is an emerging approach, so these principles are offered only as tentative contributions to its evolving theory. In the case studies in Chapters 3 to 5 of this thesis the *lens of ecological law* is used to critique the current law regulating mining in Canada (Ontario), El Salvador, and Bolivia.

2.1 What qualifies as a principle of ecological law for purposes of the lens of ecological law?

If the goal is to build a critical tool to compare current law with ecological law, the parameters against which current norms should be examined should be a core set of principles of ecological law. This is based on the general definition of the term “principle” as “a fundamental truth or proposition that serves as the foundation for a system of belief or behavior or for a chain of reasoning.”³⁹⁹ As a new legal paradigm, ecological law is meant to support a proposed *system of behavior* based on normative *propositions*. The *fundamental propositions* that serve as the foundation for the proposed *system of behavior* that is ecological law can thus be identified as ‘principles’ of ecological law. Furthermore, from a logical perspective, propositions that serve as a basis for a system of behavior are fit candidates to serve as parameters for contrasting that system of behavior with other systems of behavior and their component norms, as they will reflect the system’s core ideas, values and goals. Therefore, it follows that a core set of principles of ecological law is an appropriate tool to critique current laws and identify the major affinities and inconsistencies with ecological law.

³⁹⁸ Garver, “The Rule of Ecological Law,” *supra* note 5.

³⁹⁹ *The New Oxford American Dictionary*, 3rd ed, *sub verbo* “principle”.

In addition to this general meaning of ‘principle,’ the parameters of the *lens of ecological law* are principles in the sense of a ‘legal principle’ as understood by Humberto Avila. In his 2007 *Theory of Legal Principles*, Avila reviews the evolution of jurisprudence on the distinction between rules and principles; he offers a critique of four criteria normally used to make the distinction (the hypothetical-conditional aspect, the final mode of application, the normative relation and the axiological foundation);⁴⁰⁰ and he proposes three alternative criteria (the nature of described behavior, the nature of required justification, and the amount of contribution to decision). Furthermore, Avila distinguishes a third “normative species” in addition to rules and principles, which he calls “normative applicative postulates.”⁴⁰¹ He argues for a distinction based on “inclusive alternatives.”⁴⁰²

One or more provisions can be a reference to construe rules, principles and postulates. Instead of exclusive alternatives among normative species, in a way that the existence of one would exclude the existence of the others, a classification is proposed that houses inclusive alternatives in the sense that provisions may simultaneously generate more than one normative species. One or several provisions, or even their logical consequence, may have an immediate behavioral (rule), finalistic (principle) and/or methodical (postulate) dimension.⁴⁰³

Avila offers the following definition of a legal principle:

Principles are immediately finalistic, primarily future regarding norms which intend to be complementary and partial, whose application requires assessing the correlation between the state of

⁴⁰⁰ Avila, *Theory of Legal Principles*, *supra* note 164 at 8-20.

⁴⁰¹ Avila, *Theory of Legal Principles*, *supra* note 164 at 4.

⁴⁰² Avila, *Theory of Legal Principles*, *supra* note 164 at 32.

⁴⁰³ Avila, *Theory of Legal Principles*, *supra* note 164 at 33.

affairs to be promoted and the effects of the conduct seen as necessary to its advancement.⁴⁰⁴

The aspect of this definition that is especially relevant to the discussion regarding principles of ecological law is the “finalistic dimension” of principles, based on “*the way they describe behaviors.*”⁴⁰⁵ Avila writes that “*principles are immediate finalistic norms,* as they provide for a state of affairs whose realization requires adopting some behaviors.”⁴⁰⁶ As noted, ecological law is an alternative to environmental law that seeks to overcome the growing ecological crisis (the current state of affairs) and to help build a new state of affairs in which ecological degradation is halted, integrity is restored and an ecologically just society or mutually enhancing human-Earth relationship is enabled. If the goal is to craft a lens with which to contrast existing law with the new desired paradigm of ecological law, then norms that provide for an ecologically-bound state of affairs—principles of ecological law—are appropriate as parameters for this lens.

The two other elements of Avila’s definition of a legal principle are that principles “intend to be complementary and partial” (based on “*the way they contribute to the decision*” to be made);⁴⁰⁷ and that their “application requires assessing the correlation between the state of affairs to be promoted and the effects of the conduct seen as necessary to its advancement” (based on consideration of “*the justification they require.*”)⁴⁰⁸ The principles of ecological law will not discuss these elements of a legal principle, since the query is not focused on how the principles of ecological law would be applied, but on the extent to which current law is compatible with them.

⁴⁰⁴ Avila, *Theory of Legal Principles*, *supra* note 164 at 40.

⁴⁰⁵ Avila, *Theory of Legal Principles*, *supra* note 164 at 34 [emphasis in the original].

⁴⁰⁶ Avila, *Theory of Legal Principles*, *supra* note 164 at 34 [emphasis in the original].

⁴⁰⁷ Avila, *Theory of Legal Principles*, *supra* note 164 at 38 [emphasis in the original].

⁴⁰⁸ Avila, *Theory of Legal Principles*, *supra* note 164 at 36 [emphasis in the original].

Having laid out the reasoning for constructing the *lens of ecological law* with a set of core principles of ecological law, I turn to the question of what these principles should be. Again, because the goal is to build an analytical tool, the key characteristic of a principle of ecological law is that it reflects one or several values that are fundamental to ecological law as an alternative to environmental law. These fundamental values are implied in the objectives of ecological law. Thus, a principle of ecological law is understood here as a statement of a core value to guide behavior toward the objectives of ecological law. As an emerging approach, ecological law has only marginally been adopted through case law or statutes,⁴⁰⁹ so one must look primarily to the scholarship on ecological law to identify its objectives and core principles (even though its theory, too, is a work in progress).⁴¹⁰ As discussed in the previous chapter (section 1.4), the objectives of ecological law can be summarized as 1) constraining the economy within ecological limits, 2) restoring ecological integrity, and 3) enabling an ecologically just society or mutually enhancing human-Earth relationship.

In summary, to qualify as a core principle for purposes of the *lens of ecological law*, a principle should have two characteristics: 1) be normative rather than descriptive; and 2) reflect one or several values that are critical to ecological law as an alternative to environmental law.

Section 1.2 of the previous chapter outlined some of the contributions to the theory of ecological law. As noted there, in proposing the “rule of ecological” as “the

⁴⁰⁹ The metal mining ban in El Salvador and Bolivia’s Law on the Rights of Mother Earth, examined as case studies in chapters 3 and 5 below, are among the growing examples.

⁴¹⁰ For example, research on ecological law is being undertaken by the Law and Governance Research Group of the Economics for the Anthropocene (E4A) Partnership, online: <e4a-net.org/how-we-learn/research-groups/>, (accessed 30 July 2018); and the recently established Ecological Law and Governance Association aims to further study and promote ecological law. ELGA, *supra* note 236.

legal complement of degrowth economics” Garver discusses ten main features of the rule of ecological law.⁴¹¹ These features, summarized below, synthesize and build on other key scholarship on ecological law (e.g., Bosselmann’s principle of sustainability, Berry and Cullinan’s “Earth rights,” Boyd’s science-based sustainability law) while underscoring the need to constrain economic growth.⁴¹² Other contributions from Earth Jurisprudence scholars were noted,⁴¹³ as well as those grouped under the notion of the rule of law for nature,⁴¹⁴ in particular, Winter’s principle of eco-proportionality;⁴¹⁵ Laitos’ right of nonuse;⁴¹⁶ and Robinson’s evolved norms and resilience principle.⁴¹⁷ The three core principles proposed in the following section are based on a consideration of all of these contributions.

2.2 The Lens of Ecological: Three Core Principles

Before outlining below the three core principles of ecological law, this section briefly summarizes Garver’s features of the rule of ecological law and explains how they have been used to craft the *lens of ecological law*. These features provide a solid theoretical foundation for understanding ecological law, so they are the starting point to identify the core principles of ecological law. The main reason for not simply applying the features themselves as a lens is that they are too numerous and an analytical tool focused more concisely on the normative core of ecological law is best suited for the specific purpose of interrogating existing law.

⁴¹¹ Garver, “The Rule of Ecological Law,” *supra* note 5.

⁴¹² Garver, “The Rule of Ecological Law,” *supra* note 5 at 9.

⁴¹³ See Alexander, Koons, Mason and others cited in section 1.2.2 above.

⁴¹⁴ Voigt, ed, *Rule of Law for Nature*, *supra* note 4.

⁴¹⁵ Winter, “Ecological Proportionality,” *supra* note 228 at 111-129.

⁴¹⁶ Laitos, “Rules of Law for Use and Nonuse of Nature,” *supra* note 222.

⁴¹⁷ Robinson, “Evolved Norms,” *supra* note 200; Robinson, “The Resilience Principle,” *supra* note 210.

Garver's features of the rule of ecological law ⁴¹⁸

- 1- Recognize humans are part of Earth's life systems
- 2- Ecological limits must have primacy over social and economic regimes
- 3- Permeate all areas of law
- 4- Focus on radically reducing material and energy throughput
- 5- Global, but distributed, using the principle of subsidiarity and proportionality
- 6- Ensure fair sharing of resources among present and future generations of humans and other life
- 7- Binding and supranational, with supremacy over sub-global legal regimes as necessary
- 8- Requires a greatly expanded program of research and monitoring
- 9- Requires precaution about crossing global ecological boundaries
- 10- Must be adaptive

Even if the distinction is imperfect, one can observe that some of Garver's features explicitly or implicitly express the core values that inform the objectives of ecological law, while others describe how the system of ecological law would operate.

Features 1, 2, 4, 6, 9 and 10 reflect the values at the core of ecological law. According to these features, ecological law is non-anthropocentric and recognizes the interconnectedness of beings. It gives primacy to ecological concerns and values reduced energy and material throughput as an economic objective, given the ongoing overshoot of the Earth's carrying capacity due to excessive and ever-expanding energy and material throughput. Its conception of justice includes intragenerational and intergenerational equity that extends to other species. Acknowledging that the scientific understanding of the effect of human activities on ecosystems and the Earth System is incomplete and imperfect, ecological law requires a precautionary approach to avoid the crossing of the planet's ecological boundaries and irreversible thresholds (within a certain time scale). Finally, recognizing the ecological facts of constant change and complexity, ecological law must be adaptive. At the same time, the last two features of being precautionary and

⁴¹⁸ From Garver, "The Rule of Ecological Law," *supra* note 5 at 316 (abstract).

adaptive also fall in the ‘category’ of features describing how the system would operate, outlined below.

Features 3, 4, 5, 7, 8, 9 and 10 are descriptive of how a system of ecological law would be structured and how it would operate. According to Garver, the rule of ecological law would permeate all areas of law. It would have a degrowth focus whereby material and energy throughput in the economy are radically reduced. A system of ecological law would be global, but decisions would be taken at the lowest possible level (subsidiarity), and government at all levels would have sufficient authority and capacity to achieve objectives (proportionality). It would be binding and supranational. A system of ecological law would require the ongoing support of research and monitoring about ecological systems and about governance, and it would have to be precautionary and able to adapt in response to changes in the ecological, social and economic reality, especially as reflected in findings from the aforementioned research and monitoring.

Some of these features are strongly interrelated. For example, feature 1 ‘recognize humans are part of Earth’s life systems,’ and feature 6 ‘ensure fair sharing of resources among present and future generations of humans and other life;’ the latter seemingly a conclusion of the former. Feature 2 ‘ecological limits must have primacy over social and economic regimes’ and feature 4 ‘focus on radically reducing material and energy throughput’ are also interrelated; the second, a way of contributing to the first. There are also obvious interrelations between the normative features and the descriptive and operational features, for example the need for ecological law to be adaptive.⁴¹⁹

⁴¹⁹ See also Geoffrey Garver, “A Complex Adaptive Legal System for the Challenges of the Anthropocene,” in Janice Gray, Vasilike I. Karageorgou & Laura Westra, eds, *Ecological Systems Integrity: Governance, Law and Human Rights*, (Abingdon, Oxon U.K.; New York: Routledge, 2015) 232-242.

Based on the preceding discussion and considering the scholarship reviewed in section 1.2, I propose the following three principles of ecological law to jointly constitute the *lens of ecological law: ecocentrism, ecological primacy and ecological justice*. They are not meant as an exhaustive list, but as a core. Some important values are not included in the principles proposed here. For example, the Earth Charter’s principle of Ecological Integrity is captured, but those of Democracy, Nonviolence, and Peace are not.⁴²⁰

Scholars have proposed principles of Earth jurisprudence that differ in content or focus, even as they in some ways coincide with the principles proposed here. As noted in section 1.2, Judith Koons “[d]rawing from the functioning of the universe” proposes “three principles: the intrinsic value of Earth, the relational responsibility of humanity toward Earth; and the democratic governance of the Earth community.”⁴²¹ Ian Mason argues that there is a “triumvirate of principles of Earth Jurisprudence: Wholeness, Lawfulness and Care” and that these principles “are the key guides to human action.”⁴²² These principles appear to be aimed at building an ecological law framework, rather than at serving as analytical tools. However, there is some overlap, and, where appropriate, the ways in which they relate to the principles proposed below are noted.

Finally, while, as stated, the intention is to use the principles proposed here as an analytical tool rather than a framework for developing ecological law, the principles do raise interesting questions about how they would be operationalized. Therefore, some of the more obvious implementation questions are briefly addressed below.

⁴²⁰ *Earth Charter*, *supra* note 298. Democracy—specifically, “democratic governance of the Earth community”—is also one of Koons’s key principles. Koons, “Key Principles to Transform Law for the Health of the Planet,” *supra* note 145 at 45.

⁴²¹ Koons, “Key Principles to Transform Law for the Health of the Planet,” *supra* note 145 at 45.

⁴²² Mason, “One in All,” *supra* note 146 at 39.

To reiterate, a principle of ecological law is understood here as a principle that states a core value that guides behavior toward ecological law's objectives of constraining the economy within ecological limits, restoring ecological integrity, and enabling an ecologically just society or mutually enhancing human-Earth relationship; and core principles for purposes of the *lens of ecological law* should: 1) be normative rather than descriptive; and 2) reflect one or several values that are critical to ecological law as an alternative to environmental law. While the principles are linked and reinforcing, they elucidate different functions of the law. These functions are an important aspect of the principles as analytical tools. The first principle, *ecocentrism*, focuses on the law's ability to support and promote a worldview in which humans are part of nature and no more important than other life. It aims at preventing decisions that disregard their ecological consequences and have a bias towards human short-term interests. The second, *ecological primacy*, is focused on providing clarity about priorities to ensure human development is pursued without irreversibly impairing ecological integrity or crossing Planetary Boundaries, including the use of precaution with respect to these boundaries. The third and last, *ecological justice*, serves as ethical grounding for decisions about equitable use of the planet's sustaining capacity and the fair distribution of, and restraint on, wealth. I elaborate upon these three proposed principles below.

2.2.1 *Ecocentrism*

Ecocentrism: Recognize and respect the value of all beings and the interconnectedness among them, equitably promoting the interests of human and nonhuman members of the Earth community

As understood here, the principle of ecocentrism corresponds to the first feature of the rule of ecological law: “recogniz[ing] humans are part of Earth’s life systems.”⁴²³ In requiring that law “recognize and respect the value of all beings” it also implies Leopold’s land ethic,⁴²⁴ and Berry and Cullinan’s Earth rights discussed above (section 1.2.2). The requirement to “equitably promote the interests of human and nonhuman members of the Earth community” is meant to invoke the essence of biocentrism/ecocentrism (further discussed below), as well as responsibility towards other beings, as in the Earth Charter’s call for “universal responsibility:”

Universal Responsibility

To realize these aspirations, we must decide to live with a sense of universal responsibility, identifying ourselves with the whole Earth community as well as our local communities. We are at once citizens of different nations and of one world in which the local and global are linked. Everyone shares responsibility for the present and future well-being of the human family and the larger living world. The spirit of human solidarity and kinship with all life is strengthened when we live with reverence for the mystery of being, gratitude for the gift of life, and humility regarding the human place in nature.⁴²⁵

The proposed principle of *ecocentrism* is anchored in the notion of *interconnectedness*, which is the recognition of the relationship that humans have with other beings, and is also present in some Indigenous worldviews and legal traditions. As

⁴²³ Garver, “The Rule of Ecological Law,” *supra* note 5 at 325.

⁴²⁴ “In short, a land ethic changes the role of *Homo sapiens* from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow-members, and also respect for the community as such.” Willis Jenkins & Whitney Bauman, “Ecocentrism,” in W Jenkins & W Bauman, eds, *Berkshire Encyclopedia of Sustainability: The Spirit of Sustainability*, v1 (Great Barrington, MA: Berkshire, 2010), online: Gale Virtual Reference Library <<http://link.galegroup.com/apps/doc/CX1747100053/GVRL?u=otta77973&sid=GVRL&xid=c4ae3a01>> (accessed 13 January 2016) at 119-120 [referencing Leopold, *supra* note 152 at 204].

⁴²⁵ *Earth Charter*, *supra* note 298 at Preamble.

Peigi Wilson argues: “There is clearly wide agreement both amongst First Nation peoples and between Indigenous peoples and modern non-Indigenous researchers and thinkers [that h]umanity and the land and all peoples are connected, from the smallest particle to our largest collective.”⁴²⁶

However, the recognition of interconnectedness does not *per se* exclude anthropocentric approaches that value other life based on human interests (in particular utilitarianism). Therefore, the principle of *ecocentrism* also includes *biocentrism*, which “articulat[es] a larger philosophical vision in which all life is interconnected *and which seeks to promote the interests of human and nonhuman life alike*.”⁴²⁷ A principle that includes both interconnectedness and biocentrism thus permits a rich appreciation of the approach to the human-Earth relationship underlying the law. Thus, ecocentrism is not understood here narrowly as “an argument that asserts ecological integrity as the most important moral good or that considers ecological systems as the bearer of ultimate value.”⁴²⁸ It is a broader argument for respect for the Earth community. The value of, and need to give primacy to, ecological integrity is captured instead in the second principle proposed below (*ecological primacy*). Also, this principle calls for “*equitably* promoting the interests of human and nonhuman members of the Earth community,” which is also the focus of the last principle proposed, that of *ecological justice*. Respect for the Earth community and the other aspects of this principle of *ecocentrism* thus set the basis for the other two core principles of ecological law.

⁴²⁶ Wilson, “Interconnections,” *supra* note 335 at 29.

⁴²⁷ Gavin Van Horn, “Biocentrism,” in Jenkins & Bauman, eds, *Berkshire Encyclopedia of Sustainability*, *supra* note 424 at 35-36.

⁴²⁸ Jenkins & Bauman, “Ecocentrism,” *supra* note 424 at 119-120.

The proposed principle of *ecocentrism* generally captures the notion of subjectivity in principles of Earth jurisprudence proposed by Koons and Mason (mentioned above). Koons' first principle is "the intrinsic value of Earth," which she draws from the subjectivity of the universe, and means "all beings, systems, and entities in Nature have intrinsic value, to be expressed in law and governance."⁴²⁹ Mason's triumvirate of Earth jurisprudence principles also resonates with the principle of *ecocentrism*. In particular, the principle of wholeness, which he identifies as "the key principle running through the entire philosophy of Earth Jurisprudence."⁴³⁰ According to Mason, wholeness invokes the view that Nature is a collection of subjects and that "the laws governing all creatures are intimately interconnected."⁴³¹ This means "we live in an entirely lawful universe in which the laws are already given. All that human beings can do is to discover them and live by them."⁴³² An example he offers of the difference brought by Earth-centeredness is that there would be no need for endangered species protection because all species would be protected by the duty of care.⁴³³ Likewise, this proposed principle of *ecocentrism* coincides with the first characteristic of wild laws identified by Filgueira and Mason, which is that they "would centre governance on the Earth."⁴³⁴

The notion of respect for the Earth community in the principle of *ecocentrism* implies that humans should be presumed to be no more important than other life. This could translate into a redefinition of human rights to include human responsibility

⁴²⁹ Koons, "Key Principles to Transform Law for the Health of the Planet," *supra* note 145 at 47.

⁴³⁰ Mason, "One in All," *supra* note 146 at 36.

⁴³¹ Mason, "One in All," *supra* note 146 at 37.

⁴³² Mason, "One in All," *supra* note 146 at 37.

⁴³³ Mason, "One in All," *supra* note 146 at 41.

⁴³⁴ Filgueira & Mason, "Wild Law," *supra* note 258 at 192.

towards other beings, as Bosselmann and Taylor suggest, or into representation in law for all members of the Earth community, as Earth jurisprudence scholars advocate.⁴³⁵ So far the idea of ecological human rights has been less discussed than the idea of extending rights to other beings. One of the challenges of recognizing the rights of other beings is achieving this recognition without creating hierarchies among species, as when using a sentience criterion (which is ultimately based on likeness to humans).⁴³⁶ However, the Earth jurisprudence approach proposes a different path. Berry argues that the rights of all beings are specific and limited: “Rivers have river rights. Birds have bird rights. Insects have insect rights. Humans have human rights. Difference in rights is qualitative, not quantitative. The rights of an insect would be of no value to a tree or a fish.”⁴³⁷ It is not a hierarchical conception of rights, but one reflecting the diversity of beings, and requiring complex weighing, as Koons points out:

How the legal status of jural natural entities is to be recognised – via rights, duties, or responsibilities, for example – and how that legal status is to be considered when in conflict with the rights, duties, and responsibilities of other jural persons and entities are matters for complex weighing. However, the imagined difficulties of adjudicating and legislating Earth’s legal status does not alter the principle that Nature, having intrinsic value, is worthy of legal consideration.⁴³⁸

Cullinan, for his part, explains that recognizing the rights of other beings means that we need systems to ensure that humans do not prevent other beings from fulfilling their role, but “it does not mean that we must ensure that, for example, a species

⁴³⁵ See discussion in sections 1.2.2 and 1.2.3 above.

⁴³⁶ E.g. Regan, *The Case for Animal Rights*, *supra* note 153.

⁴³⁷ Berry, “Rights of the Earth,” *supra* note 137 at 229.

⁴³⁸ Koons, “Key Principles to Transform Law for the Health of the Planet,” *supra* note 145 at 49.

continues to play a role or even to exist.”⁴³⁹ Arguably, then, an ecological or wild law approach would focus conservation and other measures on human actions. For example, an initiative to re-introduce a native predator species to an area it traditionally inhabited would likely be consistent with ecological law if the predator species was displaced by human action and the reintroduction aims to restore its role in the ecosystem, even if the reintroduced predator would prey on another species (also native) whose population had expanded in its absence. In another example, an ecological or wild law approach would focus programs to protect human populations from dengue, malaria, west-Nile virus, etc. on protective measures for humans, like nets and other measures that use “human ingenuity [to] find better ways of co-habiting with the rest of the Earth family,”⁴⁴⁰ (as in the dwellings in the floodplain example referenced in Chapter 1.2.2 above), rather than on reducing mosquito habitat. Destroying such habitat would affect other beings that share the habitat, and mosquito populations play an important role in the ecosystem, for example, as food for insectivorous birds, reptiles, and amphibians.

Suggestions on ways to address the weighing of conflicting interests have been offered, in particular by environmental ethicists. For example, as discussed in section 1.2.2 above, Callicott proposes two second-order principles to address conflicts between the interests of individual humans and those of, in Leopold’s terms, the biotic community.⁴⁴¹ This is a complex ethics debate, however, and a more detailed discussion of it is beyond the scope of this thesis.

⁴³⁹ Cullinan, *Wild Law*, *supra* note 5 at 105.

⁴⁴⁰ Cullinan, *Wild Law*, *supra* note 5 at 107.

⁴⁴¹ Callicott, “Holistic Environmental Ethics and the Problem of Ecofascism,” *supra* note 154 at 75–76; also Shrader-Frechette, “Individualism, Holism, and Environmental Ethics,” *supra* note 149.

As noted, the functions of the law that this principle of *ecocentrism* illuminates are primarily the law's ability to support and promote a worldview in which humans are part of nature and should be presumed to be no more important than other life. It also guides the law in preventing decisions that disregard ecological consequences and have a bias towards short-term human interests. The focus of this principle is relational and conceptual: it centers on the view and understanding of the human-Earth relationship underlying the law. As Cullinan writes:

One of the most important things that I learned from Thomas Berry was that reforming our governance system will require us to entirely reconceptualise our idea of law from a biocentric or Earth-centered perspective. Reforming national legislation and entering into new international agreements will be insufficient unless these are done on the basis of a new understanding that the essential purpose of human governance systems should be to support people to play a mutually enhancing role within the community of life on Earth.⁴⁴²

An ecocentric worldview is thus an enabling condition for the next principle of *ecological primacy*, although it may not be a necessary one. As often noted in previous sections, proponents of ecological law identify anthropocentrism as a key contributor to the ecological crisis we currently face, and call for a shift to a holistic or ecocentric worldview. At the same time, some proposals to prioritize ecological limits are based on an anthropocentric realization that human survival depends on ecosystems and an Earth System that have limits. For example, the proposed Safe Operating Space Treaty and Doughnut Economics are both anthropocentric proposals deriving from the Planetary Boundaries framework that call for ecological limits to growth, without advocating an

⁴⁴² Cullinan, *Wild Law*, *supra* note 5 at 29.

ecocentric paradigm shift.⁴⁴³ A fundamental objection to any anthropocentric approach is that the relational dimension of ecocentrism, which requires respect for other beings, is foregone in favour of an objectification of other beings. Thus, while perhaps not a *sine qua non* condition for respecting ecological limits, *ecocentrism* is a key value of ecological law.

2.2.2 *Ecological Primacy*

Ecological Primacy: Ensure that social and economic behavior and systems are ecologically bound, respecting Planetary Boundaries

This principle corresponds to the second and ninth features of Garver's rule of ecological law, respectively: "ecological limits must have primacy over social and economic regimes;"⁴⁴⁴ and "requir[ing] precaution about crossing global ecological boundaries."⁴⁴⁵ It includes Bosselmann's *principle of sustainability*, which he defines "as the duty to protect and restore the integrity of the Earth's ecological systems"⁴⁴⁶ because creating ecologically-bound human systems requires that this duty be observed. At the same time, this proposed principle of *ecological primacy* also indirectly implies Garver's fourth feature "focus on radically reducing material and energy throughput" because this reduction is needed if we are to "protect and restore the integrity of the Earth's ecological systems" and, again, for creating ecologically-bound human systems. The principle captures the empirical recognition—central to degrowth⁴⁴⁷—that some ecological limits have already been surpassed and cannot continue to be transgressed without

⁴⁴³ Magalhães et al, eds., *The Safe Operating Space Treaty*, *supra* note 33; and Raworth, "A Safe and Just Space for Humanity," *supra* note 51.

⁴⁴⁴ Garver, "The Rule of Ecological Law," *supra* note 5 at 325.

⁴⁴⁵ Garver, "The Rule of Ecological Law," *supra* note 5 at 329.

⁴⁴⁶ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 53.

⁴⁴⁷ Garver, "Moving Forward with Planetary Boundaries and Degrowth," *supra* note 61 at 203.

compromising the planet's life supporting systems.⁴⁴⁸ This notion is also at the heart of Boyd's sustainability law proposal, which as discussed above (Chapter 1.2.1), "would represent an attempt to imagine a system of laws and policies that facilitate processes, products, and patterns of behaviour which are good for the planet."⁴⁴⁹ The four system conditions that Boyd sees as the normative foundation of sustainability law⁴⁵⁰ are fundamental conditions for constraining the economy within ecological limits, even though they do not explicitly challenge the economic growth paradigm; and even if Boyd's proposal is "reformist," rather than "re-formist," as M'Gonigle and Ramsey suggest.⁴⁵¹

The explicit reference the principle of *ecological primacy* makes to respecting Planetary Boundaries highlights the need to consider ecological limits from the local ecosystem to the planetary level.⁴⁵² For example, depletion of a lake through excessive water extraction can have consequences for the regional and global freshwater cycle (one of the Planetary Boundaries), in addition to the consequences to the local ecosystem of which the lake is part.⁴⁵³ Reference to Planetary Boundaries also implies a need for legal systems to incorporate the growing understanding of complex social-ecological systems.⁴⁵⁴ For example, the scale at which a law operates needs to match the scale of the

⁴⁴⁸ Steffen et al, "The Trajectory of the Anthropocene," *supra* note 2. For a brief discussion of the current excess material and energy throughput, see section 1.1.2 above.

⁴⁴⁹ Boyd, "Sustainability Law," *supra* note 5 at 365.

⁴⁵⁰ Boyd, "Sustainability Law," *supra* note 5 at 369.

⁴⁵¹ M'Gonigle & Ramsay, "Greening Environmental Law," *supra* note 75 at 354.

⁴⁵² Garver, "A Complex Adaptive Legal System for the Challenges of the Anthropocene," *supra* note 419.

⁴⁵³ Steffen et al, "Planetary Boundaries," *supra* note 26 at 5-6.

⁴⁵⁴ See generally, Garmestani & Allen, eds, *Social-ecological Resilience and Law*, *supra* note 221; Ruhl, "Panarchy and the Law," *supra* note 221; and Garver, "A Complex Adaptive Legal System for the Challenges of the Anthropocene," *supra* note 419.

social-ecological context targeted.⁴⁵⁵ the EU Water Framework Directive, thanks to “scale-appropriate governance aspects ... promotes adaptive capacity by enabling vertical and horizontal information flow, building local capacity, and delegating control at multiple relevant scales.”⁴⁵⁶ An important challenge, however, is that Planetary Boundaries cannot simply be downscaled regionally or locally.⁴⁵⁷ Work to translate them into local or regional references is ongoing.⁴⁵⁸ For example, researchers in Sweden have attempted to develop a system to measure the national performance of Sweden with respect to Planetary Boundaries.⁴⁵⁹ Another example is the system of national targets created by the Paris Agreement on Climate Change to reach a goal of warming no greater than 2 or 1.5 degrees Celsius (called “nationally determined contributions” or “NDCs”),⁴⁶⁰ which can be seen roughly as an attempt (its effectiveness aside) to translate the global Planetary Boundaries for climate change⁴⁶¹ to the national level.

This principle of *ecological primacy* also includes the *precautionary principle* (*in dubio pro natura*), both with respect to Planetary Boundaries specifically, as in Garver’s ninth feature, and more broadly as a means to prevent harm, allow for adaptation, and

⁴⁵⁵ Carl Folke, “Matching Scales of Law with Social-Ecological Contexts to Promote Resilience,” in Garmestani & Allen, eds, *Social-ecological Resilience and Law*, *supra* note 221 at 265-293.

⁴⁵⁶ OO Green, AS Garmestani, HFMW Van Rijswijk & AM Keessen, “EU Water Governance: Striking the Right Balance between Regulatory Flexibility and Enforcement?,” (2013) 18(2):10 *Ecology & Society* 1.

⁴⁵⁷ Steffen et al, “Planetary Boundaries,” *supra* note 26 at 4; but see AL Fanning & DW O’Neill, “Tracking Resources Use Relative to Planetary Boundaries in a Steady-state Framework: A Case Study of Canada and Spain,” (2016) 69 *Ecological Indicators* 836.

⁴⁵⁸ Tiina Häyhä et al, “From Planetary Boundaries to National Fair Shares of the Global Safe Operating Space: How Can the Scales be Bridged?,” (2016) 40 *Global Environmental Change* 60.

⁴⁵⁹ E.g. Nykvist et al, “National Environmental Performance on Planetary Boundaries,” *supra* note 33.

⁴⁶⁰ *Paris Agreement under the United Nations Framework Convention on Climate Change*, 12 December 2015, I-54113, (entered into force 4 November 2016).

⁴⁶¹ It should be noted, however, that the PB framework does not use increased average temperature as a reference, but “an atmospheric CO₂ concentration of 350 ppm and an increase in top-of-atmosphere radiative forcing of +1.0 W m⁻² relative to pre-industrial,” although they are related and the PB threshold “gives a high probability that the 2°C guardrail is also respected.” Rockström et al, “Planetary Boundaries,” *supra* note 1 at 9.

place the burden of proof with those who would carry out actions that impact the environment. As professor Jamie Benidickson explains:

From its German origins in good household management, the *precautionary principle* has evolved to encompass a cluster of basic principles. It includes, for example, the proposition that early preventive action is appropriate even in the absence of scientifically documented need when delay would impose increased costs and greater risks of environmental harm. Precaution also entails recognition of the importance of leaving wide margins of tolerance or room for manoeuvre to permit natural adaptation to human interference. Pushing the edge of the envelope is not a good idea. In addition, the precautionary principle implies a shift in the onus of proof to those who propose initiatives, innovations, and activities whose environmental impact is not fully understood.⁴⁶²

Beyond the components discussed above, a crucial question for the proposed principle of *ecological primacy* is what ecological conditions should be used as the reference point in determining constraints for economic behavior and systems. Ecological integrity is the most widely used concept for this in ecological law and governance scholarship and as an ethical and scientific reference.⁴⁶³ Scholars and practitioners use it as a reference for environmental management;⁴⁶⁴ for example, it is the “management

⁴⁶² Jamie Benidickson, *Environmental Law*, 2nd ed, (Toronto: Irwin Law Inc, 2002) at 22, citing T O’Riordan & J Cameron, *Interpreting the Precautionary Principle* (London: Earthscan Publications, 1994) at 16-18.

⁴⁶³ For a short history of the idea, see Stephen Woodley, “Ecological Integrity and Canada’s National Parks,” (2010) 27:2 The George Wright Forum 151 at 151-153.

⁴⁶⁴ According to Stephen Woodley, the term is “in common usage” within the ecological literature. Woodley, “Ecological Integrity and Canada’s National Parks,” *supra* note 463 at 152; see also e.g. GA De Leo & S Levin, “The Multifaceted Aspects of Ecosystem Integrity,” (1997) 1(3) Conservation Ecology 1; and Laura Westra, “Ecological Integrity,” in *Encyclopedia of Science, Technology, and Ethics*, v 2: D-K, (Detroit, USA: Macmillan Reference, 2005) at 574-578.

endpoint” for national parks in Canada.⁴⁶⁵ It is a key theme and one of the primary principles of the Earth Charter.⁴⁶⁶ Among the proponents of ecological law, Klaus Bosselmann argues that “respect for ecological integrity” is the “fundamental morality” reflected in the principle of sustainability,⁴⁶⁷ and that it should be considered as a *grundnorm* or basic norm, as it is already used in a broad range of domestic and international legal instruments.⁴⁶⁸ Philippe Crabbé and Jack Manno, for their part, argue that ecological integrity is an “emergent public good,” and “the (super-additive) compact of private and public ecological goods and services.”⁴⁶⁹ Finally, as Laura Westra (one of the leading members the Global Ecological Integrity Group that has worked extensively to define and make operational the concept of ecological integrity)⁴⁷⁰ maintains: “Ecological integrity is [...] a concept robust enough to support a solid ethical stance, one that reinstates humans in nature while respecting the latter, thus permitting clear answers in cases of conflicts between (present) economic human interests and (long-term) ecological concerns.”⁴⁷¹

However, some ecological law scholars point to the need to align the “Holocene concept”⁴⁷² of ecological integrity with the concept of the Anthropocene.⁴⁷³ This is

⁴⁶⁵ Woodley, “Ecological Integrity and Canada’s National Parks,” *supra* note 463 at 159; C.f. Shaun Fluker, “Ecological Integrity in Canada’s National Parks: The False Promise of Law,” (2010) 29 Windsor Rev Legal Soc Issues 89.

⁴⁶⁶ *Earth Charter*, *supra* note 298.

⁴⁶⁷ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 53.

⁴⁶⁸ Bosselmann, “The Rule of Law Grounded in the Earth,” *supra* note 184; Rakhyun E Kim & Klaus Bosselmann, “International Environmental Law in the Anthropocene: Towards a Purposive System of Multilateral Environmental Agreements,” (2013) 2:2 Transnational Environmental Law 285 at 290.

⁴⁶⁹ PJ Crabbé & JP Manno, “Ecological Integrity as an Emergent Public Good,” in Westra & Bosselmann, *Reconciling Human Existence with Ecological Integrity*, *supra* note 513, 73 at 77.

⁴⁷⁰ Manno, “Why the Global Ecological Integrity Group?,” *supra* note 262 at 10-20.

⁴⁷¹ Westra, “Ecological Integrity,” *supra* note 464 at 576.

⁴⁷² As described in a comment by Peter Burdon at the Joint E4A Law and Governance Initiative/ELGA Workshop “From Environmental to Ecological Law: An Anthropocene Challenge,” Montreal, QC, 18 October 2017.

because, as the following selection of references shows, ecological integrity is generally understood in relation to wild areas, native species and minimal human disturbance:⁴⁷⁴

It is “wild nature [that] provides the paradigmatic examples of ... research and reflection” on the concept of ecological integrity. – David Pimentel, Laura Westra and Reed F Noss⁴⁷⁵

“An ecosystem has integrity when it is deemed characteristic for its natural region, including the composition and abundance of native species and biological communities, rates of change and supporting processes.

In plain language, ecosystems have integrity when they have their native components (plants, animals and other organisms) and processes (such as growth and reproduction) intact.” – Parks Canada Agency⁴⁷⁶

Ecological integrity is “the ability of an ecosystem to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity and functional organization comparable to that of similar, undisturbed ecosystems in the region.” – James Karr⁴⁷⁷

“On the basis of our current scientific understanding, ecological integrity is the state of an ecosystem that most fully maintains the ecological and intrinsic values of that ecosystem, where all

⁴⁷³ Garver, “A Complex Adaptive Legal System for the Challenges of the Anthropocene,” *supra* note 419 at 235; Geoffrey Garver, “A Systems-based Tool for Transitioning to Law for a Mutually Enhancing Human-Earth Relationship,” (2019) 157 *Ecological Economics* 165 at 166.

⁴⁷⁴ Kate Turner & Karen Beazley, “An Exploration of Issues and Values Inherent in the Concept of Ecological Integrity,” (2004) 32:2 *Environments* 45 at 47-49 (regarding native species) and 51-53 (regarding minimal human disturbance, expressed as wilderness and wildness).

⁴⁷⁵ David Pimentel, Laura Westra & Reed F Noss, eds, *Ecological Integrity: Integrating Environment, Conservation, and Health* (Island Press, 2000) at 20.

⁴⁷⁶ Parks Canada Agency, “Unimpaired for Future Generations?: Protecting Ecological Integrity with Canada’s National Parks, v I, A Call to Action,” Report of the Panel on the Ecological Integrity of Canada’s National Parks, (Ottawa, ON, 2000), online: <<http://publications.gc.ca/collections/Collection/R62-323-2000-1E.pdf>> (accessed 3 May 2014) at 2.

⁴⁷⁷ James R Karr, “Biological Integrity: A Long-Neglected Aspect of Water Resource Management,” (1991) 1:1 *Ecological Applications* 66 at 69.

elements (structural and functional) of that ecosystem are minimally influenced by human-induced stresses, thus supporting the continued evolution of species and processes characteristic to the geographic region. This conception of ecological integrity is necessarily general to incorporate all ecosystem types, thus more precise operational definitions must be constructed for various regions, incorporating key elements, processes and values.” – Kate Turner and Karen Beazley⁴⁷⁸

Moreover, Westra argues that “by definition, [ecological integrity] excludes human input and the manipulation of natural organisms and processes for one’s interests, or even for the common economic or short-term interests of a community and a nation.”⁴⁷⁹ Yet others, like Stephen Woodley, claim that “ecological integrity can and should be understood outside the context of whether or not people are present in the system,”⁴⁸⁰ and that the use of the concept “recognizes that ecosystems are inherently dynamic, and have a history of human intervention and even management.”⁴⁸¹

Garver argues for greater focus on Berry’s notion of a mutually enhancing human-Earth relationship,⁴⁸² which implies “a human role within the broader community of life that is life-enhancing and respectful of the ecological role of other members of that community.”⁴⁸³ He points to studies that “strongly imply that preserving and restoring

⁴⁷⁸ Turner & Beazley, “An Exploration of Issues and Values Inherent in the Concept of Ecological Integrity,” *supra* note 474 at 60.

⁴⁷⁹ Laura Westra, “Governance for Integrity? A Necessary But Distant Goal,” 324–336 in Burdon, ed, *Exploring Wild Law*, *supra* note 8 at 333.

⁴⁸⁰ Woodley, “Ecological Integrity and Canada’s National Parks,” *supra* note 463 at 151.

⁴⁸¹ Woodley, “Ecological Integrity and Canada’s National Parks,” *supra* note 463 at 159 (writing from his position within Parks Canada).

⁴⁸² Berry, *The Great Work*, *supra* note 118 at 11, 201.

⁴⁸³ Geoffrey Garver, “Ecological Integrity in the Anthropocene: Lessons for Law from Ecological Restoration and Beyond,” in Laura Westra, ed, *The Role of Integrity in the Governance of the Commons: Governance, Ecology, Law, Ethics*, (Cham Springer International Publishing, 2017) 191 at 192.

ecological integrity as much as possible is consistent with a mutually enhancing human–Earth relationship.”⁴⁸⁴

The notion of a positive human role is also the second characteristic of wild laws identified by Filgueira and Mason: “they would provide mutually enhancing relationships to all members of the Earth Community.”⁴⁸⁵ It is featured, as well, in Mason’s triumvirate of Earth jurisprudence principles: “The principle of care directs human action to benefit the wider Earth community in the interests of the whole. Earth jurisprudence assumes there is a proper place for the human in the Earth community and that human powers and abilities to modify nature are subject to a duty of care for the health or well-being of the whole.”⁴⁸⁶ This may be hard to imagine, but in addition to the studies noted by Garver, a study of shell middens created by First Nations in the coast of British Columbia shows the positive effect of intertidal resource use on forest productivity.⁴⁸⁷ These examples are part of a wealth of theoretical knowledge and experience at the level of local or ecosystem management, conservation and restoration that ecological law can draw from in determining human-inclusive baselines or reference conditions by which to assess ecological integrity.⁴⁸⁸

⁴⁸⁴ Garver, “A Complex Adaptive Legal System for the Challenges of the Anthropocene,” *supra* note 419 at 235.

⁴⁸⁵ Filgueira & Mason, “Wild Law,” *supra* note 258 at 192.

⁴⁸⁶ Mason, “One in All,” *supra* note 146 at 37.

⁴⁸⁷ Andrew J Trant et al, “Intertidal Resource Use over Millennia Enhances Forest Productivity,” (2016) 7 Nature Communications 1.

⁴⁸⁸ See e.g. Woodley, “Ecological Integrity and Canada’s National Parks,” *supra* note 463 at 153-157; Kurt Jax, *Ecosystem Functioning*, (Cambridge University Press, 2012) (examining “different approaches to conceptualising and assessing ecosystem functioning,” and “link[ing] the natural sciences with methodologies from philosophy and the social sciences”); also Stephen J Woodley, James Kay, George Francis, Heritage Resources Centre and Canadian Parks Service, *Ecological Integrity and the Management of Ecosystems*, (Delray Beach, FL: St. Lucie Press, c1993); and Pimentel, Westra & Noss (eds), *Ecological Integrity*, *supra* note 475.

Based on the discussion above, the concept of ecological integrity is incorporated as a fundamental element of the principle of *ecological primacy*, providing the reference point for ecological law to constrain human (economic) actions within ecological limits.⁴⁸⁹ I follow the “plain language” definition by Parks Canada that “ecosystems have integrity when they have their native components (plants, animals and other organisms) and processes (such as growth and reproduction) intact,”⁴⁹⁰ with the understanding that “ecosystems are inherently dynamic, and have a history of human intervention and even management.”⁴⁹¹ Implementing this will require adopting specific norms to protect ecological integrity and establishing appropriate baselines to measure it. On the norms end, Westra has suggested that

the ethics of integrity require the following: (1) principles of respect and preservation for wild (that is unexploited) areas; (2) the protection of ecosystems, not only for their own intrinsic value, but also to permit them to maintain their life-support function. These first order principles in turn entail second order rules. They mandate: (3) restraints on all technological activities involving toxic, hazardous or genetically manipulated substances, as these cannot be permitted if there is any chance that they may have either a negative or an unpredictable impact on core and buffer areas; and (4) the acceptance of additional limits to human ‘culture’ activities, that is, to all non-basic human wants and preferences, through (a) zoning regulations, and (b) qualitative and quantitative regulations regarding the use of so-called natural resources. This implies that limits must be imposed on *how much*

⁴⁸⁹ See Joseph H Guth’s proposal for a tort of “ecological degradation” to constrain the use of property, in which he defines “ecological degradation” as “the biotic impoverishment and decline in the self-sustaining and self-renewing capacity of the biosphere,” in other words, as a loss of ecological integrity. Guth, “Law for the Ecological Age,” *supra* note 248 at 496.

⁴⁹⁰ Parks Canada Agency, “Unimpaired for Future Generations?,” *supra* note 476 at 2.

⁴⁹¹ Woodley, “Ecological Integrity and Canada’s National Parks,” *supra* note 463 at 159.

can be taken, as well as to *what* can be taken, from the standpoint of ecological sustainability.⁴⁹²

In summary, the function in law of this principle of *ecological primacy* is to provide clarity about priorities to ensure human development is pursued without irreversibly impairing ecological integrity or crossing Planetary Boundaries, including the use of precaution with respect to these boundaries. *Ecological primacy* should be understood to target social and economic behavior by individuals, groups, corporations and other legal persons (for example, the acquisition and use of property, marketing and consumer behavior, etc.); as well as social and economic sectoral and systems behavior (for example, the financial system, the mining sector, etc.). In specific laws, *ecological primacy* would manifest as limits, obligations and responsibilities linked to activities that impact ecological integrity. It is already emerging, for example, in laws directly and indirectly phasing out greenhouse gas emissions,⁴⁹³ bans on plastics,⁴⁹⁴ and in proposals for design for reuse and recycling,⁴⁹⁵ land use change restrictions,⁴⁹⁶ or liability for harm

⁴⁹² Westra, “Governance for Integrity,” *supra* note 479 at 332 [emphasis in the original].

⁴⁹³ For example, laws banning the internal combusting engine, as that proposed in Germany, or banning fossil fuel based cars, as proposed in Norway and the Netherlands. Shehab Khan, “Germany Pushes to Ban Petrol-fuelled Cars within Next 20 Years,” (10 October 2016), online: The UK Independent <www.independent.co.uk/news/world/europe/germany-petrol-car-ban-no-combustion-diesel-vehicles-2030-a7354281.html>; Alex Hern, “Netherlands Moots Electric Car Future with Petrol and Diesel Ban by 2025,” (1 April 2016), online: The Guardian <www.theguardian.com/technology/2016/apr/18/netherlands-parliament-electric-car-petrol-diesel-ban-by-2025>; Jess Staufenberg, “Norway to ‘Completely Ban Petrol Powered Cars by 2025,’” (4 June 2016), online: The UK Independent <www.independent.co.uk/environment/climate-change/norway-to-ban-the-sale-of-all-fossil-fuel-based-cars-by-2025-and-replace-with-electric-vehicles-a7065616.html>, (all accessed 9 January 2017).

⁴⁹⁴ For example, laws banning plastic bags. Jessie Yeung, “Australia Is Banning Plastic Bags. Here’s What Other Countries Are Doing,” (2 July 2018), online: CNN <www.cnn.com/2018/07/02/australia/australia-plastic-bag-ban-intl/index.html> (accessed 7 August 2018).

⁴⁹⁵ E.g. Patrizia Ghisellini, Catia Cialani & Sergio Ulgiati, “A Review on Circular Economy: The Expected Transition to a Balanced Interplay of Environmental and Economic Systems,” (2016) 114 *Journal of Cleaner Production* 11; Adam Minter, “How We Think About E-waste Is in Need of Repair,” (2017) 1 *Anthropocene* 31 at 36.

⁴⁹⁶ For example, laws excluding extractive activities from areas with high levels of ecological integrity, and banning the conversion of wetlands, forests and agricultural lands, especially for cattle production, plantations, and residential, commercial or transportation uses. Nigel Dudley & Sue Stolton, “To Dig or

to ecosystems.⁴⁹⁷ However, as discussed above (Chapter 1.4), the challenge for ecological law will be that implementing these limitations is at odds with the logic of the capitalist system, and therefore a shift in economic paradigm is also required.

Ecological primacy is strongly linked with *ecocentrism*. It is by recognizing the human place in the Earth community, human dependence and impact on other life, and our equal intrinsic value, that it would become acceptable (even necessary) to forego non-essential economic or social benefits harmful to the Earth community.⁴⁹⁸ In contrast to the *ecocentrism* principle, *ecological primacy* has a material focus by aiming to bound material and energy consumption within ecological limits. In turn, this ecologically-bound material basis helps create the conditions for the last principle: *ecological justice*.

2.2.3 *Ecological Justice*

Ecological Justice: Ensure equitable access to the Earth's sustaining capacity for present and future generations of humans and other beings, and avoid the inequitable allocation of environmental harms

This principle essentially restates Klaus Bosselmann's concept of ecological justice⁴⁹⁹ and the sixth feature of the rule of ecological law: "ensur[ing] the fair sharing of resources among present and future generations of humans and other life."⁵⁰⁰ As Bosselmann explains, intergenerational and intragenerational equity are "two ethical elements that are widely accepted as being essential to the idea of sustainable

Not to Dig?: Criteria for Determining the Suitability or Acceptability of Mineral Exploration, Extraction and Transport from Ecological and Social Perspectives. A Discussion Paper for WWF," (WWF International and WWF-UK, 2002), online: <www.oecd.org/env/1830332.pdf> (accessed 11 August 2018).

⁴⁹⁷ Guth, "Law for the Ecological Age," *supra* note 248.

⁴⁹⁸ However, the former is conceivable without the latter. It is possible that humanity might adopt a principle of ecological primacy solely as a survival measure in the face of imminent ecological collapse, rather than as a logical step resulting from a new ecocentric worldview.

⁴⁹⁹ Bosselmann, *The Principle of Sustainability*, *supra* note 87.

⁵⁰⁰ Garver, "The Rule of Ecological Law," *supra* note 5 at 326.

development.”⁵⁰¹ In contrast, the notion of humans and other species having equal intrinsic value is controversial and only starting to be recognized in law.⁵⁰² However, Bosselmann argues that interspecies equity or “concern for the non-human natural world” is needed as a third element along with the moral duties to the poor (intragenerational equity) and to future generations (intergenerational equity) if we are to exclude the “very possibility of destroying the planet’s conditions of life” from humanity’s development paths.⁵⁰³

The fundamental idea behind this triple principle is that humans should use the Earth’s sustaining capacity so as to enable humans *and other species* to sustain themselves today and in the future.⁵⁰⁴ Also, this principle goes beyond fair distribution and implies a society that aims to attain sufficient—not maximum—wealth, held collectively and individually. Garver argues that “[t]he focus on sufficient as opposed to maximum wealth implies a limit on inequality of wealth, and that it is possible to be too rich—with the limits established so as to allow for the flourishing of non-human species and ecological restoration.”⁵⁰⁵ The critique of economic growth from the perspective of ecological limits put forth by ecological economics includes a critique of excess wealth. As Daly noted in 1974, explaining his proposal for a steady state economy:

We need (1) an institution for stabilizing population, (2) an institution for stabilizing wealth and keeping throughput below ecological limits, and less obviously but most importantly, (3) an institution limiting the degree of inequality in the distribution of

⁵⁰¹ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 97.

⁵⁰² Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 103-109 (discussing examples of law moving toward recognition of ecological justice, including New Zealand’s environmental legislation and ecosystemic regimes for water and forest management in OECD countries).

⁵⁰³ Bosselmann, *The Principle of Sustainability*, *supra* note 87 at 99.

⁵⁰⁴ Peter G Brown, “Are There Any Natural Resources?,” (2004) 23:1 *Politics & the Life Sciences* 12.

⁵⁰⁵ Garver, “The Rule of Ecological Law,” *supra* note 5 at 328.

the constant stocks among the constant population, since growth can no longer be appealed to as the answer to poverty.⁵⁰⁶

Limits to wealth is one of the tenets of the degrowth movement.⁵⁰⁷ As noted earlier, “A degrowth transition is ... a transition to convivial societies who live simply, in common and with less.”⁵⁰⁸ The link between wealth and ecological limits is also made clear, for example, in the ecological footprint metric developed by William E. Rees and Mathis Wackernagel, which applies the concept of carrying capacity to humans, showing how greater consumption—supported by wealth—entails large ecological footprints and the overshoot of ecological limits.⁵⁰⁹ It is also implied in the Doughnut Economics model explained earlier,⁵¹⁰ and in other recent reflections on wealth⁵¹¹ and its relation to the ecological crisis.⁵¹² In short, excess wealth raises serious justice issues from the perspective of ecological law.

The principle of *ecological justice* proposed here also captures the values promoted by Berry and Cullinan in their arguments for Earth jurisprudence and wild laws, with recognition of the rights of other members of the Earth community a practical way to achieve *ecological justice*. At the same time, it allows for other approaches that do

⁵⁰⁶ Herman E Daly, “The Economics of the Steady State,” (1974) 64:2 *The American Economic Review* 15 at 19; Daly, *Toward a Steady-state Economy*, *supra* note 37.

⁵⁰⁷ Samuel Alexander, “Simplicity,” in D’Alisa, Demaria & Kallis, eds, *Degrowth*, *supra* note 34; Victor, *Managing without Growth*, *supra* note 38; Jackson, *Prosperity without Growth*, *supra* note 39.

⁵⁰⁸ D’Alisa, Demaria & Kallis, eds, *Degrowth*, *supra* note 34 at 11.

⁵⁰⁹ “For human beings, carrying capacity can be interpreted as the maximum rate of resource consumption and waste discharge which can be sustained indefinitely in a given region without progressively impairing the functional integrity and productivity of relevant ecosystems.” William Rees, “Ecological Footprints and Appropriated Carrying Capacity: What Urban Economics Leaves Out,” (1992) 4:2 *Environment and Urbanization* 121 at 125. Also Thomas Wiedmann, Jan Minx, John Barrett & Mathis Wackernagel, “Allocating Ecological Footprints to Final Consumption Categories with Input-output Analysis. (Report),” (2006) 56:1 *Ecological Economics* 28.

⁵¹⁰ Raworth, “A Safe and Just Space for Humanity,” *supra* note 51.

⁵¹¹ For example, Robert Skidelsky & Edward Skidelsky, *How Much is Enough?: Money and the Good Life*, (New York: Other Press, c2012).

⁵¹² Steffen et al, “The Trajectory of the Anthropocene,” *supra* note 2 at 11.

not assign rights to nonhumans, like Bosselmann's ecological human rights and Taylor's proposal emphasizing the ecological responsibilities and constraints attached to human rights.⁵¹³ Inasmuch as *ecological justice* is implicitly about governance of the Earth's sustaining capacity, it is also congenial to Koons' Earth jurisprudence principle of "democratic governance of the Earth community"⁵¹⁴ and to the third characteristic of wild laws outlined by Filgueira and Mason—that they would be "based on community ecological governance."⁵¹⁵

In addition, *ecological justice* is generally consistent with Winter's *principle of eco-proportionality*⁵¹⁶ which aims to require "... human society ... to justify its interests in view of nature" and to "physically [limit] human encroachments."⁵¹⁷ Eco-proportionality could be a tool to implement the principle of *ecological justice*, especially its inter-species aspect. In the context of fisheries, for example, eco-proportionality could help ensure equitable human access to the Earth's sustaining capacity by shifting the basis for maximum allowable catch from the yield of the fishery, to the minimum catch required to meet actual needs.⁵¹⁸ In other words, from the fish we can extract to the fish we need. In this way, there would be equitable access because the fishery would be spared overexploitation, but also because it would be available to sustain other beings,

⁵¹³ Prue Taylor, "Ecological Integrity and Human Rights," in Laura Westra, Klaus Bosselmann & Richard Westra, eds, *Reconciling Human Existence with Ecological Integrity: Science, Ethics, Economics and Law*, (London: Earthscan, 2008) 89 at 91.

⁵¹⁴ Koons, "Key Principles to Transform Law for the Health of the Planet," *supra* note 145.

⁵¹⁵ Filgueira & Mason, "Wild Law," *supra* note 258 at 92.

⁵¹⁶ Winter, "Ecological Proportionality," *supra* note 228.

⁵¹⁷ Winter, "Ecological Proportionality," *supra* note 228 at 115.

⁵¹⁸ Vincent Chapaux, "The Enduring Anthropocentrism of International Law," (lecture at the University of Ottawa, Faculty of Law, 18 January 2016).

like whales.⁵¹⁹ The need for this kind of equity is illustrated by the 2016 Living Planet Report assessment that “species population abundance declined by 58 per cent between 1970 and 2012” and that by 2020, “species populations may have declined on average by 67 per cent over the last half-century.”⁵²⁰ Directly through overexploitation, and indirectly through ecological degradation and habitat loss, humans are taking more than our share and depriving other beings of access to the Earth’s sustaining capacity.⁵²¹

In addition to an equitable distribution of benefits, the principle of ecological justice requires that inequitable allocation of environmental harms be avoided. This is at the heart of the concept of environmental justice, which “[b]roadly defined ... means that all people—irrespective of race, ethnicity, class, gender, and physical ability—have the right to live in clean, healthy, and safe environments; to have equal access to safe and healthy workplaces, schools, and recreation areas; and to have access to safe and nutritious food and clean water.”⁵²² If extended to other species, this would at a minimum mean the right of all beings to live in clean, healthy and safe environments, such that from an interspecies perspective, avoiding inequitable allocation of environmental harms would require strict pollution prevention and habitat protection. Clear examples of harms

⁵¹⁹ Maria Fernanda Guanipa, “Puget Sound Orca Populations Are Facing Starvation,” (29 October 2016), online: Pulse Headlines <www.pulseheadlines.com/puget-sound-orca-populations-facing-starvation/53667/> (accessed 3 November 2016).

⁵²⁰ WWF, *Living Planet Report 2016: Risk and Resilience in a New Era*, (Gland, Switzerland: WWF International, 2016) at 12.

⁵²¹ WWF, *Living Planet Report 2016*, *supra* note 520 at 12.

⁵²² Jason A Byrne, “Environmental Justice,” in *Oxford Bibliographies - Geography* (New York: Oxford University Press, 2013).

to avoid are plastic pollution, which “poses a danger to all forms of aquatic life”⁵²³ and trawl fishing, which disturbs seafloor habitat.⁵²⁴

An *ecological justice* approach may resonate somewhat with some Indigenous traditions; for example, the Nuu-chah-nulth *principle of continuity*. Richard Atleo describes this principle as “the sacred right of life forms to continue to live in their own integrity of being.”⁵²⁵ In this tradition all beings are valued and deserving of continued existence because they are part of creation.⁵²⁶ However, recognizing that “predation” of some beings upon others is real and true, humans develop protocols and agreements with other beings that cause predation to happen in a way that is constrained by needs, promoting harmony. As Atleo explains:

All protocols take place within a context that appears contrary to the spirit of agreement and harmony, contrary to the constitutional principle of continuity. Predation – by Wolf upon Deer, by colonizers upon colonized, by corporations upon the powerless and poor – is a common reality and is therefore a dimension of truth. The Nuu-chah-nulth discovered that predation is natural to creation, with or without management. Without purposeful agreements between the diverse inhabitants of reality, danger, destruction, conflict, and hatred remain inevitable. In other words, according to ancient Nuu-chah-nulth life is dangerous if it is not appropriately managed but beautiful if it is appropriately managed. It is for this reason that Nuu-chah-nulth observed protocols in their “predation” upon any plant or animal. This type of predation, which is conducted through consultation and agreement, results in taking what you need,

⁵²³ Susanne Brander et al, “The Ecotoxicology of Plastic Marine Debris,” (2011) 73:8 The American Biology Teacher 474 at 474.

⁵²⁴ National Research Council (US), Committee on Ecosystem Effects of Fishing, *Effects of Trawling and Dredging on Seafloor Habitat*, (Washington, DC: National Academy Pr, c2002).

⁵²⁵ Atleo, *Principles of Tsawalk*, *supra* note 309 at 121-122.

⁵²⁶ Atleo, *Principles of Tsawalk*, *supra* note 309 at 177.

rather than taking what you don't need. Need, when appropriately fulfilled, results in health, harmony, sustainability, and continuity. In this sense taking what you need is a law of sustainability and an example of the constitutional principle of continuity.⁵²⁷

To recap, this principle of *ecological justice* serves the function of providing an ethical grounding for decisions about equitable use of the planet's sustaining capacity and the fair distribution of, and restraint on, wealth. Its focus is relational, but in contrast to the principle of *ecocentrism*, it is so in a practical and material way, aiming to translate respect for all beings into actual equitable access to the Earth's sustaining capacity. In specific laws, *ecological justice* would manifest, perhaps, as tax regimes that guarantee a minimum level of income to satisfy basic needs, while capping levels of wealth, based perhaps on Jackson's concept of "bounded capabilities for flourishing,"⁵²⁸ as mining regimes that privilege reuse and recycling⁵²⁹ and that prioritize land uses that enable humans and other beings to sustain themselves over large-scale extractive uses that deplete the land;⁵³⁰ and as legal frameworks supporting ecologically just food systems.⁵³¹

2.2.4 Concluding Thoughts on the Lens of Ecological Law

In summary, this chapter proposes a *lens of ecological law* based on three core *principles of ecological law*:

⁵²⁷ Atleo, *Principles of Tsawalk*, *supra* note 309 at 122.

⁵²⁸ Jackson, *Prosperity without Growth*, *supra* note 39 at 45-47.

⁵²⁹ Carla Sbert, "Re-imagining Mining: The Earth Charter as a Guide for Ecological Mining Reform," (2015) 6 IUCN AEL E-Journal 66.

⁵³⁰ Carla Sbert Carlsson, "Amparos by Indigenous Communities Against Mining Concessions in Mexico: Implications for a Shift to Ecological Law," (2017) X:2 Mexican Law Review 3.

⁵³¹ E.g. Angela Lee, "An Ecofeminist Perspective on New Food Technologies," (2018) 5:1 Canadian Food Studies 63; Heather McLeod-Kilmurray, "Commoditizing Nonhuman Animals and their Consumers: Industrial Livestock Production, Animal Welfare, and Ecological Justice," (2012) 32:1 Bulletin of Science, Technology & Society 71; Alison Blay-Palmer, ed, *Imagining Sustainable Food Systems: Theory and Practice*, (Burlington, VT: Ashgate, 2010); Vandana Shiva, *Soil Not Oil: Environmental Justice in a Time of Climate Crisis*, (Cambridge, Mass: South End Press, c2008).

Ecocentrism: Recognize and respect the value of all beings and the interconnectedness among them, equitably promoting the interests of human and nonhuman members of the Earth community

Ecological Primacy: Ensure that social and economic behavior and systems are ecologically bound, respecting Planetary Boundaries

Ecological Justice: Ensure equitable access to the Earth's sustaining capacity for present and future generations of humans and other beings, and avoid the inequitable allocation of environmental harms

These principles reflect values that are critical to ecological law as an alternative to environmental law and aim to guide behavior toward ecological law's objectives of constraining the economy within ecological limits, restoring ecological integrity, and enabling an ecologically just society or a mutually enhancing human-Earth relationship. These proposed principles are "complementary and partial"⁵³² and their "application requires assessing the correlation between the state of affairs to be promoted and the effects of the conduct seen as necessary to its advancement."⁵³³ While the principles are linked and reinforcing, they elucidate different functions of the law. *Ecocentrism* focuses on the law's ability to support and promote a worldview in which humans are part of nature and presumed to be no more important than other life. It aims at preventing decisions that disregard their ecological consequences and have a bias towards short-term human interests. *Ecological primacy* is focused on providing clarity about priorities to ensure human development is pursued without irreversibly impairing ecological integrity or crossing Planetary Boundaries, including the use of precaution with respect to these

⁵³² Avila, *Theory of Legal Principles*, *supra* note 164 at 38 [emphasis in the original].

⁵³³ Avila, *Theory of Legal Principles*, *supra* note 164 at 36 [emphasis in the original].

boundaries. *Ecological justice* serves as ethical grounding for decisions about equitable use of the planet's sustaining capacity and the fair distribution of, and restraint on wealth. In the case studies that follow in the next three chapters, the *lens of ecological law* probes current law governing mining in El Salvador, Canada (Ontario) and Bolivia for its affinities and inconsistencies with ecological law.

PART 2 – MINING CASE STUDIES FROM THE *LENS OF ECOLOGICAL LAW*

The three case studies that follow use the *lens of ecological law* introduced in Chapter 2 to reflect on the implications of three different legal approaches to mining for a shift to ecological law. By looking to El Salvador, Chapter 3 explores whether the first attempt by a country to ban metal mining is a step in the direction of ecological law. In considering the mineral extraction proposed in Ontario's Ring of Fire, Chapter 4 searches for elements of ecological law in a legal framework that purportedly ensures mineral extraction is sustainable⁵³⁴ in one of the few remaining ecologically intact regions of the world.⁵³⁵ Finally, by turning to Bolivia, Chapter 5 examines the interactions between mineral extraction, in particular of lithium, and the rights of Mother Earth and the Andean concept of *living well* recently recognized by Bolivian law, and considers their significance for a shift to ecological law.

⁵³⁴ Ontario, Ministry of Energy, Northern Development and Mines, "Ontario Mineral Development Strategy," online: Ontario, Ministry of Energy, Northern Development and Mines <www.mndm.gov.on.ca/sites/default/files/mndm_mds_english_2015.pdf> (accessed 29 June 2018) at 20.

⁵³⁵ The Far North Science Advisory Panel, *Science for a Changing Far North. The Report of the Far North Science Advisory Panel*, (Report submitted to the Ontario Ministry of Natural Resources, 2010), online: <www.ontla.on.ca/library/repository/mon/24006/302262.pdf> (accessed 6 December 2017) at xi.

CHAPTER 3 – EL SALVADOR’S METAL MINING BAN FROM THE *LENS OF ECOLOGICAL LAW*

3.1 *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 km.⁵³⁶ From the late 1970s to 1992,⁵³⁷ the country experienced a brutal civil war in which 70,000-80,000 people were killed, and one fifth of the population was displaced.⁵³⁸ Poverty and inequality are longstanding challenges facing El Salvador, with twelve families infamously controlling the country since the Spanish conquest.⁵³⁹ A mountainous country with high seismic activity and exposure to extreme weather events (in particular linked to La Niña and El Niño), it also suffers from serious environmental degradation, including minimal forest cover, high erosion and water scarcity and contamination.⁵⁴⁰ The country’s high vulnerability is exacerbated by climate change and deforestation, which increase the likelihood of landslides and floods; and by poverty, which increases the negative impact of natural disasters.⁵⁴¹ Historian Christopher M. White describes El Salvador as a country “which simultaneously has endured great

⁵³⁶ David G Browning et al, “El Salvador,” (23 February 2017), online: Encyclopædia Britannica <<https://www.britannica.com/place/El-Salvador>> (accessed 9 November 2017).

⁵³⁷ Pacheco Cueva marks the beginning of the civil war in 1978 (Vladimir Pacheco Cueva, *An Assessment of Mine Legacies and How to Prevent Them: A Case Study from Latin America*, (Cham, Switzerland: Springer, 2017) at 13), while others like White, in 1980 (Christopher M White, *The History of El Salvador*, (Westport, CT: Greenwood Press, 2009) at xiv). Encyclopedia Britannica dates it to the end of the 1970s; *supra* note 536.

⁵³⁸ White, *The History of El Salvador*, *supra* note 537 at 9, 109.

⁵³⁹ White, *The History of El Salvador*, *supra* note 537 at 12-14

⁵⁴⁰ Ministerio de Economía de El Salvador (MINEC), *Servicios de Consultoría para la Evaluación Ambiental Estratégica (EAE) del Sector Minero Metálico de El Salvador, Informe Final*, (MINEC, 30 September 2011) [Metal Mining Sector SEA] at 5-10.

⁵⁴¹ Metal Mining Sector SEA, *supra* note 540 at 12; White, *The History of El Salvador*, *supra* note 537 at 5-6.

hardship while maintaining a vibrant culture and an optimistic outlook for the future.”⁵⁴²

It is also the first country in the world to enact a law prohibiting metal mining.

3.2 *The Latin American Mining Boom in El Salvador*

Mineral extraction has occurred in El Salvador since the mid-Eighteenth Century, with total production reaching about 20,000 ounces of gold and from 250,000 to 300,000 ounces of silver in the 1950s.⁵⁴³ The country has some areas rich in minerals (totaling approximately 1,682 km²),⁵⁴⁴ but mining has never been a major activity in El Salvador.⁵⁴⁵ Mining operations all but came to a halt in the 1980s due to low mineral prices and the civil war.⁵⁴⁶ Exploration modestly resumed after the war and the San Cristobal mill and plant produced 13,300 ounces of gold and 4,600 ounces of silver from 1995 to 1999.⁵⁴⁷ In the San Sebastian mine area, artisanal mining is ongoing.⁵⁴⁸

At the time the war ended in 1992, Latin America was seeing the widespread adoption of neoliberal policies, including reform of land tenure and mining laws to encourage foreign investment.⁵⁴⁹ There was also a boom in mining projects fueled by high mineral prices and new extraction technologies for both deep underground and open-pit mining, during which mining companies, many based in Canada and financed

⁵⁴² White, *The History of El Salvador*, *supra* note 537 at xvi.

⁵⁴³ Metal Mining Sector SEA, *supra* note 540 at 33.

⁵⁴⁴ Metal Mining Sector SEA, *supra* note 540 at 32-33.

⁵⁴⁵ White, *The History of El Salvador*, *supra* note 537 at 37.

⁵⁴⁶ Metal Mining Sector SEA, *supra* note 540 at 33.

⁵⁴⁷ *Commerce Group Corp and San Sebastian Gold Mines, Inc v The Republic of El Salvador*, (ICSID Case No ARB/09/17), “Notice of Arbitration,” (2 July 2009), online: <https://www.italaw.com/sites/default/files/case-documents/ita0192_0.pdf> (accessed 31 October 2017).

⁵⁴⁸ Metal Mining Sector SEA, *supra* note 540 at 33.

⁵⁴⁹ Daviken Studnicki-Gizbert, “Canadian Mining in Latin America (1990 to Present): A Provisional History,” (2016) 41:1 *Canadian Journal of Latin American & Caribbean Studies* 95.

through the Vancouver and Toronto stock exchanges, acquired mining concessions throughout Latin America.⁵⁵⁰

Reconstruction in El Salvador after the war aligned with this neoliberal trend.⁵⁵¹ Among other measures, like privatization of public services, the mining law was reformed in 1996 and mechanisms protecting foreign investors were adopted to attract mining companies.⁵⁵² Mining companies (in particular junior ones) became interested in mineral exploration in areas of El Salvador where there had previously been some mining activity.⁵⁵³

In El Salvador the State owns the subsurface of all land and may grant concessions for its exploitation by others.⁵⁵⁴ The 1996 Mining Law established a two-phase process to open and operate mines. First, exploratory activities required an exploration concession, lasting up to eight years; second, persons holding a valid exploration concession could seek the right to exploit the minerals found by applying for an exploitation concession. The conditions for obtaining this included, among others, filing a feasibility study, obtaining an authorization from the Ministry of Environment and Natural Resources upon completion of an environmental impact assessment, and being the owner of the surface land covering the concession or obtaining written permission from the owners of those surface lands. This last requirement is in contrast with other systems that consider mining a public interest and therefore either provide for

⁵⁵⁰ Studnicki-Gizbert, “Canadian Mining in Latin America (1990 to present),” *supra* note 549 at 95-6.

⁵⁵¹ White, *The History of El Salvador*, *supra* note 537 at 112.

⁵⁵² *Ley de Inversiones (Investment Law)*, Legislative Decree 732, 14 October 1999; *Ley de Minería (Mining Law)*, Legislative Decree 544, 14 de December 1995, amended by Legislative Decree 475 of 11 July 2001.

⁵⁵³ Metal Mining Sector SEA, *supra* note 540 at 35.

⁵⁵⁴ *Constitución de la República de El Salvador (Constitution of the Republic of El Salvador)*, 15 December 1983, art 103.

access to, or expropriation of, land for mining purposes, requiring compensation of the landowner, but not her consent.⁵⁵⁵

3.3 *Opposition to Metal Mining in El Salvador*

By the early 2000s approximately 29 companies had obtained exploration concessions in El Salvador, but no exploitation concessions were in operation.⁵⁵⁶ At the same time, environmental organizations, communities and civil society groups began raising objections to metal mining projects due to the risks they posed to water and health, especially given the grave water pollution and availability issues already facing El Salvador. In 2005, a number of local communities, environmental groups and civil society organizations formed the National Roundtable Against Metal Mining (*Mesa Nacional Frente a la Minería Metálica*), known as *La Mesa*, to organize the growing opposition to metal mining. In 2006, *La Mesa* submitted the first proposal to ban metal mining in the country.⁵⁵⁷ A poll conducted in 2007 found that almost 70% of the population opposed metal mining in their community.⁵⁵⁸ In May 2007, the government informed mining companies that “all mining activity in El Salvador would be halted until such time as the Government completed a ‘Strategic Environmental Assessment’.”⁵⁵⁹

This became a *de facto* moratorium when, in March 2008, then President Elias Antonio Saca Gonzalez publicly said he opposed mining in principle and would work with the

⁵⁵⁵ For example, under the free entry system followed by most provinces in Canada, or as per article 19 (IV) of Mexico’s Mining Law, respectively. *Ley Minera*, 26 June 1992, as amended 8 November 2014.

⁵⁵⁶ Metal Mining Sector SEA, *supra* note 540 at 34.

⁵⁵⁷ Fundación de Estudios para la Aplicación del Derecho (FESPAD), “Nueva propuesta de Ley para prohibir la minería en El Salvador,” (18 September 2013), online: <<http://fespado.org/sv/nueva-propuesta-de-ley-para-prohibir-la-mineria-en-el-salvador/>> (accessed 10 October 2017).

⁵⁵⁸ Instituto Universitario de Opinión Pública, “Survey on Mining Perceptions and Knowledge in Zones Affected by Mining Incursions in El Salvador,” (2007), online: <<http://www.uca.edu.sv/publica/iudop/Web/2008/finalmineria040208.pdf>> (accessed 10 October 2017).

⁵⁵⁹ *Pac Rim Cayman LLC v El Salvador*, (ICSID Case No ARB/09/12), “Award,” (14 October 2016), online: <https://www.italaw.com/sites/default/files/case-documents/italaw7640_0.pdf> (accessed 10 October 2017) at paragraph 6.111, Part VI, p 53 [Pac Rim Award].

legislature to reform the law to permit mining only upon evidence that “gold could be exploited to boost the economy without damaging resources.”⁵⁶⁰

As noted earlier, there was some limited exploration at the time, but no commercial extraction other than by artisanal miners. Two mining projects in particular fuelled concern about metal mining in the country: the El Dorado mine proposal and the San Sebastian mine. As briefly described below, in 2009 the companies behind these projects separately initiated investor-state disputes against El Salvador.

3.4 Two Mining Investor Disputes against El Salvador

In 2002, the Canadian company Pacific Rim acquired exploration rights for El Dorado—a gold and silver mine that had operated from the late 1940s to 1953. In 2004, Pacific Rim applied for an exploitation concession for El Dorado, in addition to pursuing exploration concessions in other nearby areas. The government of El Salvador generally encouraged Pacific Rim’s projects, but did not grant the company the exploitation concession for El Dorado. In response, in 2009 Pacific Rim initiated an investor-state dispute before the International Center for Settlement of Investment Disputes (ICSID) against El Salvador for costs incurred and profits lost.⁵⁶¹ The company claimed that it was entitled to the mining concession it had requested in 2004, that it had been misled by the government, and that it had been deprived of its rights and anticipated profits by the *de facto* ban of mining established in March 2008. Pacific Rim sought upwards of US\$77 million from El Salvador in compensation.⁵⁶² After the Australian company OceanaGold

⁵⁶⁰ As cited in *Pac Rim Award*, *supra* note 559 at paragraph 6.125, PVI p 58.

⁵⁶¹ *Pac Rim Cayman LLC v El Salvador*, (ICSID Case No ARB/09/12), online: <<https://icsid.worldbank.org/en/Pages/cases/casedetail.aspx?CaseNo=ARB/09/12>> (accessed 10 October 2017).

⁵⁶² *Pac Rim Cayman LLC v El Salvador*, (ICSID Case No ARB/09/12), “Notice of Arbitration,” (30 April 2009), online: <https://www.italaw.com/sites/default/files/case-documents/ita0591_0.pdf>.

bought Pacific Rim in 2013, it increased the claim to US\$314 million.⁵⁶³ As Emily Achtenberg has pointed out, this amount is “roughly equal to two percent of El Salvador’s GDP, and half of its education budget.”⁵⁶⁴ The arbitration was initiated under the Dominican Republic-Central America-United States Free Trade Agreement (CAFTA-DR)⁵⁶⁵ and the Investment Law of El Salvador.⁵⁶⁶ The arbitration tribunal found it had jurisdiction under Salvadoran law but not under CAFTA-DR, and heard the case under the former.⁵⁶⁷ Seven years later, in October 2016, the tribunal ruled in favor of El Salvador.⁵⁶⁸ It found that Pacific Rim had no right to receive an exploitation concession because it had not fulfilled the requirements for such a concession, in particular the need to show ownership of the surface land covering the concession or the authorization of the surface owners. The tribunal awarded El Salvador US\$8 million for costs, which OceanaGold reportedly paid with interest in July of 2017.⁵⁶⁹

The other notable case concerns the San Sebastian mine. This mine had been in operation for different periods of time since the early 1900s. The US company Commerce

⁵⁶³ *Pac Rim Cayman LLC v El Salvador*, (ICSID Case No ARB/09/12), “Memorial of the Merits and Quantum,” (28 March 2013), online: <<https://www.italaw.com/sites/default/files/case-documents/italaw1425.pdf>>.

⁵⁶⁴ Emily Achtenberg, “Resistance to Mining in El Salvador,” (Winter 2014) 13:2 *ReVista—Harvard Review of Latin America*, David Rockefeller Center for Latin American Studies, online: <<https://revista.drclas.harvard.edu/book/resistance-mining-el-salvador>>.

⁵⁶⁵ *Dominican Republic–Central American–United States Free Trade Agreement Between the United States* (signed 5 August 2005) and *El Salvador* (signed 17 December 2004); *Honduras* (signed 3 March 2005); *Guatemala* (signed 10 March 2005); *Dominican Republic* (signed September 2005); *Nicaragua* (signed 11 October 2005); and *Costa Rica* (signed 7 October 2007) [CAFTA-DR].

⁵⁶⁶ *Investment Law*, *supra* note 552.

⁵⁶⁷ *Convention on the Settlement of Investment Disputes Between States and Nationals of Other States* (March 1965, entered into force on 14 October 1966) [ICSID Convention]. The Republic of El Salvador signed the ICSID Convention on 9 June 1982, and it entered into force in El Salvador on 5 April 1984. Online: ICSID <<https://icsid.worldbank.org/en/Pages/about/Database-of-Member-States.aspx>>.

⁵⁶⁸ *Pac Rim Award*, *supra* note 559.

⁵⁶⁹ “Minera paga compensación de \$8 millones a El Salvador,” (3 July 2017) online: *El Mundo* <<http://elmundo.sv/minera-paga-compensacion-de-8-millones-a-el-salvador/>> (accessed 29 October 2017); Interest on this payment was also awarded, as recognized by the tribunal in its 28 March 2017 “Decision on the Respondent’s Request for a Supplementary Decision,” online: <https://www.italaw.com/sites/default/files/case-documents/italaw8735_0.pdf> (accessed 29 October 2017).

Group, Inc. (Commerce hereafter) bought the mine in 1968, and operated it until it was forced to close during the civil war. In 1987 the company obtained a new concession to operate the mine, but due to low mineral prices it did not resume operations until 1995. After having suspended production in 2000, Commerce obtained new concessions and environmental permits in 2002 to resume operating the mine.⁵⁷⁰ However, in 2006 severe water contamination was documented in the river near the San Sebastian mine,⁵⁷¹ and the Ministry of Environment and Natural Resources revoked Commerce's environmental authorization following an environmental audit. Having lost its right to operate the mine, in March 2009, Commerce initiated an investor-state dispute process under CAFTA, similar to that launched by Pacific Rim.⁵⁷² Commerce sought upwards of US\$1 million. In March 2011, the ICSID tribunal determined that it did not have jurisdiction under CAFTA because Commerce was pursuing the same matters in court within El Salvador (unsuccessfully, as it turned out).⁵⁷³ In July 2011, Commerce sought an annulment of this determination, arguing the ICSID tribunal had exceeded its jurisdiction and failed to provide reasons for its decision. However, as Commerce did not pay the annulment proceedings fees due, the tribunal terminated the case in August 2013 without considering the merits of the annulment request.

⁵⁷⁰ Pacheco Cueva, *An Assessment of Mine Legacies and How to Prevent Them*, *supra* note 537 at 15.

⁵⁷¹ Metal Mining Sector SEA, *supra* note 540 at 46.

⁵⁷² *Commerce Group Corp & San Sebastian Gold Mines, Inc v The Republic of El Salvador*, (ICSID Case No ARB/09/17), online: <<https://www.italaw.com/cases/296>> (accessed 31 October 2017).

⁵⁷³ *Commerce Group Corp & San Sebastian Gold Mines, Inc v The Republic of El Salvador*, (ICSID Case No ARB/09/17), "Award," (14 March 2011) online: <<https://www.italaw.com/sites/default/files/case-documents/ita0202.pdf>> (accessed 31 October 2017). The Supreme Court of El Salvador decided both cases against Commerce on 18 March and 28 April 2010. PDDH, *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*, (San Salvador, January, 2016) at 46, online: Procuraduría para la Defensa de los Derechos Humanos (PDDH) <https://issuu.com/pedrocabezas/docs/informe_especial_pddh_legado_de_la> (accessed 6 December 2017).

3.5 *Prohibiting Metal Mining in El Salvador*

Since its creation in 2005, *La Mesa* relentlessly campaigned for a permanent prohibition of metal mining, even gaining the support of the influential Salvadoran Catholic church in 2007.⁵⁷⁴ In September 2011, the government's Strategic Environmental Assessment of the metal mining sector was completed, documenting multiple serious obstacles for effectively addressing the environmental impacts and risks of metal mining activities in El Salvador, including the gravity of potential impacts to health and water resources, and the government's insufficient capacity to manage them.⁵⁷⁵ The fact that the country was being sued by foreign companies, as described above, and the favorable 2016 arbitration award in the Pacific Rim case, contributed to strengthening support for a mining ban within El Salvador.⁵⁷⁶ Finally, on 29 March 2017 El Salvador became the first country in the world to adopt a law prohibiting all surface and subsurface metal mining.

The Law Prohibiting Metal Mining (*LPMM*) is brief.⁵⁷⁷ It bans all metal mining activities as well as the use of toxic chemicals in metal mining; cancelled all pending licensing procedures; and prohibits future government acts that allow or enable metal mining. The *LPMM* charged the Ministry of Economy with closing all mines and coordinating the remediation of mining sites—the latter in conjunction with the Ministry of Environment and Natural Resources. The ban includes artisanal mining, establishing a

⁵⁷⁴ Conferencia Episcopal de El Salvador, *La Explotación Minera en El Salvador: Cuidemos la Casa de Todos*, (3 May 2007), online: Iglesia Católica en El Salvador <<http://alc-noticias.net/es/2017/10/09/como-la-iglesia-catolica-logro-que-se-aprobara-la-ley-de-prohibicion-de-la-mineria-metalica-en-el-salvador/>> (accessed 5 November 2017).

⁵⁷⁵ Metal Mining Sector SEA, *supra* note 540.

⁵⁷⁶ Robin Broad & John Cavanagh, "El Salvador Votes for Water Over Gold," (4 April 2017), online: The Nation <<https://www.thenation.com/article/el-salvador-votes-for-water-over-gold/>> (accessed 11 October 2017).

⁵⁷⁷ *Ley de Prohibición de la Minería Metálica* (Law Prohibiting Metal Mining), Decree 639, 29 March 2017 [*LPMM*].

two-year period for those practicing it—known as *güiriseros*—to transition to alternative economic activities, with the support of the state.

3.6 The Law Prohibiting Metal Mining from the Lens of Ecological Law

What are the implications for a shift to ecological law of this first law worldwide prohibiting metal mining? The analysis that follows reflects on the *LPMM* from the perspective of the *lens of ecological law* proposed in Chapter 2.⁵⁷⁸ To recall, this *lens* comprises three principles: *ecocentrism*, *ecological primacy* and *ecological justice*.

3.6.1 Ecocentrism

Ecocentrism: recognize and respect the value of all beings and the interconnectedness among them, equitably promoting the interests of human and nonhuman members of the Earth community

This principle 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. The provision of the *LPMM* that best reflects the metal mining ban's view of this relationship is paragraph I of its Preamble, which states:

THE LEGISLATIVE ASSEMBLY OF THE REPUBLIC OF EL SALVADOR, CONSIDERING:

I. That article 1 of the Constitution of the Republic recognizes the human person as the origin and end of State activity and that it is the State's obligation to ensure its inhabitants the enjoyment of health; and in article 117, the Constitution establishes that it is the duty of the State to protect natural resources, as well as the

⁵⁷⁸ The sections of the law cited herein are my translation of the original Spanish text.

diversity and integrity of the environment in order to guarantee sustainable development.⁵⁷⁹

The reference to “the human person as the origin and the end of State activity” unambiguously reflects an anthropocentric vision underlying the *LPMM*. There are no elements of *ecocentrism* in the mining ban. The *LPMM* in no way recognizes other beings and their interconnectedness with humans, but refers instead to natural resources and the environment as objects to which humans have entitlements. There is no indication of support for a worldview in which humans are part of nature and no more important than other life. Finally, while the mining ban may have positive implications for non-human beings in terms of avoided impacts and given the requirement to restore sites affected by mining, there is nothing in the *LPMM* equally promoting the interests of human and nonhuman members of the Earth community.

3.6.2 Ecological Primacy

Ecological Primacy: ensure that social and economic behavior and systems are ecologically bound, respecting Planetary Boundaries

This principle involves several related elements: ensuring human development is pursued without irreversibly impairing ecological integrity or crossing Planetary Boundaries; constraining material and energy use within ecological limits; and promoting the restoration and maintenance of ecological integrity.

As noted in Chapter 2, *ecological primacy* implies that law should be informed by the scientific understanding of Earth Systems, ecosystems and the relationships of human activities and these systems. The prohibition of metal mining is an example of this. In

⁵⁷⁹ *LPMM*, Preamble.

establishing the ban, the legislature considered the available scientific knowledge concerning the impacts of metal mining on human and ecosystem health alongside evidence of severe environmental degradation in El Salvador. Referencing domestic and international expert reports, the *LPMM* clearly establishes in its Preamble the aim to avoid pushing the country's water resources beyond ecological limits and the understanding that metal mining involves the risk of pushing these limits.⁵⁸⁰ As the campaign for the ban on metal mining called for, the *LPMM* effectually prioritizes water (ecological values) over gold (short-term economic gain).⁵⁸¹ Also, the "law is of public order and its provisions will prevail over any other to the contrary."⁵⁸² The recognition of El Salvador's ecological vulnerability and of the potential negative environmental impacts of mining that are the basis of this law strongly resonate with the principle of *ecological primacy*, even though the *LPMM* does not use the term "ecological integrity" or make any reference to Planetary Boundaries.

In addition, the *LPMM* addresses at its source the problem of ecological degradation from mining. Rather than attempting to mitigate the negative impacts of

⁵⁸⁰ The relevant paragraphs of the Preamble to the *LPMM*, read:

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 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 country's inhabitants, 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 for 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.

⁵⁸¹ E.g. Broad & Cavanagh, "El Salvador Votes for Water Over Gold," *supra* note 576.

⁵⁸² *LPMM*, art 9.

metal mining through “sustainable mining” standards,⁵⁸³ El Salvador chose to prevent further potential harm to ecological values by prohibiting the activity altogether. It is a precautionary approach in line with *ecological primacy*, but a further question is whether the *LPMM* amounts to a shift in paradigm. It seems, rather, to be a case in which the sustainable development calculation—whereby environmental, social and economic concerns are balanced—turned out (exceptionally enough) in favour of environmental concerns because the economic advantages of metal mining were found to be insufficient to compensate for its environmental and social disadvantages.⁵⁸⁴ Instead of this balancing, an ecological paradigm would conceive of economic benefits only within the limits of what is ecologically viable. The end result, given the levels of ecological degradation in El Salvador, would likely also be to disallow metal mining, but simply because it is ecologically unviable, not because its economic benefits are not deemed great enough.

Another question from the perspective of this principle is whether the law constrains material and energy use within ecological limits. While the *LPMM* seems to narrowly focus on banning the extraction and production of metals within the country,⁵⁸⁵ arguably it also indirectly constrains material and energy use in El Salvador. Prohibiting an extractive activity like metal mining will have implications for energy and material use in the country. Presumably, the consumption of energy and materials and the generation of waste that would have occurred directly and indirectly as a result of metal

⁵⁸³ Pacific Rim had promised to do this in El Dorado. Pac Rim Award, Part III, at 6.

⁵⁸⁴ The Metal Mining Sector SEA discusses the options in these terms and points out that there is not enough information regarding the level of mineral resources that El Salvador could benefit from if it were to decide to allow metal mining. Metal Mining Sector SEA, *supra* note 540 at 77.

⁵⁸⁵ The purpose of the *LPMM* is “to prohibit surface and subsurface metal mining in the territory of the Republic [of El Salvador].” *LPMM*, art 1.

mining will be averted. This avoided consumption would include, for example: water, fuel, electricity, machinery, chemicals and other materials used in mining operations (extraction, processing, refining, packaging and transporting); consumption of water, energy and materials within the country and abroad enabled by the income generated by the metal mining activities; land use changes caused by mining activities (forest cover or other habitat loss, agricultural land loss/displacement); wastes and pollution discharged into water, air or soil. However, the materials and energy diverted from mining may be used for other activities with an ecological footprint of their own, which is why an ecological paradigm shift ultimately requires a transformation across all sectors and jurisdictions.

From the perspective of *ecological primacy* it is also interesting to note that the *LPMM* does not deal generally with the use of metals in the Salvadoran economy. For example, it does not promote alternative sources of metals that have comparatively lower material and energy throughputs than extraction, whether in El Salvador or abroad. That is, nothing indicates that because El Salvador recognizes the negative impacts of metal mining it therefore intends to use less metals, or to substitute the foregone locally-sourced metals with metals produced with less ecological impact elsewhere. Indeed, the net effect of the ban could be worse for *ecological primacy* if El Salvador's consumption levels of metals were to remain the same and the metals it could have produced locally (although mostly precious metals which are arguably non-essential)⁵⁸⁶ were imported from a jurisdiction that has worse practices and/or involves additional ecological impacts from transport. In contrast, a jurisdiction applying ecological law would arguably limit metals consumption to those required to satisfy basic needs within that jurisdiction, use

⁵⁸⁶ Metal Mining Sector SEA, *supra* note 540 at 36-37.

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.⁵⁸⁷ This is the kind of logic that ecological law would promote to satisfy the need for metals, in contrast to the current logic based on promoting ever-increasing consumption to generate profit.

The restoration of areas affected by mining is another important aspect of the *LPMM* from the perspective of *ecological primacy*. The law provides for “the environmental remediation of damages caused by the mines in the regions affected, to restore the conditions of a healthy environment for the population.”⁵⁸⁸ However, the law and its regulations, published in June 2017,⁵⁸⁹ do not provide guidance on how remediation will be carried out or further delineate what “the conditions of a healthy environment for the population” are in practice. From an ecological law perspective, the goal would be to restore ecological integrity to the greatest degree possible, focusing on the health of the ecosystem as a whole (including people), rather than only on achieving an environment that is healthy for people. The challenge of adopting and implementing this standard in the Salvadoran context of severe ecological degradation, immediate basic human needs and limited technical and financial resources⁵⁹⁰ is hard to overstate. The most serious environmental liability in El Salvador is acid drainage that has been flowing from an abandoned mine into the San Sebastian River for 15 years.⁵⁹¹ This is one of the most important rivers of the Municipality of Santa Rosa de Lima, yet people living in the

⁵⁸⁷ For a discussion of minerals use based on needs, see Sbert, “*Re-imagining Mining*,” *supra* note 529 at 84-90.

⁵⁸⁸ *LPMM*, art 6.

⁵⁸⁹ Regulations for the Implementation of the Law Prohibiting Metal Mining, published in the Official Gazette, Vol 415, No 101, (2 June 2017) (under the heading “Prohibition of Metal Mining and Progressive Prohibition of Artisanal Metal Mining”) (my translation) [*LPMM Regulations*].

⁵⁹⁰ Metal Mining Sector SEA, *supra* note 540 at 75.

⁵⁹¹ Metal Mining Sector SEA, *supra* note 540 at 46.

area say they have never been able to drink its water or use it for domestic purposes.⁵⁹²

Remediation of the San Sebastian mine will involve removal of infrastructure and sources of further contamination like stockpiled chemicals and wastes; closing the still-open shaft of the mine; stopping the ongoing acid drainage from the mine; and eliminating the high levels of heavy metals in the river and soil; as well as reforestation of degraded areas.⁵⁹³

In summary, while the recognition of ecological limits behind the ban on metal mining and its repercussions for materials and energy use are in line with *ecological primacy*, the *LPMM* falls short of promoting the restoration and maintenance of ecological integrity.

3.6.3 Ecological Justice

Ecological Justice: ensure equitable access to the Earth's sustaining capacity for present and future generations of humans and other beings, and avoid the inequitable allocation of environmental harms

This principle of the *lens of ecological law* includes intragenerational, intergenerational and interspecies equity.⁵⁹⁴ The questions it raises include 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. It also queries whether environmental harms are equitably distributed among current and future generations of humans and other beings.

⁵⁹² Metal Mining Sector SEA, *supra* note 540 at 46-47.

⁵⁹³ Metal Mining Sector SEA, *supra* note 540 at 47.

⁵⁹⁴ See section 2.2.3 above.

The *LPMM* does not make references to intragenerational, intergenerational or interspecies equity.⁵⁹⁵ 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 that threaten health and livelihoods.⁵⁹⁶ Many Salvadorans saw their already inadequate or vulnerable access to water, health and food as fundamentally threatened by metal mining activities that would benefit only a few Salvadorans, while generating wealth for foreign investors. These are clearly concerns about equitable access to the region's sustaining capacity and unfair exposure to environmental harms (albeit only for humans) that coincide with the principle of *ecological justice*.

Concern for intragenerational equity is also visible in the *LPMM*'s aims to safeguard the wellbeing of the human person and "the Salvadoran family," to protect water and to avoid environmental harms resulting from mining.⁵⁹⁷ The mandated restoration of areas affected by mining to address existing harms also reflects a concern for intra- and inter-generational equity and inequitable exposure to harm. The *LPMM* seems to have fallen short, however, on providing for compensation of the people harmed by the effects of metal mining, despite the Metal Mining Sector SEA recommendation for "social compensation" of those affected by mining through existing social programs.⁵⁹⁸

In terms of interspecies equity, (and as noted above regarding the principle of *ecocentrism*) in the *LPMM* there is no stated concern for equity towards other beings as

⁵⁹⁵It could also be argued that *inter*- and *intra*-generational equity—two key elements of sustainable development—are goals implied in the mining ban because the *LPMM* invokes sustainable development as part of the Salvadoran constitutional framework and as a goal threatened by metal mining (in paragraphs I and V of its preamble, respectively).

⁵⁹⁶ Metal Mining Sector SEA, *supra* note 540 at 26-27.

⁵⁹⁷ *LPMM*, Preamble.

⁵⁹⁸ Metal Mining Sector SEA, *supra* note 540 at 78.

members of the Earth community with rights to life, habitat and the ability to perform their role in the ecosystem.⁵⁹⁹ At best, there are potential unintended benefits to other beings from the aim of protecting the environment, water and forests.⁶⁰⁰ For example, of the country's twenty Important Bird Areas, four are also areas of mineral potential and the ban on metal mining spares birds and other beings that depend on these areas the impacts of mineral extraction.⁶⁰¹

Also, as noted above regarding the principle of *ecological primacy*, the *LPMM* does not address the use of metals within El Salvador, which from the perspective of *ecological justice* would be based on basic needs and the fair distribution of, and restraint on, wealth. This would require the difficult exercises of considering what metals are for, prioritizing basic needs and restricting or eliminating harmful or superfluous uses.

Finally, because of their implications for equitable use of resources and distribution of environmental harms, the *LPMM* provisions regarding artisanal mining are of special interest from the perspective of *ecological justice*. As mentioned earlier, the *LPMM* grants artisanal miners a two-year grace period before the ban is effective on their operations,⁶⁰² and stipulates that the government will provide aid to support a transition to other economic activities.⁶⁰³ According to Pacheco Cueva, artisanal small-scale mining

⁵⁹⁹ As per Thomas Berry, see section 1.2.2 above.

⁶⁰⁰ The *LPMM* states: "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 for consuming important amounts of water in all its operation phases, with the probability of destroying landscapes, polluting the air and generating social conflict."

⁶⁰¹ Metal Mining Sector SEA, *supra* note 540 at 10. IBAs are identified based on the criteria established by BirdLife International: online at <<http://datazone.birdlife.org/site/ibacriteria>> (accessed 15 November 2017).

⁶⁰² However, presumably these operations were illegal under the previous mining law, because no exploitation could occur without a permit (*Ley de Minería*, 1995, art 16), and the Ministry of Economy suspended the granting of permits in 2008. See Pacheco Cueva, *An Assessment of Mine Legacies and How to Prevent Them*, *supra* note 537 at 36-37.

⁶⁰³ *LPMM*, art 2.

continued in San Sebastian (where the former Commerce Group mine operated) after the government stopped granting mining authorizations in 2008.⁶⁰⁴ There are serious, yet insufficiently studied and diagnosed, health impacts related to artisanal mining for *güiriseros*, their families, neighbors and others in near-by communities.⁶⁰⁵ The income these activities generate is unknown, but it is estimated to be only supplemental for the great majority of those practicing small-scale artisanal mining.⁶⁰⁶ Still, Pacheco Cueva cautions that “any alternatives chosen have more chances of success if these are able to generate at least the US\$0.72 million that ASGM activity currently generates.”⁶⁰⁷ Information about how the government will support *güiriseros* in transitioning away from artisanal metal mining is not yet available. The Regulations for the Implementation of the Law Prohibiting Metal Mining published in June 2017 only add that credit under preferential conditions and other types of support will be facilitated for ‘productive reconversion’ under the direction of the Ministry of Economy.⁶⁰⁸ Following adoption of the *LPMM*, a group of 600 *güiriseros* stated that they would not respect the ban, claiming that their activities do not pose a risk to the environment, their own health and that of others.⁶⁰⁹ Given lack of progress on the part of the government, a year after the *LPMM*

⁶⁰⁴ Pacheco Cueva, *An Assessment of Mine Legacies and How to Prevent Them*, *supra* note 537 (discussing—prior to the 2017 metal mining ban—the challenges facing the *güiriseros* of this area of El Salvador, at 36-40).

⁶⁰⁵ Pacheco Cueva, *An Assessment of Mine Legacies and How to Prevent Them*, *supra* note 537 at 28-31, 40-41.

⁶⁰⁶ Pacheco Cueva, *An Assessment of Mine Legacies and How to Prevent Them*, *supra* note 537 at 36-38.

⁶⁰⁷ Writing before the mining ban was adopted and citing recommendations from a 2015 risk assessment of 15 mining contaminated sites: JP Domínguez et al, *Evaluación final de riesgos y propuesta de medidas de remediación en 15 pasivos ambientales mineros de El Salvador*, (San Salvador; Fundación Maquilishuatl, FIAES, MINEC, 2015); Pacheco Cueva, *An Assessment of Mine Legacies and How to Prevent Them*, *supra* note 537 at 52 (references omitted).

⁶⁰⁸ *LMPP Regulations*, art 3.

⁶⁰⁹ “El Salvador’s Guiriseros Vow to Continue Mining after Ban,” (20 May 2017), online: TV Sur <<https://www.telesurtv.net/english/news/El-Salvadors-Guiriseros-Vow-to-Continue-Mining-After-Ban-20170521-0003.html>> (accessed 19 September 2018).

was adopted artisanal miners appear to be working towards its reform to permanently exempt artisanal mining from the metal mining ban.⁶¹⁰

From the perspective of *ecological justice*, the transition of *güiriseros* to other activities is an opportunity for transformation. It would have to be approached holistically and go beyond supporting new economic endeavors for the *güiriseros*, to creating whole new relationships with their environment and communities. It would have to include redressing the harm to health and the environment, including medical attention to health impacts suffered by artisanal miners, their families and neighbors; and restoration of the sites, forests and waterways that have been impacted, with the goal of regaining the greatest possible levels of ecological integrity. It would also have to ensure the new economic activities in which *güiriseros* engage are ecologically viable and consistent with the equitable sharing within and between generations of humans and other beings of the sustaining capacity of the region. Lastly, it would have to be planned and implemented with the active participation of legally, financially, technically and materially empowered and enabled *güiriseros*, their families and local communities.

3.7 Conclusion

The *LPMM* may not amount to a shift in paradigm towards ecological law, but it is an important precedent for this shift. By foreclosing metal extraction and ordering the restoration of degraded areas in light of the country's stressed ecological systems the metal mining ban establishes a precedent in favor of decisions that recognize ecological sustainability as a precondition for viable societies and economies. Although the *LPMM*

⁶¹⁰ Andrés McKinley, "Cuidado El Salvador: la "minería verde" es un mito," (14 June 2018), online: Nodal <www.nodal.am/2018/06/cuidado-el-salvador-la-mineria-verde-es-un-mito-por-andres-mckinley/> (accessed 19 September 2018).

is not grounded on an ecocentric worldview—which makes it vulnerable to shifting short-term human interests—its partial recognition of *ecological primacy* may also be an opening for *ecocentrism* because it implies acknowledgement of the interconnectedness of the Earth community of which humans are part. Finally, from the perspective of *ecological justice*, the transition for artisanal miners and the projected restoration of affected areas open up opportunities to improve equitable access to the region's sustaining capacity and reduced exposure to environmental harms for current and future generations of its human and non-human inhabitants.

The *LPMM* could also potentially inspire ecologically centered decisions in other areas. For example, concern about the availability of water and its quality in El Salvador was, as discussed earlier, a major driver for the metal mining ban. While the ban may have removed an important threat to water resources, El Salvador lacks an overarching framework regulating the use, conservation and quality of water. As proposals for a water law are being debated,⁶¹¹ lawmakers could look to the precedent set by the *LPMM* and introduce ecologically-based constraints for other uses of water, and measures for the restoration of watersheds degraded by other economic activities.

In practice, implementation of the *LPMM* seems to have been limited to the cancellation of concessions and there appears to be no progress in the areas of remediation of contaminated sites or support to artisanal miners to transition to other activities. Also, some argue that foreign mining interests (OceanaGold, who still owns some lands in the El Dorado area) continue to work towards the exploitation of minerals

⁶¹¹ Liliana Martínez, “Ley de Agua, otra deuda de la Asamblea Legislativa,” (16 October 2017), online: El Diario de Hoy <<http://www.eldiariodehoy.com/noticias/nacional/61515/ley-de-agua-otra-deuda-de-la-asamblea-legislativa/>> (accessed 20 November 2017).

under the guise of philanthropic community projects, by promoting “green mining.”⁶¹² Environmental groups are concerned that changes in the legislature might lead to the repeal of the *LPMM* and are calling for the ban on metal mining to be constitutionally enshrined.⁶¹³ Whatever happens to the *LPMM*, the steps in the direction of ecological law it represents will remain an important precedent for El Salvador and others to build on.

Proposing a blueprint to adopt an ecological law approach to mining in El Salvador is not the purpose of this case study, but the following recommendations can be drawn from it:

- Maintaining the metal mining ban in El Salvador.
- Framing it within a larger program that regulates the use and import of metals based on needs and creatively implements the *LPMM*'s provisions on restoration of mining sites and on the transition of artisanal miners, based on objectives set with the active participation of affected persons and communities, guided by *ecological justice*.

⁶¹² McKinley, “Cuidado El Salvador,” *supra* note 610.

⁶¹³ Mirina García (Vanguardia), “Threats to the Law Against Metallic Mining,” (7 May 2018), online: International Allies Against Mining in El Salvador <<http://www.stopesmining.org/news/salvadoran-mining-ban/532-threats-to-the-law-against-metallic-mining-vanguardia>> (accessed 22 August 2018).

CHAPTER 4 – MINING IN CANADA’S RING OF FIRE FROM THE *LENS OF ECOLOGICAL LAW*

4.1 *Brief Context*

Ontario’s Far North is a lightly populated region covering 42 percent of the province’s territory, with First Nations people making up more than 90 percent of the population of 24,000, living in 31 communities.⁶¹⁴ The region is exceptional for its ecological features.⁶¹⁵ In 2008, mining companies discovered substantial mineral potential in an area of approximately 5,000 km² in the central part of the Far North region,⁶¹⁶ now known as the Ring of Fire.⁶¹⁷ The area lies within the traditional territories of nine Ojibway and Cree First Nations (FN): Aroland, Constance Lake, Eabametoong, Ginoogaming, Long Lake #58, Marten Falls, Neskantaga, Nibinamik and Webequie. These First Nations are united under the Matawa Tribal Council⁶¹⁸ and are also members of the Provincial Territorial Organization Nishnawbe Aski Nation (NAN).⁶¹⁹ Webequie is the community closest to the Ring of Fire.

⁶¹⁴ Ontario, “About the Far North,” online: Far North of Ontario <www.ontario.ca/rural-and-north/far-north-ontario> (accessed 1 October 2018).

⁶¹⁵ The Far North Science Advisory Panel, *Science for a Changing Far North*, *supra* note 535 at xi.

⁶¹⁶ Jed Chong, *Resource Development in Canada: A Case Study on the Ring of Fire* (Background Paper), (Library of Parliament, Ottawa, Canada, 2014, Publication No 2014-17-E) at 1, 12 (and maps, at 2, 3); The Far North Science Advisory Panel, *Science for a Changing Far North*, *supra* note 535 at 65.

⁶¹⁷ Chong, *Resource Development in Canada*, *supra* note 616 at 1.

⁶¹⁸ Matawa means “mouth of river” and was chosen because “the Chiefs and the Elders taught that it was best to name their organization to recognize that the rivers were their life line for their existence.” Matawa First Nations Management, “What Matawa Means,” online: Matawa First Nations Management <www.matawa.on.ca/aboutus/what-matawa-means/> (accessed 9 January 2018).

⁶¹⁹ Nishnawbe Aski Nation, online: <www.nan.on.ca> (accessed 9 January 2018).



Location of the Ring of Fire and First Nations in the Far North of Ontario. Source: Meg Southee, “A picture paints a thousand words, but a map paints a million!” (19 November 2014), available at: <<http://muddybootswcs.blogspot.com/2014/11/a-picture-paints-thousand-words-but-map.html>>

In July 2008 the Ontario government launched the Far North Planning initiative, announcing it would protect at least 225,000 km² (more than half of the Northern Boreal) in an interconnected network of conservation lands,⁶²⁰ later formalized as part of the *Far North Act, 2010*.⁶²¹ In 2010, the Far North Science Advisory Panel “was asked by the Province of Ontario to consider the state of scientific knowledge about the Far North, and

⁶²⁰ Ontario, “Protecting Ontario’s Northern Boreal Forest, Area One-And-A-Half Times the Size of the Maritimes Set Aside For Permanent Protection,” (Office of the Premier of Ontario, News Release, 14 July 2008), cited in Far North Planning Advisory Council, *Consensus Advice to the Ontario Minister of Natural Resources*, (March 2009), online: <<http://wildlandsleague.org/attachments/274245.pdf>> (accessed 12 December 2017) at Appendix 1.

⁶²¹ *Far North Act, 2010*, SO 2010, c 18 [*Far North Act*].

provide scientific advice relevant to land use planning decisions in that region in support of community based land use planning.”⁶²² Their final report described the ecological importance of this region thus:

Large intact landscapes like the Far North are rare. In a global context, the Hudson Bay Lowland of the Far North contains one of the Earth’s largest peatland complexes. In the ‘Boreal Shield’ ... region to the south and west lies the core of the largest single extant block of boreal forest free from large-scale anthropogenic disturbance anywhere in the world. These peatland and forest systems constitute globally important stores of carbon, mediate ecosystem hydrology, and modify local and regional climates. They are interconnected through the movement of water, air, and organisms, among them federally and provincially-listed endangered and threatened species, and other species of concern.⁶²³

The Far North region has already been impacted by economic activities like mining, hydroelectric development and forestry,⁶²⁴ and will undergo important changes in the coming decades due to climate change.⁶²⁵ According to the Environmental Commissioner of Ontario, mining and related development in the Ring of Fire will have multiple types of environmental impacts, including loss and fragmentation of habitat, major rivers, wetlands and peatlands; impacts on groundwater flow and surface waters;

⁶²² The Far North Science Advisory Panel, *Science for a Changing Far North*, *supra* note 535 at x.

⁶²³ The Far North Science Advisory Panel, *Science for a Changing Far North*, *supra* note 535 at xi.

⁶²⁴ See e.g. 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],” (Working Paper), (Thunder Bay; Toronto, ON: Wildlife Conservation Society & Ecojustice, 2014), online: <https://www.wcscanada.org/Portals/96/Documents/RSEA_Report_WCSCanada_Ecojustice_FINAL.pdf> (accessed 22 August 2017) at 25-38.

⁶²⁵ See The Far North Science Advisory Panel, *Science for a Changing Far North*, *supra* note 535 at 41-52 and 53-74 (for a description of “activities taking place within the Far North that can be managed to minimize or eliminate the loss of biodiversity and/or ecological function”).

air, soil and water pollution; and disturbance of wildlife.⁶²⁶ Impacts from mineral prospecting are already apparent in the Ring of Fire.⁶²⁷

In terms of mineral potential, the Ministry of Northern Development and Mines describes the Ring of Fire as “[o]ne of Ontario’s most exciting mineral development opportunities in almost a century.”⁶²⁸ As related by Chong:

In 2008, the first commercial quantities of chromite in North America were discovered in the Ring of Fire. Chromite is used to make ferrochrome, an alloy that is a component of stainless steel. The mineral is also valued for its ability to improve the hardness, toughness and resistance to corrosion of other products; for example, chromite can be used to protect auto parts, appliances and a variety of other products.

Four countries currently account for 80% of the world’s chromite production: South Africa, Kazakhstan, Turkey and India. China purchases approximately half of the world’s supply, and the United States buys about 15%. The chromite in the Ring of Fire could meet North American needs for two centuries.

Exploration in the region has also revealed other minerals, such as copper, nickel, gold, zinc, titanium, vanadium, platinum, and palladium... [Of the discoveries in the area,] only the Black Thor chromite deposit and the Eagle’s Nest nickel-copper deposit have led to proposals for further development.⁶²⁹

⁶²⁶ Environmental Commissioner of Ontario (ECO), *Serving the Public: Annual Report 2012/2013*, (October 2013), online: ECO <<http://docs.assets.eco.on.ca/reports/environmental-protection/2012-2013/2012-13-AR.pdf>> (accessed 13 December 2017) at 66.

⁶²⁷ Jody Porter, “Mining Exploration Causing Permanent Damage in Ring of Fire, Wildlands League Says,” (29 Jun 2015), online: CBC News <<http://www.cbc.ca/news/canada/thunder-bay/mining-exploration-causing-permanent-damage-in-ring-of-fire-wildlands-league-says-1.3129705>> (accessed 11 August 2017); Wildlands League, (video) <<https://vimeo.com/148702660>> (accessed 11 August 2017).

⁶²⁸ Ontario, Ministry of Energy, Northern Development and Mines, “Ontario Mineral Development Strategy 2015,” online: <www.mndm.gov.on.ca/sites/default/files/mndm_mds_english_2015.pdf> (accessed 29 June 2018) at 10 [Ontario Mineral Development Strategy 2015].

⁶²⁹ Chong, *Resource Development in Canada*, *supra* note 616 at 3 [reference omitted].

Diamond prospectors first identified the area in 2002 and mining companies then discovered substantial mineral potential in 2007 and 2008,⁶³⁰ concentrated within a 20-kilometre long strip.⁶³¹ According to the Ministry of Energy, Northern Development and Mines there are approximately 21 companies who hold claims in the area.⁶³² In 2014, the Ontario Chamber of Commerce counted “over 12,000 claim units staked ... in the Ring of Fire, for a total of approximately 192,500 total hectares of staked land.”⁶³³

Cliffs Natural Resources Inc.—the company that launched the first official proposal to mine chromite in the Ring of Fire—abandoned its project in 2013 and sold its assets to Noront Resources Ltd. in 2015.⁶³⁴ Noront plans to build a ferrochrome furnace complex for processing in Ontario and is currently the only mining company actively pursuing a mine in the area, albeit to exploit its Eagle’s Nest nickel-copper (rather than chromite) deposits.⁶³⁵

⁶³⁰ The Far North Science Advisory Panel, *Science for a Changing Far North*, *supra* note 535 at 65.

⁶³¹ Chong, *Resource Development in Canada*, *supra* note 616 at 1.

⁶³² Ontario, Ministry of Energy, Northern Development and Mines, “Exploration and Development,” online: Ring of Fire Secretariat <<https://www.mndm.gov.on.ca/en/ring-fire-secretariat/exploration-and-development>> (accessed 28 September 2018).

⁶³³ J Hjartarson, L McGuinty & S Boutilier, with E Majernikova, *Beneath the Surface: Uncovering the Economic Potential of Ontario’s Ring of Fire*, (Toronto, ON: Ontario Chamber of Commerce, 2014) at 30.

⁶³⁴ Noront Resources Ltd, *Noront: Annual Report for the Year Ended 31 December 2016*, online: <http://www.annualreports.com/HostedData/AnnualReportArchive/n/TSX-V_NOT_2016.pdf> (accessed 28 September 2018) at 6.

⁶³⁵ The Eagle’s Nest project is described as follows: “Noront Resources Ltd. is proposing the construction, operation, decommissioning and abandonment of an underground nickel-copper-platinum multi-metal mine, an on-site metal mill, and a facility for the extraction of 358,000 cubic metres per annum of groundwater. The proposed mine, located approximately 540 kilometres north of the city of Thunder Bay, Ontario and 240 kilometres west of James Bay in the Ring of Fire mining area, would have an ore production capacity of approximately 2,960 tonnes per day, with an anticipated mine life of approximately 11 years. The on-site metal mill would have an ore input capacity of 2,960 tonnes per day.” Canadian Environmental Assessment Agency, “Eagle Nest Project,” online: CEA Registry <www.ceaa.gc.ca/050/details-eng.cfm?evaluation=63925> (accessed 27 June 2018).

Despite the Ring of Fire's mineral potential, some question the feasibility of its development. The main reasons are the challenge of negotiating with the area's First Nations and the lack of transport and energy infrastructure in the remote area.⁶³⁶

The *Far North Act* (mentioned earlier and discussed repeatedly below) was supposed to foster a collaborative context for development of the Far North by establishing a framework for community based land use planning and conservation.⁶³⁷ Instead, the Act is "viewed by First Nations in NAN as an invalid law and a new form of colonialism"⁶³⁸ and its implementation has been limited. The Act calls for the adoption of a Far North Land Use Strategy, which has not been finalized.⁶³⁹ In the Ring of Fire area, progress on land-use planning amounts so far to the publication in 2013 and 2014 of terms of reference for four First Nations community land use plans.⁶⁴⁰

On 26 March 2014 the Matawa First Nations and the Ontario government signed a Regional Framework Agreement establishing a community-based negotiation process

⁶³⁶ Jody Porter, "Ring of Fire Mining Development Still Years Away from Delivering on a Decade of Hype," (30 January 2017), online: CBC News <www.cbc.ca/news/canada/thunder-bay/ring-of-fire-talks-1.3955236> (accessed 27 June 2018).

⁶³⁷ *Far North Act*, 2010, SO 2010, c 18.

⁶³⁸ Nishnawbe Aski Nation, "Ontario's Far North Act," online: <www.nan.on.ca/article/ontarios-far-north-act-463.asp> (accessed 9 January 2018) (providing a detailed critique of the Act). See also H 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?," (2012) 3:2 *The International Indigenous Policy Journal* 7; MA (Peggy) Smith, "A Reflection on First Nations in their Boreal Homelands in Ontario: Between a Rock and a Caribou," (2015) 13:1 *Conservation & Society* 23; and 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," (Thesis submitted to the Faculty of Graduate Studies of the University of Manitoba in partial fulfillment of the requirements for the degree of Doctor of Philosophy), (University of Manitoba, Winnipeg, Manitoba, Canada, 2012).

⁶³⁹ Ontario, "Far North Land Use Strategy," online: Government of Ontario <<https://www.ontario.ca/page/far-north-land-use-strategy>> (accessed 4 October 2018).

⁶⁴⁰ The communities are Constance Lake FN (February 2014), Eabametoong FN (July 2013), Marten Falls FN (November 2013), and Webequie FN (July 2014). Ontario, "Land Use Planning Process in the Far North," online: Government of Ontario <<https://www.ontario.ca/page/land-use-planning-process-far-north>> (accessed 4 October 2018).

focusing on land management, revenue sharing and capacity building.⁶⁴¹ Detailed information on these negotiations is not publicly available, but it appears to be advancing slowly. According to the 2017-2018 Matawa Chiefs Council Report, the framework has been restructured and the First Nations are working with Ontario to establish joint working groups to pursue negotiations on four pillars: environment, socio-economic, infrastructure and revenue sharing.⁶⁴² On 27 September 2018, the Regional Framework process was described as “stalled” by Kiiwetinoong Member of Provincial Parliament Sol Mamakwa.⁶⁴³ (Section 4.2 below briefly outlines the jurisdiction issue underlying these negotiations.)

On the matter of access to the remote area, the province of Ontario has committed to developing the infrastructure to support mineral development in the region with a billion dollars.⁶⁴⁴ In August 2017, Ontario and Webequie, Nibinamik and Marten Falls First Nations announced plans for all-seasons roads connecting those communities and the Eagle’s Nest mine project area to the existing transportation network.⁶⁴⁵ In May 2018, Webequie FN signed an agreement with Ontario to conduct a voluntary environmental

⁶⁴¹ *Regional Framework Agreement Between Matawa First Nations (individually) and Her Majesty the Queen in Right of Ontario*, (signed 26 March 2014), online: <www.mndm.gov.on.ca/sites/default/files/rof_regional_framework_agreement_2014.pdf> (accessed 29 June 2018).

⁶⁴² Matawa First Nations Management, *2017-2018 Chiefs Council Report*, (Thunder Bay, Ontario: Matawa First Nations Management, 2018), online: <<http://www.matawa.on.ca/wp-content/uploads/2013/11/WEB-VERSION-2017-2018-Chiefs-Council-Report.pdf>> (accessed 3 October 2018) at 5.

⁶⁴³ Matt Prokopchuk, “Framework Agreement between Matawa, Ontario ‘Stalled’ MPP Says,” (27 September 2018), online: CBC News <<https://www.cbc.ca/news/canada/thunder-bay/regional-framework-stalled-qp-1.4841265>> (accessed 28 September 2018).

⁶⁴⁴ Ontario, “Ontario Establishes Ring of Fire Infrastructure Development Corporation,” (28 August 2014), online: Government of Ontario Newsroom Archive <<https://news.ontario.ca/mndmf/en/2014/08/ontario-establishes-rof-infrastructure-development-corporation.html>> (accessed 4 October 2018).

⁶⁴⁵ Ontario, “Ontario and First Nations Moving Ahead With Road to Ring of Fire,” (News release, Office of the Premier, 21 August 2017), online: <<https://news.ontario.ca/opo/en/2017/08/ontario-et-les-premieres-nations-progredient-dans-le-projet-de-construction-dune-route-pour-le-cerc.html>> (accessed 22 August 2017).

assessment of the project.⁶⁴⁶ First Nations that were not part of this project criticized the government for divisive tactics.⁶⁴⁷ For their part, conservationists condemned the government for failing to carry out prior regional planning and stated they have “seen no effort to strategically assess what is at stake ecologically before introducing mines, roads and transmission lines into one of the world’s last intact wild areas.”⁶⁴⁸

Others have also raised questions about the ecological impact of development in the area and made detailed recommendations aimed at protecting the unique ecological features of the Far North, including the Far North Advisory Council in 2009 and the Far North Science Panel in 2010.⁶⁴⁹ The Annual Report for 2012/13 of the Environmental Commissioner of Ontario contains a section entitled “Looking before we leap: Making informed decisions for the Far North and the Ring of Fire,” in which the Commissioner calls for environmental monitoring and a strategic environmental review that includes cumulative impacts.⁶⁵⁰ Scholars Cole Atlin and Robert Gibson have also argued for effective cumulative effects assessment, especially in relation to mining development.⁶⁵¹ Among other recommendations, conservationists have called on the Ontario government to “[e]stablish a mandatory R-SEA [Regional-Strategic Environmental Assessment]

⁶⁴⁶ Ontario, “Webequie Supply Road Project,” online: Government of Ontario <www.ontario.ca/page/webequie-supply-road-project> (accessed 28 September 2018).

⁶⁴⁷ Northern Ontario Business Staff, “Wynne’s Office Releases Ring of Fire Letter to Matawa Chiefs,” (12 May 2017), online: Northern Ontario Business <<https://www.northernontariobusiness.com/industry-news/mining/wynnes-office-releases-ring-of-fire-letter-to-matawa-chiefs-614012>>; and Northern Ontario Business Staff, “Sidelined First Nations vow to halt Ring of Fire road construction plans,” (25 August 2017), online: Bay Today News <<https://www.baytoday.ca/local-news/sidelined-first-nations-vow-to-halt-ring-of-fire-road-construction-plans-703309>> (both accessed 11 December 2017).

⁶⁴⁸ Cheryl Chetkiewicz & Justina Ray, “Ontario’s Ring of Fire Development Plan Has Major Flaws,” (Opinion, 29 May 2017), online: thestar.com <<https://www.thestar.com/opinion/commentary/2017/05/29/ontarios-ring-of-fire-development-plan-has-major-flaws.html>> (accessed 11 December 2017).

⁶⁴⁹ Wildlands League, “Ring of Fire: Background Information,” online: Wildlands League <<http://wildlandsleague.org/project/ring-of-fire>> (accessed 22 August 2017).

⁶⁵⁰ ECO, *Annual Report 2012/13*, *supra* note 626 at 75.

⁶⁵¹ Cole Atlin & Robert 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,” (2017) 4 Extr Ind Soc 36.

process for the mining sector and related infrastructure in Ontario's Far North" and specifically recommend that "a R-SEA process should be required for the Ring of Fire before project-based environmental assessments and approvals can proceed."⁶⁵²

4.2 Indigenous Jurisdiction

The issue of jurisdiction is a challenge for the development of the Far North generally, and the Ring of Fire specifically. Under Canadian law, the provinces have jurisdiction over natural resources,⁶⁵³ and as a general rule, the Crown owns minerals.⁶⁵⁴ From the perspective of the Crown, under the James Bay Treaty, or Treaty 9, the traditional territories of the Matawa First Nations were surrendered to the Crown, with members of the First Nations maintaining a right to use these lands "until such lands might be 'taken up' by the government for a variety of purposes including settlement, mining and lumbering."⁶⁵⁵ The Ring of Fire is located on lands assumed as Crown lands by the province of Ontario.⁶⁵⁶ Thus, under Canadian law, the province of Ontario owns the minerals in the Ring of Fire and has jurisdiction to regulate their extraction.

However, the eight Matawa First Nations who are parties to Treaty 9 (all except Long Lake #58 FN) do not interpret the treaty as having involved the surrender of their

⁶⁵² Chetkiewicz & Lintner, "Getting it Right in Ontario's Far North: *supra* note 624 at iv.

⁶⁵³ *The Constitution Act, 1867*, 30 & 31 Vict, c 3, s 92A(1).

⁶⁵⁴ Barry Barton, *Canadian Law of Mining*, (Calgary: Canadian Institute of Resources Law, 1993) at 1.

⁶⁵⁵ As Nigel Banks explains: "Canada's land cession treaties, and specifically the numbered treaties of Ontario and the western provinces, all contain similar although not identically worded surrender clauses... The numbered treaties also contain a hunting clause that provides that the members of the First Nation party to the treaty may continue to hunt on and otherwise use the surrendered lands until such lands might be 'taken up' by the government for a variety of purposes including settlement, mining and lumbering ... from a very early period in Canadian history, the courts confirmed that the numbered treaties provided a secure basis from which industry might obtain resource rights from the Crown. *St Catherine's* confirmed as well that the relevant Crown would ordinarily be the Crown in right of the province..." Nigel Banks, "The Implications of the Tsilhqot'in (William) and Grassy Narrows (Keewatin) Decisions of the Supreme Court of Canada for the Natural Resources Industries," (2015) 33:3 J Energy & Nat'l Res L 188 at 208-9.

⁶⁵⁶ Ontario, "Crown Land Use Policy Atlas," online: <<https://www.ontario.ca/page/crown-land-use-policy-atlas#section-3>> (accessed 10 October 2018).

lands to the Crown and have a different view on jurisdiction over their traditional territories.⁶⁵⁷ The Matawa First Nations do not appear to have made a claim of Aboriginal title in the courts. Their own description of the history and conflicting interpretations of Treaty 9 is worth citing at length:

The James Bay Treaty (Treaty No. 9) was one of the last numbered treaties to be signed in Canada. It is the only treaty in Canada that was signed by a province. It was first signed in 1905 and 1906 by the Canadian Government, the Ontario Government, and the Cree, Ojibway and Algonquin Nations of what is now known as Northern and Northwestern Ontario. The nations who signed in 1905-06 included those people occupying the area south of the Albany River. Adhesions with the remaining Cree and Ojibway nations north of the Albany River were signed in 1929 and 1930.

Two Different Understandings of the Treaty

There is very little agreement between the treaty partners, (First Nations, Canada, and Ontario) as to what the Treaties mean today.

The Cree and Ojibway firmly believed that they signed treaties that afforded them protection and assistance from a benevolent king as well as a land sharing and resource sharing arrangement. The First Nations assert that they never gave up their land or their right to govern themselves. Matawa leaders assert that the act of entering treaty represented recognition of their nationhood. They state that they agreed to oral promises when they signed their treaties, many of which do not find expression in the Treaty text. This treaty understanding is passed down through the Elders in the oral transmission and tradition.

⁶⁵⁷ According to the Truth and Reconciliation Commission: “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.” TRC, *Honouring the Truth, Reconciling for the Future*, *supra* note 315 at 1.

The Crown, on the other hand, saw the Treaty as a necessary step towards completely removing Indian title. The Dominion of Canada wanted to fulfil an ambitious political vision to expand its transportation, settlement and industrial networks and needed to sign treaties with the remaining Aboriginal nations who had not yet entered into these arrangements. The crown governments (Ontario and Canada) rely solely on the textual version of the treaty terms, the main feature of which is the surrender of a landmass in Northern Ontario encompassing almost 250,000 square miles [approximately 647,500 square km].

These and other disagreements on what the treaty means is the legacy that has endured and which has yet to be sorted out among the parties. Over a century later, the treaty partners are still struggling with the two polarized perspectives on the treaty. These two different understandings of the treaties is impacting First Nations and their treaty partners in many areas, but especially in the area of lands and resources. The Crown believes that it has jurisdiction on the land, whereas First Nations believe that the creator made them stewards of the land, water animals and resources on their homelands and traditional territories and that they have shared jurisdiction with Ontario.⁶⁵⁸

Moreover, in their Unity Declaration of 13 July 2011, the Matawa First Nations affirm their inherent right of self-determination and control of their traditional territories and assert their “Aboriginal and Treaty rights to the land, water and resources by requiring [their] written consent before any development activity may proceed.”⁶⁵⁹

The ability of Indigenous Peoples to control activities on their lands is a key element of the 2007 United Nations Declaration on the Rights of Indigenous Peoples

⁶⁵⁸ Matawa First Nations Management, “Treaty–James Bay Treaty No. 9,” online: <<http://www.matawa.on.ca/66-2/>> (accessed 9 January 2018).

⁶⁵⁹ Matawa Chiefs Council, *Unity Declaration*, (Thunder Bay, Ontario: Matawa First Nations Management, 13 July 2011), online: <<http://www.matawa.on.ca/wp-content/uploads/2013/12/Mamow-Wecheekapawetahteewiin-Unity-Declaration-Signed-July-13-2011.pdf>> (accessed 3 October 2018).

(UNDRIP).⁶⁶⁰ In 2015, the Truth and Reconciliation Commission called “upon federal, provincial, territorial, and municipal governments to fully adopt and implement the United Nations Declaration on the Rights of Indigenous Peoples [UNDRIP] as the framework for reconciliation.”⁶⁶¹ Canada has vowed to do so, and federally, this is the aim of MP Romeo Saganash’s Private Member’s *Bill C-262*, “*An Act to ensure that the laws of Canada are in harmony with the United Nations Declaration on the Rights of Indigenous Peoples*,” currently being reviewed by the Senate.⁶⁶² While it uses other terms, UNDRIP recognizes Indigenous jurisdiction primarily as follows:

Article 26

1. Indigenous peoples have the right to the lands, territories and resources which they have traditionally owned, occupied or otherwise used or acquired.
2. Indigenous peoples have the right to own, use, develop and control the lands, territories and resources that they possess by reason of traditional ownership or other traditional occupation or use, as well as those which they have otherwise acquired.
3. States shall give legal recognition and protection to these lands, territories and resources. Such recognition shall be conducted with due respect to the customs, traditions and land tenure systems of the indigenous peoples concerned

...

Article 32

1. Indigenous peoples have the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources.

⁶⁶⁰ *United Nations Declaration on the Rights of Indigenous Peoples*, GA Res 61/295, UNGAOR, 2007, arts 3, 4, 26, 32 [UNDRIP].

⁶⁶¹ TRC, *Honouring the Truth, Reconciling for the Future*, *supra* note 315 at 325.

⁶⁶² *Bill C-262, An Act to Ensure that the Laws of Canada Are in Harmony with the United Nations Declaration on the Rights of Indigenous Peoples*, 1st Sess, 42nd Parl, 2016, (first reading in Senate 31 May 2018).

2. States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources.

3. States shall provide effective mechanisms for just and fair redress for any such activities, and appropriate measures shall be taken to mitigate adverse environmental, economic, social, cultural or spiritual impact.

For its part, Ontario seems committed to participate in implementing UNDRIP, although it is not clear that it fully supports it. The province's website states that "many" of its principles "are consistent with Ontario's approach to Indigenous relations and reconciliation," implying that some are not.⁶⁶³

In addition to the Regional Framework Agreement signed in 2014, Ontario and the Matawa First Nations "are also working in partnership to address jurisdictional concerns."⁶⁶⁴ The 2017-2018 Matawa Annual Report indicates discussions on jurisdiction are occurring in parallel to those on the Regional Framework negotiation pillars (environment, socio-economic, infrastructure and revenue sharing),⁶⁶⁵ and the 2017-2018 Matawa Chiefs Council Report describes some progress on a draft "Statement of

⁶⁶³ Ontario, "The Journey Together: Ontario's Commitment to Reconciliation with Indigenous Peoples," online: Government of Ontario <www.ontario.ca/page/journey-together-ontarios-commitment-reconciliation-indigenous-peoples> (accessed 28 September 2018).

⁶⁶⁴ Ontario, "Ontario and First Nations Moving Ahead With Road to Ring of Fire," (News release, Office of the Premier, 21 August 2017), online: <<https://news.ontario.ca/opo/en/2017/08/ontario-et-les-premieres-nations-progredient-dans-le-projet-de-construction-dune-route-pour-le-cerc.html>> (accessed 22 August 2017). There is no other information regarding this on the Ontario government website and my requests to the Office of the Premier and to the Ring of Fire Secretariat for further information on the "jurisdictional concerns" at issue was not addressed or acknowledged.

⁶⁶⁵ Matawa First Nations Management, *2017-2018 Matawa Annual Report*, *supra* note 642 at 28.

Commitments” between Ontario and the Matawa First Nations.⁶⁶⁶ However, the details of these discussions are not available and it remains to be seen whether Premier Doug Ford will continue negotiations on the Regional Framework pillars or on jurisdiction matters.

Beyond highlighting the critical question of Indigenous jurisdiction, however, an understanding of the Indigenous orders and principles that would apply to mining in the Ring of Fire is beyond the scope of this thesis. The *lens of ecological law* analysis in this chapter focuses on laws and regulations adopted by the province of Ontario in accordance with its own interpretation of Treaty 9 and the framework set by section 35 of the *Constitution Act, 1982*, while only on occasion drawing on Indigenous legal scholarship to ponder potential implications of Indigenous jurisdiction for ecological law.

4.3 Main Rules Regulating Mineral Development in the Ring of Fire

There are many dimensions to mineral development, so a wide variety of rules apply to it, including among others, mining law, labour law and environmental law. Minerals are valued as commodities and as inputs for the production of goods and services. They are coveted symbols and sources of wealth. The rules governing who owns minerals, who can gain access to minerals in order to exploit them and who benefits from their extraction are core elements of mining law and important determinants of intragenerational equity. Since minerals are non-renewable resources, their extraction poses intergenerational questions, as well.

Mining operations create risks for the health of neighbouring communities, they impact and limit access to the landscape and they do so for extended periods of time, perhaps permanently. Local communities sometimes oppose mining projects, even when

⁶⁶⁶ Matawa First Nations Management, *2017-2018 Chiefs Council Report*, *supra* note 642 at 8, 24.

there are expectations of jobs and other economic benefits to compensate for the risks, and this opposition is increasingly met with violence and criminalization.⁶⁶⁷ Mechanisms to allow people in communities potentially affected by mining projects to obtain information about the proposed projects and to have their concerns heard and addressed are now the norm, at least on paper. However, consent is not the aim of these processes, even in the case of Indigenous populations who have the internationally recognized right to determine the appropriate use and development of their territories.⁶⁶⁸

Since the relatively accessible and richer deposits of most ores have been depleted, new deposits are being sought out and exploited in remote areas, or in areas that are important for other land uses, like agricultural lands.⁶⁶⁹ These areas are often inhabited by vulnerable populations, including Indigenous peoples, and also tend to be of high ecological value. Rules determining where mineral extraction is allowed are key determinants of whether the rights of people are respected and valuable land uses and ecosystems are maintained.

Environmental and labour laws, regulations and standards are aimed at minimizing the harm caused by mining through safety and mitigation measures imposed on mining activities and their production and handling of wastes. The failure of these measures—whether by design or implementation—has devastating effects on people and the environment.⁶⁷⁰ Mining profoundly impacts the land even when measures are

⁶⁶⁷ E.g. Jen Moore, Roch Tassé, Chris Jones & Esperanza Moreno, *In the National Interest? Criminalization of Land and Environment Defenders in the Americas- Summary*, (MiningWatch Canada and International Civil Liberties Monitoring Group, 2015).

⁶⁶⁸ *Convention Concerning Indigenous and Tribal Peoples in Independent Countries (No 169)*, 27 June 1989, 72 ILO Official Bulletin 59 [ILO-C169]; and UNDRIP, *supra* note 660.

⁶⁶⁹ E.g. The Gaia Foundation, *UnderMining Agriculture: How the Extractive Industries Threaten Our Food System*, (The Gaia Foundation, 2014).

⁶⁷⁰ See e.g. Jon Azpiri & Ted Chernecki, “4 Years after Mt. Polley, B.C. Could See 2 More Tailings Dam Failures in the Next Decade,” (28 August 2018), online: Global News

successfully implemented and no accidents occur, so mines that are no longer producing have to be properly closed and the sites rehabilitated.⁶⁷¹ Yet this has often not been done, leaving thousands if not millions of abandoned mine sites worldwide, which are sources of often severe, persistent pollution and risks affecting people and ecosystems.⁶⁷² Among the many examples is Giant Mine in Yellowknife, NWT. This is “a 900-hectare maze of dusty tailings ponds, yawning open pits, poisoned water, toxic soil and decaying buildings full of arsenic,” which is expected to cost a billion dollars to clean up and require monitoring indefinitely, since no solution has been found beyond freezing the “quarter-million tonnes of deadly arsenic trioxide dust to keep it dormant in perpetuity.”⁶⁷³ The number of abandoned mines is elusive, but in the Boreal region of Canada alone, there are an estimated 7,000 abandoned or orphaned mines that need rehabilitation.⁶⁷⁴ The National Orphaned/Abandoned Mines Initiative (NOAMI) was created in 2002 to assess issues and make recommendations regarding orphaned and abandoned mines across Canada, including an inventory.⁶⁷⁵ NOAMI describes the legacy problem as follows:

Mining has been central to the Canadian economy for over 100 years, and Canada is a supplier of mineral commodities

<<https://globalnews.ca/news/4415453/mount-polley-tailing-pond-disaster/>> (accessed 1 October 2018); Amnesty International, *A Breach of Human Rights: The Human Rights Impacts of the Mount Polley Mining Disaster, British Columbia, Canada*, (Amnesty International, 2017); and Vincent Bevins, “As Brazil Mine Spill Reaches Ocean, Its Catastrophic Extent Becomes Clear,” (20 December 2015), online: LA Times <<http://www.latimes.com/world/brazil/la-fg-brazil-spill-20151220-story.html>> (accessed 1 October 2018).

⁶⁷¹ Christopher G Sheldon, John E Strongman & Monika Weber-Fahr, “It’s Not Over When It’s Over: Mine Closure Around the World,” (Washington, DC; International Finance Corporation and the World Bank, 2002) online: <<http://siteresources.worldbank.org/INTOGMC/Resources/notoverwhenover.pdf>>.

⁶⁷² MMSD, “Mining for the Future, Appendix C: Abandoned Mines Working Paper,” (IIED and WBCSD, 2002), online: <<http://pubs.iied.org/pdfs/G00882.pdf>> at C-3, C-4.

⁶⁷³ See e.g. Jimmy Thomson, “This Is the Giant Mine,” (9 June 2018), online: The Narwhal <<https://thenarwhal.ca/this-is-giant-mine/>> (accessed 4 October 2018).

⁶⁷⁴ Northwatch & MiningWatch, *The Boreal Below: Mining Issues and Activities in Canada’s Boreal Forest*, (Ottawa, ON; North Bay, ON: Northwatch; MiningWatch Canada, 2008), at 33.

⁶⁷⁵ National Orphaned/Abandoned Mines Initiative, online: <<http://www.abandoned-mines.org/en/>> (accessed 4 October 2018).

worldwide. However, our long history of mining has left many abandoned mine sites that require varying degrees of rehabilitation. In the past, mines became “abandoned” because there was no legislation to make mine owners accountable for the entire mine life cycle, from initial site selection and design through to decommissioning, closure and post-closure. Few understood the potential physical and environmental hazards left behind when companies simply walked away from the site. Today, mining legislation in all Canadian jurisdictions requires mine developers to submit mine closure plans that describe how the site will be progressively rehabilitated throughout its lifecycle and how it will be decommissioned and closed when mining activities cease.⁶⁷⁶

In sum, a complex and diverse set of rules determines what minerals are mined, where, how and who decides, and the inevitable impacts of mining on people and ecological systems depend on these rules and how they are implemented. Without attempting to present a comprehensive summary, the following sections outline the main rules that apply to mining in the Ring of Fire, focusing on: access to minerals and benefits from their extraction; public participation and community consent; rules authorizing mining activities; and rules to minimize harm and establish liability for harm during and after operations. An analysis of these rules from the *lens of ecological law* then follows.

4.3.1 Rules on Access to Minerals and Benefits from their Extraction

As noted earlier, the Crown owns “all ungranted [minerals], subject only to the burden of aboriginal title.”⁶⁷⁷ In Ontario, the *Mining Act* governs disposition of Crown-

⁶⁷⁶ NOAMI Performance Update 2009-2015 (National Orphaned/Abandoned Mines Initiative, 2015) at 16.

⁶⁷⁷ Barton, *Canadian Law of Mining*, *supra* note 654 at 3 [references omitted]

owned minerals,⁶⁷⁸ still based on a form of the “free entry system, also called the free miner or location system, [which] 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.”⁶⁷⁹ A modernization process began with the reform of the *Mining Act* in 2009 and was completed in April 2018.⁶⁸⁰ The changes included, primarily, the establishment of an online map-based system for registering claims (instead of the previous ground staking system),⁶⁸¹ the cell-based delineation of claims, some limitations to the free mining system, and explicit references to Aboriginal and treaty rights.⁶⁸² Consistent with free entry and the Act’s purpose of promoting mining,⁶⁸³ prospecting on Crown lands not subject to rights held by others or excluded from mining is open to anyone who obtains a prospecting license, and licensees can then register mining claims.⁶⁸⁴ Crown lands are open for the recording of mining

⁶⁷⁸ *Mining Act*, RSO 1990, c M.14, s 1. [*Mining Act*] 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, gravel, peat, gas or oil”

⁶⁷⁹ Barton, *Canadian Law of Mining*, *supra* note 654 at 151.

⁶⁸⁰ Ontario, Ministry of Energy, Northern Development and Mines, “Modernizing the Mining Act,” online: Ontario ENDM <www.mndm.gov.on.ca/en/mines-and-minerals/mining-act/modernizing-mining-act> (accessed 2 October 2018) [ENDM].

⁶⁸¹ “On April 10, 2018, Ontario converted Ontario’s manual system of ground and paper staking, and maintaining unpatented mining claims to an online system. All active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. Mining claims are now legally defined by their cell position on the grid and coordinate location in the [Mining Land Administration System] Map Viewer.” ENDM, “Modernizing the Mining Act,” *supra* note 680.

⁶⁸² For critiques of the reform of the *Mining Act* see, among others: Karen Drake, “The Trials and Tribulations of Ontario’s Mining Act: The Duty to Consult and Anishinaabek Law,” (2015) 11 JSDLP 183 (arguing the mining regime in Ontario is unconstitutional despite the reforms); Penelope Simons & Lynda Collins, “Participatory Rights in the Ontario Mining Sector: An International Human Rights Perspective,” (2013) 51:4 J Common Law & Comp Pol 405; Bruce Pardy & Annette Stoehr, “The Failed Reform of Ontario’s Mining Laws,” (2011) 23 J Envtl L & Prac 177.

⁶⁸³ *Mining Act*, s 2. As professors Simons and Collins note: “Ontario’s Mining Act (‘the Act’), first passed in 1873 and significantly amended in 1906, reflects a resource-based economic system which viewed the exploitation of natural capital as *sine qua non* for the success of Canada as a nation. It is not surprising, then, that the Act was systematically designed to encourage and facilitate mining, and conversely, to avoid and/or preclude any significant opposition to this economic activity.” Simons & Collins, “Participatory Rights in the Ontario Mining Sector,” *supra* note 682 at 183 [reference omitted].

⁶⁸⁴ *Mining Act*, ss 18, 19, 27.

claims unless a claim has already been recorded on them, or they are on “restricted” lands, for example, in a provincial park or on land withdrawn from prospecting by the Crown.⁶⁸⁵ Lands for which there is a surface owner are not open if they are in Southern Ontario, unless the surface owner requests that they be opened; and if they are in Northern Ontario, they may be withdrawn from prospecting upon the surface owner’s request.⁶⁸⁶

The reform of the *Mining Act* (and the *Far North Act*) introduced limitations on mineral prospecting and extraction in the Far North, barring it in areas where community based land use planning has not been completed or in areas where mining is inconsistent with the corresponding community based land use plan.⁶⁸⁷ Also, no mining activity is allowed in protected areas established under those plans.⁶⁸⁸ However, the province has discretion to allow prospecting if it decides mining is in “the social and economic interest of Ontario” regardless of it being barred by a community based land use plan⁶⁸⁹ or being located in a protected area.⁶⁹⁰ It is important to remember that the mining claims in the Ring of Fire predate these reforms. They were obtained under the free mining principle that applied throughout the province at the time of the discovery of mineral potential in Ring of Fire (c. 2008) and, as further discussed in section 4.4.2 and 4.4.3 below, they are protected by section 205 of the *Mining Act* and section 14(3) of the *Far North Act*.

⁶⁸⁵ *Mining Act*, ss 28-35.

⁶⁸⁶ *Mining Act*, s 35(1).

⁶⁸⁷ *Mining Act*, ss 30(g), 204(2); *Far North Act*, 2010, s 12(1)1.

⁶⁸⁸ *Far North Act*, s 14 (2).

⁶⁸⁹ *Mining Act*, ss 30, 204; *Far North Act*, s 14(4).

⁶⁹⁰ *Far North Act*, s 14(4); *Mining Act*, s 31.

To extract the minerals in a claim area, leases can be obtained for claims in good standing⁶⁹¹ and on condition that the minerals be processed in Canada (although provisional exemptions can be granted).⁶⁹² In an important amendment to the Act, all leases, and other mining rights under the *Mining Act*, imply an obligation to respect Aboriginal and treaty rights.⁶⁹³ Leases are for renewable terms of twenty-one years, and lessees are required to make yearly payments to the Crown (including royalties in the case of diamonds).⁶⁹⁴ The rate for a licence of occupation is \$5 per hectare per year, for leases it is \$3 per hectare per year, and the mining land tax (which applies to freeholders or patented mining rights) is \$4 per hectare per year.⁶⁹⁵ Mineral rights are transferable, subject to certain rules; for example, a mining lease is transferable with permission from the Minister of Northern Development and Mines.⁶⁹⁶

Mining companies and their shareholders are subject to income taxes on the profit derived from the minerals, although critics note that these are not always effectively collected or invested.⁶⁹⁷ The benefits from mineral extraction may also be shared with the affected communities through arrangements for revenue sharing established with the provincial government and through Impact and Benefit Agreements (IBAs) entered into with the mining companies. Resource revenue sharing is one of the key points of negotiation under the 2014 Regional Framework Agreement noted earlier between the

⁶⁹¹ There are other forms of mineral title, but the lease has become the most favoured one according to Barry Barton. Barton, *Canadian Law of Mining*, *supra* note 654 at 65 and 333-346. *Mining Act* s 81.

⁶⁹² *Mining Act*, s 91.

⁶⁹³ *Mining Act*, s 86(1).

⁶⁹⁴ *Mining Act* s, 154 and O Reg 323/07 Royalty on Diamonds.

⁶⁹⁵ O Reg 45/11, General, ss 2-6.

⁶⁹⁶ *Mining Act*, s 82(10).

⁶⁹⁷ James Wilt, "Canada's Mining Giants Pay Billions Less in Taxes in Canada than Abroad," (16 July 2018), online: The Narwhal <<https://thenarwhal.ca/mining-pay-less-taxes-canada-abroad/>> (accessed 10 October 2018); Maya Stano, "Exploring the Mining Money Trail: Assessing British Columbia's Mining Tax Regime and Unearthing Legal Tools that Foster Greater Returns for Local Communities," 8:1 JSDLP 79.

Matawa First Nations and Ontario.⁶⁹⁸ In April 2017, Marten Falls FN and Norton Resources signed an Exploration and Project Advancement Agreement through which Marten Falls First Nation is provided with “compensation for work taking place on their traditional land” and will become a shareholder of Noront Resources; while the agreement also “defines the discussions that will be used to negotiate a Pre-Development Agreement for the Eagle’s Nest nickel-copper-platinum-palladium mine.”⁶⁹⁹

4.3.2 Rules for Public Participation and Community Consent Regarding Mineral Extraction Projects

Public participation, access to information, notification to affected parties and consultation with Indigenous communities are required for mineral extraction projects in Ontario, but obtaining the consent of communities that may be affected is not. The *Environmental Bill of Rights* establishes mechanisms for the public to be informed about, and provide comments on, decisions by the Ontario government that may affect the environment, including many regarding mining.⁷⁰⁰ Also, if an environmental assessment is carried out for a mining project, the process involves some form of public consultation.⁷⁰¹

The *Mining Act* and the *Far North Act* establish numerous requirements to provide notice of mining related activities to the public and specifically to Indigenous

⁶⁹⁸ Matawa First Nations Management, *2017-2018 Matawa Annual Report*, online: <<http://www.matawa.on.ca/wp-content/uploads/2013/11/WEB-VERSION-2017-2018-Annual-Report.pdf>> (accessed 22 January 2019) at 28.

⁶⁹⁹ Noront Resources, “A Few Words from Noront CEO Alan Coutts,” (June 2017), online: Eagle’s Eye, Noront Resources Newsletter <<http://NorontResourcesresources.com/wp-content/uploads/2017/06/Eagles-Eye-Vol-1-Iss-4-FINAL-1.pdf>> (accessed 10 October 2018) at 1.

⁷⁰⁰ *Environmental Bill of Rights, 1993*, SO 1993, c 28 and O Reg 681/94 - Classification of Proposals for Instruments, ss 10.5.1(2 ii), 10.9.1(1.i), 12.

⁷⁰¹ *Environmental Assessment Act*, RSO 1990, c E.18, ss 6.3(2), 6.4. As noted, environmental assessments are not required for mining but may be carried out on a voluntary basis.

communities.⁷⁰² For example, a proponent of exploration activities is required to submit an exploration plan to the competent authority and to notify any surface rights holders and Aboriginal communities that may be affected.⁷⁰³ Similarly, the proponent of mine production is required to give public notice before commencing, while the government has discretion to require a proponent of advanced exploration to provide such a notice.⁷⁰⁴

Consultation with Indigenous communities is governed by section 35 of the *Constitution Act, 1982*, whereby the Crown has a constitutional duty to consult Indigenous communities when considering decisions or actions—including regarding mineral exploration and extraction projects—that may affect treaty and Aboriginal rights. The *Mining Act* amendments included requirements to consult Indigenous communities before many steps in the mining process, except prospecting and registering mining claims, and also “delegated certain procedural aspects of the consultation process to project proponents through its statutory scheme.”⁷⁰⁵ As the Ministry of Northern Development and Mines (MNDM) explains, “[w]hile the duty to consult is the Crown’s duty, courts have confirmed that the Crown may delegate “procedural aspects” of consultation to third party proponents.”⁷⁰⁶ The *Mining Act* also provides for a dispute resolution process regarding “disputes arising under this Act relating to consultation with Aboriginal communities, Aboriginal or treaty rights or to the assertion of Aboriginal or

⁷⁰² Simons and Collins, however, argue that: “Although the amended Act has provided for some increased transparency and related participatory rights, opportunities for public participation in the early stages of the process are limited or uncertain. There is therefore real concern that in many cases, ‘the train will have left the station’ by the time participation rights become operative [references omitted].” Simons & Collins, “Participatory Rights in the Ontario Mining Sector,” *supra* note 682 at 185.

⁷⁰³ O Reg 308/12 Exploration Plans and Exploration Permits, ss 6, 7.

⁷⁰⁴ *Mining Act*, ss 141, and 140 (1), (3), respectively.

⁷⁰⁵ Ministry of Northern Development and Mines (MNDM), “MNDM Policy: Consultation and Arrangements with Aboriginal Communities at Early Exploration,” (MNDM, version 1.0, September 2012), online: <www.mndm.gov.on.ca/sites/default/files/aboriginal_exploration_consultation_policy.pdf>, (accessed 15 January 2018) at 2.

⁷⁰⁶ MNDM, “MNDM: Policy Consultation and Arrangements with Aboriginal Communities at Early Exploration,” *supra* note 705 at 2.

treaty rights.”⁷⁰⁷ Regulations have not yet been established for an overall dispute resolution process, but the MNDM has adopted an operational policy for dispute resolution related to permits at early exploration.⁷⁰⁸

As noted above, the obligation to consult does not apply to prospecting and claim recording. Even before the online staking system, these were not deemed to be activities that may affect Aboriginal title and rights, despite the fact that prospecting and ground staking can have substantial negative impacts on the land.⁷⁰⁹ Professors Simons and Collins also note that the new online system may also have important effects:

Although all new staking will be virtual rather than actual, and will therefore remove any environmental impact, claims can still be staked on aboriginal lands without prior consultation. While not all claims result in exploration and mine development, by staking and recording a claim a licensee acquires powerful rights under the *Act* in relation to such lands and the mining process is set in motion, giving the claim holder a right to a 21 year mining lease.⁷¹⁰

For its part, UNDRIP establishes the need to obtain the free prior and informed consent (FPIC) of Indigenous peoples in order to carry out activities affecting their

⁷⁰⁷ *Mining Act*, s 170.1(1).

⁷⁰⁸ Ministry of Northern Development and Mines (MNDM), “MNDM Policy: Dispute Resolution at Early Exploration,” (ND), online: MNDM <<https://www.mndm.gov.on.ca/en/mines-and-minerals/mining-act-policies-and-standards>> (accessed 15 January 2018) (“describing MNDM’s approach to implementation of the dispute resolution process established pursuant to s. 170.1 of the Mining Act and O.Reg. 308/12”).

⁷⁰⁹ In contrast, Karen Drake argues that the duty to consult is indeed triggered by prospecting in certain areas of the Far North where there is Aboriginal title or claims to it. She posits that the Ontario mining regime is unconstitutional despite the latest reforms (for this and other flaws) and that additional reforms are required. Drake, “The Trials and Tribulations of Ontario’s Mining Act,” *supra* note 682 at 185-187, 217-218.

⁷¹⁰ Simons & Collins, “Participatory Rights in the Ontario Mining Sector,” *supra* note 682 at 201 [references omitted].

territories, including mining.⁷¹¹ Canada is a signatory of UNDRIP, but has recognized FPIC only as a guiding principle that does not amount to the ability of Indigenous peoples to “veto” an extractive project in their territories.⁷¹² Papillon and Rodon refer to the Canadian constitutional duty to consult as “at best a weak version of FPIC.”⁷¹³ The MNDM policy on consultation cited earlier acknowledges Aboriginal communities and federal and provincial governments have “differing perspectives” on consultation, and states that

Canadian courts have generally not recognized a legal right of First Nations to regulate activities of third parties off reserve or to otherwise require First Nation consent to proposed activities. Ontario is responsible for managing Crown lands and the province’s natural resources while at the same time meeting its constitutional obligations to consult with Aboriginal communities.⁷¹⁴

First Nations in Ontario’s Far North have a different view regarding what is required for development in their territories to be approved. The Chiefs-in-Assembly of Nishnawbe Aski Nation (NAN) have passed a resolution establishing the requirement for

⁷¹¹ UNDRIP, art 32.2 provides: “States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources.”

⁷¹² See e.g. Hans Morten Haugen, “The Right to Veto or Emphasising Adequate Decision-Making Processes?: Clarifying the Scope of the Free, Prior and Informed Consent (FPIC) Requirement,” (2016) 34:3 *Netherlands Quarterly of Human Rights* 250; Paul Joffe, “‘Veto’ and ‘Consent’—Significant Differences,” (31 July 2015), available at: <https://www.afn.ca/uploads/files/2015_usb_documents/veto-and-consent-significant-differences-joffe-final-july-31-15.pdf> (accessed 4 October 2018), at 6; Philippe Hanna & Frank Vanclay, “Human Rights, Indigenous Peoples and the Concept of Free, Prior and Informed Consent,” (2013) 31:2 *Impact Assessment & Project Appraisal* 146; and Tara Ward, “The Right to Free, Prior, and Informed Consent: Indigenous Peoples’ Participation Rights within International Law,” 54 (2011) *Nw J Int’l Hum Rts* 10.

⁷¹³ Martin Papillon & Thierry Rodon, “Proponent-Indigenous Agreements and the Implementation of the Right to Free, Prior, and Informed Consent in Canada,” (2017) 62 *Environmental Impact Assessment Review* 216 at 218.

⁷¹⁴ MNDM, “MNDM Policy: Consultation and Arrangements with Aboriginal Communities at Early Exploration,” *supra* note 705 at 4.

Free Prior and Informed Consent in NAN territory, as follows: “Proposed 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.”⁷¹⁵ As already noted, the Matawa First Nations are members of the NAN, and in their own Unity Declaration, referred to earlier, have also established that development in their traditional territories requires their prior written consent.⁷¹⁶

According to Joffe, “in the Indigenous context, there are significant differences between ‘veto’ and ‘consent’. In contrast to ‘veto’, the term ‘consent’ has been extensively elaborated upon in Canadian and international human rights law.”⁷¹⁷ The Supreme Court of Canada has ruled that consent is required when aboriginal title has been recognized, although the Crown may still overcome refused consent by meeting certain requirements.⁷¹⁸

A separate point to consider is whether the *Far North Act* and *Mining Act* amendment provisions that restrict mining to areas where it is consistent with community based land use plans effectively amount to a requirement of consent from those communities for mining in their territories. Pardy and Stoehr argue that these provisions establish an “Aboriginal ‘planning veto.’”⁷¹⁹ However, while the rules for land use planning certainly require greater participation by communities in decision making about where development (including mining) takes place—even requiring the approval of

⁷¹⁵ Nishnawbe Aski Nation, “Requirement for Free, Prior and Informed Consent in NAN,” (Resolution 10/23), online: <<http://www.nan.on.ca/article/requirement-for-free-prior-and-informed-consent-in-nan-496.asp>> (accessed 9 January 2018).

⁷¹⁶ Matawa Chiefs Council, *Unity Declaration*, *supra* note 659.

⁷¹⁷ Joffe, “‘Veto’ and ‘Consent,’” *supra* note 712 at 8.

⁷¹⁸ *Delgamuukw v British Columbia*, [1997] 3 SCR 1010, *Haida Nation v British Columbia (Minister of Forests)*, [2004] 3 SCR 511; *Tsilhqot’in Nation v British Columbia*, [2014] SCC 44.

⁷¹⁹ Pardy & Stoehr, “The Failed Reform of Ontario’s Mining Laws,” *supra* note 682 at 8-9.

community based land use plans by each of the relevant First Nations' councils—⁷²⁰ the government can approve a mining project and other development despite a community based land use plan to the contrary if “the project is in the social and economic interests of Ontario.”⁷²¹ Also, as Wapshkaa Ma'iingan (Aaron Mills) observes, the government ultimately controls the land use planning process:

The 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; affected First Nations will therefore not be free to develop land use plans in accordance with their own ideas of relating to land or of land use.⁷²²

Finally, it is also important to mention Impact and Benefit Agreements (IBAs) between proponents of extractive projects and Indigenous communities, on which the former increasingly rely to access resources in traditional territories of Indigenous peoples. While not equating them to FPIC or a means for the Crown to satisfy its duty to consult,⁷²³ the *Mining Act* recognizes “arrangements” of this kind as one of the elements to be considered in the decision to grant an exploration permit and on the terms of such a permit and promotes these agreements in its policy on consultation cited earlier.⁷²⁴ As

⁷²⁰ *Far North Act*, s 9(14)(b).

⁷²¹ *Mining Act* s 204(3), and *Far North Act* s 14(4).

⁷²² Wapshkaa Ma'iingan (Aaron Mills), “Aki, Anishinaabek, kaye tahsh Crown,” (2010) 9:1 Indigenous Law Journal 107 at 113, footnote 15.

⁷²³ According to Papillon & Rodon, IBAs are not an appropriate means of obtaining FPIC because they are usually narrow and closed processes, while FPIC “requires both negotiations and deliberation at the community level in order to clearly establish the legitimacy of the project prior to its approval.” Papillon & Rodon, “Proponent-Indigenous Agreements and the Implementation of the Right to Free, Prior, and Informed Consent in Canada,” *supra* note 713 at 220.

⁷²⁴ *Mining Act*, s 78.3(2)(b); MNDM, “MNDM Policy: Consultation and Arrangements with Aboriginal Communities at Early Exploration,” *supra* note 705 at 10-13. For an analysis of provincial policies on consultation and accommodation, including this one, in light of the Supreme Court of Canada decisions *Haida Nation*, *Taku River* and *Mikisew Cree*, see Rachel Ariss, Clara MacCallum Fraser & Diba Nazneen

mentioned above, at least one agreement of this kind has been signed in the Ring of Fire so far, between Marten Falls FN and Norton Resources.⁷²⁵

4.3.3 Rules Authorizing Mining Activities

Each step of the mining process is subject to different requirements under the *Mining Act*, which are (broadly) as follows. Prospecting requires completing a “Mining Act awareness program” to obtain a licence.⁷²⁶ Early exploration requires observing specific provincial standards, and in some cases, submitting plans and obtaining a permit.⁷²⁷ In order to carry out advanced exploration⁷²⁸ and to start mine production⁷²⁹ the proponent must give notice to the designated authorities, and public notice if required; conduct consultations with Indigenous communities; submit a certified closure plan⁷³⁰

Somani, “Crown Policies on the Duty to Consult and Accommodate: Towards Reconciliation?,” (2017) 3:1 McGill Journal of Sustainable Development Law 1.

⁷²⁵ Noront Resources, “A Few Words from Noront CEO Alan Coutts,” *supra* note 699.

⁷²⁶ *Mining Act*, s 9(1).

⁷²⁷ *Mining Act*, s 72; Provincial Standards for Early Exploration (effective April 10, 2018); and O Reg 308/12 Exploration Plans and Exploration Permits.

⁷²⁸ Under *Mining Act*, s 139(1) “‘advanced exploration’ means the excavation of an exploratory shaft, adit or decline, the extraction of prescribed material in excess of the prescribed quantity, whether the extraction involves the disturbance or movement of prescribed material located above or below the surface of the ground, the installation of a mill for test purposes or any other prescribed work.”

⁷²⁹ Under *Mining Act*, s 139(1) “‘mine production’ means mining that is producing any mineral or mineral-bearing substance for immediate sale or stockpiling for future sale, and includes the development of a mine for such purposes; (‘production minière’).” *Mining Act* s 1 defines “mine” as follows: “‘mine’, when used as a noun, includes, (a) any opening or excavation in, or working of, the ground for the purpose of winning any mineral or mineral bearing substance, (b) all ways, works, machinery, plant, buildings and premises below or above the ground relating to or used in connection with the activity referred to in clause (a), (c) any roasting or smelting furnace, concentrator, mill, work or place used for or in connection with washing, crushing, grinding, sifting, reducing, leaching, roasting, smelting, refining or treating any mineral or mineral bearing substance, or conducting research on them, (d) tailings, wasterock, stockpiles of ore or other material, or any other prescribed substances, or the lands related to any of them, and (e) mines that have been temporarily suspended, rendered inactive, closed out or abandoned, but does not include any prescribed classes of plant, premises or works; (‘mine’). ‘mine’, when used as a verb, means the performance of any work in or about a mine, as defined in its noun sense, except preliminary exploration.”

⁷³⁰ Under *Mining Act*, s. 139 (1) “closure plan” means a plan to rehabilitate a site or mine hazard that has been prepared in the prescribed manner and filed in accordance with this Act and that includes provision in the prescribed manner of financial assurance to the Crown for the performance of the closure plan requirements.”

and provide (confidential) financial assurances.⁷³¹ (Provisions for closure and rehabilitation are noted in section 4.3.4 below.)

Also, as mentioned earlier, in the Far North prospecting and new mines are only allowed in areas where there is a community based land use plan and if mining is consistent with the plan,⁷³² except “if the project is in the social and economic interests of Ontario.”⁷³³ The planning process includes the adoption of a Far North Land Use Strategy setting out (among other things) land use designations and overall guidance for the planning teams of specific community based land use plans. The Act requires that every community based land use plan contain the following:

Mandatory contents of plan

- (9) A land use plan prepared under subsection (6) shall,
- (a) specify the prescribed category of land use designation to which areas in the planning area belong, if categories of land use designations have been prescribed;
 - (b) specify land use designations in the planning area and the development, land uses and activities that are permitted or are not permitted in the area to which each such designation applies, if no categories of land use designations have been prescribed;
 - (c) designate one or more areas in the planning area as protected areas;
 - (d) specify to which category of protected area each protected area belongs, if categories of protected areas are prescribed;
 - (e) describe how the plan has addressed the significant cultural and ecological features, land uses and land use designations for areas adjacent to the planning area that the joint planning team has identified; ...⁷³⁴

⁷³¹ *Mining Act*, ss 140-145.

⁷³² *Mining Act*, s 30(g), 204(2); *Far North Act*, 2010, s 12(1)1.

⁷³³ *Mining Act*, s 204(2)

⁷³⁴ *Far North Act*, s 9(9).

A Draft Far North Land Use Strategy was released for public consultation in September 2015. The final strategy, scheduled for Spring 2016, is not yet available.⁷³⁵

As noted earlier, terms of reference for community based land use plans have been developed for four of the Matawa First Nations communities: Eabametoong FN (July 2013), Marten Falls FN (November 2013), Constance Lake FN (February 2014) and Webequie FN (July 2014).⁷³⁶ The Terms of Reference for the Webequie First Nation Community Based Land Use Plan, for example, set out a vision whereby traditional uses and also traditional sharing of areas with adjacent communities will be maintained, while also taking into account the above cited objectives mandated by the *Far North Act*.⁷³⁷ Mining is one of ten foreseen “planning subjects” in the Terms of Reference for the Webequie First Nation Community Based Land Use Plan. These state that the land use plan will: “reflect a consensus on the balance between areas of exploration and areas excluded from exploration; and [] provide compatible zoning to support desired opportunities.”⁷³⁸ The Terms of Reference envisioned that a Final Land Use Plan would be posted to the Environmental Registry in the fall of 2015, but this is yet to occur.⁷³⁹ The other plans have not been finalized either.

⁷³⁵ Ontario, *Far North Land Use Strategy: A Draft*, online: Far North Land Use Strategy <<https://www.ontario.ca/page/far-north-land-use-strategy>> and <<http://apps.mnr.gov.on.ca/public/files/er/draft-far-north-strategy-2015-09-29.pdf>> (accessed 22 January 2019).

⁷³⁶ Ontario, “Land Use Planning Process in the Far North,” *supra* note 640.

⁷³⁷ Webequie First Nation & the Ministry of Natural Resources and Forestry, “Webequie First Nation: Community Based Land Use Plan-Terms of Reference, 2014,” (Webequie First Nation & the Ministry of Natural Resources and Forestry, July 2014), online: <<http://apps.mnr.gov.on.ca/public/files/er/webequie-terms-of-reference.pdf>> (accessed 2 October 2018), at 2 [Webequie First Nation CBLUP-TOR]

⁷³⁸ Webequie First Nation CBLUP-TOR, *supra* note 737 at 7.

⁷³⁹ Webequie First Nation CBLUP-TOR, *supra* note 737 at 10; Ontario Environmental Registry, “Policy Proposal Notice: Webequie First Nation Community Based Land Use Plan,” (EBR Registry No. 012-2120; 28 July 2014, updated 20 March 2017), online: <<https://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MTIyNjc4&statusId=MTgzOTU2&language=en>> (accessed 2 October 2018).

As mentioned earlier, it is not mandatory to conduct an environmental assessment for mines in Ontario,⁷⁴⁰ and a federal one is required only for large mines and regarding limited issues of federal jurisdiction, (under *CEAA, 2012*).⁷⁴¹ The proponent may voluntarily submit the project to an environmental assessment process under the province's *Environmental Assessment Act*.⁷⁴²

The Eagle's Nest Project—the only current mine proposal in the Ring of Fire—is undergoing a federal comprehensive study environmental assessment⁷⁴³ and a provincial environmental assessment as per a voluntary agreement between Noront Resources and the Ontario Ministry of the Environment and Climate Change, signed in September 2011.⁷⁴⁴ In December 2013 Noront Resources released a document termed “Draft Environmental Impact Statement and Environmental Assessment Report (EIS/EA) for Eagle's Nest,”⁷⁴⁵ but does not appear to have submitted it to either Ontario or the CEA Agency. While there is no evidence of progress since 2015, both the federal and provincial environmental assessment online registries mark these reviews as ongoing.⁷⁴⁶

⁷⁴⁰ According to MiningWatch Canada: “It is well within the bounds of the Environmental Assessment Act (Section 3b) for the government to designate mining as reviewable as was done for landfill projects. Up to now, it has simply chosen not to.” MiningWatch Canada, *The Big Hole: Environmental Assessment and Mining in Ontario*, (Report prepared by MiningWatch Canada for the Canary Research Institute, December 2014) at 4.

⁷⁴¹ MiningWatch Canada, *The Big Hole*,” *supra* note 740 at 6.

⁷⁴² *Environmental Assessment Act*, RSO 1990, c E.18, s 3.

⁷⁴³ The federal review for this project is governed by the *CEAA* in force before the current *CEAA, 2012*. Government of Canada, Canadian Environmental Assessment Registry (CEA Registry), “Eagle's Nest Project,” online: CEA Registry <<http://ceaa-acee.gc.ca/050/details-eng.cfm?evaluation=63925>> (accessed 2 October 2018).

⁷⁴⁴ Ontario, “Noront Eagle's Nest Multi-metal Mine,” online: Government of Ontario <<https://www.ontario.ca/page/noront-eagles-nest-multi-metal-mine>> (accessed 2 October 2018).

⁷⁴⁵ Noront, “Projects-Environmental Assessment-Eagle's Nest Ni-Cu-PGE Mine,” online: <<http://norontresources.com/projects/eagles-nest-mine/reserves-resources>> (accessed 2 October 2018).

⁷⁴⁶ The Canadian Environmental Assessment Agency (CEA Agency) released the final Environmental Impact Statement (EIS) Guidelines in January 2012, and renewed them until 20 January 2018. As of 4 October 2018, there is no further information on the CEA Agency project website regarding the status of the review process, other than a note that it is in progress. CEA Agency, “Notice of Environmental Impact Statement Guidelines Renewal,” online: CEA Registry <<http://ceaa-acee.gc.ca/050/details-eng.cfm?evaluation=63925>> accessed 2 October 2018. The Terms of Reference for the provincial

Environmental assessment is one of the topics for negotiation under the 2014 Matawa First Nations-Ontario Regional Framework Agreement. As noted, there is little information on these negotiations, but in their announcement of the Regional Framework Agreement, the Matawa First Nations noted that “the First Nations will negotiate an Environmental Assessment (EA) process with Ontario” which “will include meaningful First Nation participation, consultation, decision making and will consider the accumulated impacts of more than one development. It will also include the social and cultural impacts of development.”⁷⁴⁷

4.3.4 Rules to Minimize Harm and Establish Liability for Harm during and after Operations

An array of requirements aimed at minimizing harm to the environment and establishing liability for harm during and after mining operations are found in a number of statutes and regulations including the *Mining Act*, the *Environmental Protection Act*, the *Ontario Water Resources Act*, and the *Endangered Species Act*, among others.⁷⁴⁸ The overall scheme is that those carrying out mining activities are responsible for making notifications, submitting documentation and obtaining authorizations, and are subject to substantial requirements set in the different statutes and regulations, or in their individual approved plans and permits, as elaborated below. For their part, different officials within government (the competent minister, enforcement officers, etc.) grant, deny or amend

environmental assessment were approved in June 2015. Ontario, “Noront Eagle’s Nest Multi-metal Mine,” *supra* note 744.

⁷⁴⁷ Matawa First Nations, “Regional Framework Update: Ontario and Matawa Member First Nations Celebrate Historic Framework for Negotiations on the Ring of Fire,” (24 April 2014), online: Matawa First Nations <http://www.matawa.on.ca/wp-content/uploads/2014/06/Regional-Strategy-Insert_v4-Final_Nobleeds.pdf> (accessed 2 October 2018) at 2.

⁷⁴⁸ For a summary of requirements, see Pardy & Stoebr, “The Failed Reform of Ontario’s Mining Laws,” *supra* note 682 at 9-11.

authorizations, may investigate compliance, issue orders requiring or stopping certain actions, and may carry out work to prevent harm, as established in the regulations.

Under the *Mining Act*, surface rights holders (which do not include the Crown) are entitled to compensation for “damages sustained to the surface rights by the prospecting, exploration activities or mining operations.”⁷⁴⁹ Mine operators are required to take “protective measures”⁷⁵⁰ in order to avoid creating “mine hazards”—defined as “any feature of a mine, or any disturbance of the ground, that has not been rehabilitated to the prescribed standard.”⁷⁵¹ They are responsible for mine hazards, and have a duty to act in emergencies regarding these so as to “prevent, eliminate or ameliorate” any “immediate and dangerous adverse effect.”⁷⁵² As noted earlier, in order to commence mine production the proponent must submit a certified closure plan⁷⁵³ and provide financial assurances.⁷⁵⁴

Part VII of the *Mining Act* is dedicated to ensuring the rehabilitation of mining lands. Both progressive rehabilitation and rehabilitation upon closure of mining sites are required, including for underground and surface mining of metallic and non metallic minerals, and for advanced exploration.⁷⁵⁵ For the most part, the responsibility for

⁷⁴⁹ *Mining Act*, s 79.

⁷⁵⁰ Under *Mining Act* s 139(1) “protective measures” means steps taken in accordance with the prescribed standards to protect public health and safety, property and the environment.”

⁷⁵¹ Under *Mining Act* s 1(1) “mine hazard” means any feature of a mine, or any disturbance of the ground, that has not been rehabilitated to the prescribed standard.”

⁷⁵² *Mining Act*, ss 147, 148. Section 139(1) of the *Mining Act* defines “adverse effect” as “(a) injury or damage to property, (b) harm or material discomfort to any person, (c) a detrimental effect on any person’s health, (d) impairment of any person’s safety, (e) a severe detrimental effect on the environment.”

⁷⁵³ *Mining Act*, s 141-144; and O Reg 240/00 Mine Development and Closure Under Part VII of the Act – (last amendment: O Reg 307/12).

⁷⁵⁴ *Mining Act*, s 145.

⁷⁵⁵ Under *Mining Act* s 139, rehabilitation requirements apply “...to projects including, (a) the underground mining of minerals, excluding natural gas, petroleum and salt by brining method; (b) the surface mining of metallic minerals; (c) the surface mining of non-metallic minerals, excluding natural gas, petroleum and aggregate as defined in the Aggregate Resources Act, on land that is not Crown land; (d) advanced exploration on mining lands;” and *Mining Act*, ss 143, 144.

rehabilitation lies with the owner of mining lands and other persons holding mining rights, rather than with the person that created the mine hazard.⁷⁵⁶ The Act defines “rehabilitate” as “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.”⁷⁵⁷ 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).⁷⁵⁸ However, according to Pardy and Stoehr, these rehabilitation requirements are not aimed at providing environmental protection or public safety because no substantive standards exist and the rehabilitation required depends on it being “practicable” for the proponent.⁷⁵⁹

If rehabilitation of mining lands or mining hazards is not carried out, an order can be issued requiring it.⁷⁶⁰ If the order is not complied with, the minister may give direction to carry out the necessary rehabilitation actions,⁷⁶¹ the cost of which falls on the person responsible for the mining lands.⁷⁶² Mining claims cannot be abandoned if there is a mining hazard for which the proponent is responsible.⁷⁶³ When a mine has been “closed

⁷⁵⁶ Under *Mining Act* s 1(1) “proponent” means the holder of an unpatented mining claim or licence of occupation or an owner as defined in section 1 (s 139(1));” and “owner”, when used in Parts VII, IX and XI, includes, (a) every current owner, lessee or occupier of all or part of a mine, mine hazard or mining lands, (b) an agent of the current owner, lessee or occupier, or a person designated by the owner, lessee, occupier or agent as being responsible for the control, management and direction of all or part of a mine, mine hazard or mining lands, and (c) subject to subsections (4) to (13), a secured lender who enters into possession of all or part of a mine, mine hazard or mining lands pursuant to the security it holds with respect to the mine, mine hazard or mining lands.”

⁷⁵⁷ *Mining Act*, s 139(1).

⁷⁵⁸ O Reg 240/00 Mine Development and Closure Under Part VII of the Act, s 4(2).

⁷⁵⁹ Pardy & Stoehr, “The Failed Reform of Ontario’s Mining Laws,” *supra* note 682 at 12-13.

⁷⁶⁰ *Mining Act*, ss 147, 148(2).

⁷⁶¹ *Mining Act*, s 148.

⁷⁶² *Mining Act*, ss 151, 164(9), (10).

⁷⁶³ *Mining Act*, s 153.2(3).

out” in accordance with a closure plan, the mining lands can be surrendered back to the Crown.⁷⁶⁴

A person that carries out mining activities in violation of the *Mining Act* or that fails to comply with any of its requirements commits an offence under the Act.⁷⁶⁵ Upon conviction, offences are punishable with fines ranging from \$200 to \$500,000 for each day, or/and imprisonment of up to 1 or 2 years,⁷⁶⁶ depending on the offence. A court may also increase a fine by the amount of money the person benefitted from as a result of the offence.⁷⁶⁷

In addition to the environmental protection requirements under the *Mining Act* briefly described above that apply only to mining, the following are two examples of specific environmental protection provisions in Ontario. As noted, the aim is to illustrate applicable environmental regulations for purposes of the subsequent *lens of ecological law* analysis, rather than provide a comprehensive summary of them. One of the examples chosen relates to ecological limits and the other to biodiversity.

The *Environmental Protection Act* (*Environmental Protection Act*) generally prohibits the discharge of contaminants into the natural environment in amounts greater than the regulations allow,⁷⁶⁸ or if the discharge “causes or may cause an adverse effect.”⁷⁶⁹ Specific regulations to the *Environmental Protection Act* apply to mining of metals and industrial minerals.⁷⁷⁰ Regarding the discharge of effluent (including cooling

⁷⁶⁴ *Mining Act*, s 149.

⁷⁶⁵ *Mining Act*, s Part XI - Offences, Penalties and Prosecutions.

⁷⁶⁶ *Mining Act*, s 167(1).

⁷⁶⁷ *Mining Act*, s 164(7)1.

⁷⁶⁸ *Environmental Protection Act*, RSO 1990, c E.19, s 6(1).

⁷⁶⁹ *Environmental Protection Act*, s 14(1).

⁷⁷⁰ Mining of metals and industrial minerals are prescribed activities under regulations to the *EPA*, respectively, O Reg 560/94 Effluent Monitoring and Effluent Limits - Metal Mining Sector, and O Reg 561/94 Effluent Monitoring and Effluent Limits - Industrial Minerals Sector.

water, overflow, process and storm water effluents in the case of metal mining), the regulations establish allowable discharge limits for a number of parameters (Total Cyanide, Total Suspended Solids, Copper, Lead, Nickel, Zinc, and Arsenic), lethality limits (acute lethality tests on rainbow trout and *Daphnia magna* resulting in mortality for no more than 50 per cent of the test organisms in 100 per cent effluent),⁷⁷¹ as well as sampling, monitoring, assessment and reporting requirements. It is an offence to contravene any of these provisions,⁷⁷² with penalties for a conviction ranging from a fine of \$5,000 to \$6 million for individuals and of \$25,000 to \$10 million for corporations, and up to five years less one day imprisonment.⁷⁷³

A second example of an environmental regulation is the *Endangered Species Act*, which prohibits harming, killing, trading, etc. a living member of an endangered, threatened or extirpated species, and harming or destroying the habitat of one in Ontario.⁷⁷⁴ Despite these prohibitions, a person may obtain a permit to carry out these activities under certain circumstances and subject to certain conditions. A permit of this kind may be granted, among other reasons, if the government believes the activity expected to cause the harm “will result in a significant social or economic benefit to Ontario.”⁷⁷⁵ However, in contrast to the *Environmental Protection Act* and the specific regulations for mining effluent, mining activities and other sectoral activities have been exempted from the prohibitions in the *Endangered Species Act* cited above, and may harm endangered species and their habitat, even without a permit.⁷⁷⁶

⁷⁷¹ O Reg 560/94, ss 18, 19.

⁷⁷² *Environmental Protection Act*, s 186.

⁷⁷³ *Environmental Protection Act*, s 187(3), (4), (5).

⁷⁷⁴ *Endangered Species Act*, SO 2007, c 6, s 9, 10.

⁷⁷⁵ *Endangered Species Act*, s 17(1), (2)(d).

⁷⁷⁶ O Reg 242/08-General and O Reg 176/13-Amending O Reg 242/08, in particular ss 23.10 and 23.13

In the following section I apply the *lens of ecological law* to the rules summarized above regarding access to minerals and benefits from their extraction; public participation and community consent; authorization of mining activities; and reduction and liability for harm during and after operations. The analysis aims to illuminate the obstacles and opportunities that existing rules governing mining in Ontario represent for a shift to ecological law.

4.4 *Lens of Ecological Law Analysis*

4.4.1 *Ecocentrism*

Ecocentrism: recognize and respect the value of all beings and the interconnectedness among them, equally promoting the interests of human and nonhuman members of the Earth community

This principle 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.

All of the provisions reviewed above are anthropocentric. The rules on access to minerals and benefits from their extraction also have a utilitarian character. The purpose of the *Mining Act* is to promote mining. The view of the human-Earth relationship that underlies it is of land and minerals as the property of humans, directly, or through the state and corporations. Minerals and the land are resources to be exploited for our benefit. Likewise, the rules for public participation and community consent regarding mineral extraction projects are only relevant to the interests of people, as land and other beings are not legal persons nor have rights. The same is true, not surprisingly, of the rules authorizing mining activities, except for a brief recognition of interconnectedness with

the land in the terms of the reference for the community based land use plan of the community of Webequie, which quotes Elder Josie Jacob saying: “Traditional practice helps balance the ecosystem – for the health of the land is reflected in the people.”⁷⁷⁷ Finally, the rules to minimize harm and establish liability for harm during and after operations cited above do not reflect an ecocentric vision of the human-Earth relationship either, although effective implementation of these rules may benefit other beings or reduce the negative impacts of mining on other beings and on ecosystems more broadly. Among these, the two examples of environmental regulations are of special interest from the perspective of the principle of *ecocentrism*, as non-human living beings explicitly feature in them: the *Endangered Species Act* is aimed at protecting wildlife species at risk of extinction that occur in Ontario; and the regulations to the *Environmental Protection Act* on effluent monitoring and limits for the metal mining sector require testing on living species.⁷⁷⁸

In its preamble, the *Endangered Species Act* recognizes that biodiversity has intrinsic value. However, it fails to acknowledge the interconnectedness of all beings.⁷⁷⁹ The Act is essentially anthropocentric in its proprietary and utilitarian approach to the value of other life. The preamble states:

Biological diversity is among the great treasures of our planet. It has ecological, social, economic, cultural and intrinsic value. Biological diversity makes many essential contributions to

⁷⁷⁷ Webequie First Nation CBLUP-TOR, *supra* note 737 at 3.

⁷⁷⁸ O Reg 560/94 - Effluent Monitoring and Effluent Limits - Metal Mining Sector, s 19.

⁷⁷⁹ In contrast, the Ontario Biodiversity Strategy—which stems from Canada’s commitments to protect biodiversity in the UN Convention on Biological Diversity and is not compulsory—does recognize the interconnectedness of all beings. It also acknowledges the intrinsic value of biodiversity, and establishes a series of ecological, societal and management principles to protect biodiversity. Ontario Biodiversity Council, *Ontario’s Biodiversity Strategy, 2011: Renewing Our Commitment to Protecting What Sustains Us*, (Peterborough, ON: Ontario Biodiversity Council, 2011), online at: <http://www.mnr.gov.on.ca/en/Business/Biodiversity/2ColumnSubPage/STEL02_166816.html> at 33.

human life, including foods, clothing and medicines, and is an important part of sustainable social and economic development.

... In Ontario, our native species are a vital component of our precious natural heritage. The people of Ontario wish to do their part in protecting species that are at risk, with appropriate regard to social, economic and cultural considerations. The present generation of Ontarians should protect species at risk for future generations.⁷⁸⁰

To be sure, the aim of the Act is to further the interests of other beings—their survival. As noted above, it does so primarily by prohibiting humans from harming or destroying the habitat of some species.⁷⁸¹ However, these measures are applied only once considerable damage has been caused and there is evidence that a species is at risk of extinction (i.e. upon being listed).⁷⁸² Moreover, they can be readily pre-empted by human interests, not only through the granting of a permit, as described earlier, but also through numerous species-based and sector-based (including mining) exemptions to the Act's prohibitions to harm species and their habitat.⁷⁸³ This is consistent with the mitigatory nature of environmental law: constraints on economic activities are put in place when the risk of not doing so is too great and only to the extent that they do not challenge the pursuit of those economic activities.

An ecological law approach underpinned by a vision of the human-Earth relationship that equally values the interests of humans and of other living beings would

⁷⁸⁰ *Endangered Species Act*, Preamble.

⁷⁸¹ *Endangered Species Act*, ss 9, 10.

⁷⁸² *Endangered Species Act*, ss 3-8.

⁷⁸³ *Endangered Species Act*, ss 16-20 and 55(1)(b); and numerous species-based and sector-based exemptions to the Act's prohibitions to harm species and their habitat in O Reg 242/08-General and O Reg 176/13-Amending O Reg 242/08, in particular ss 23.10 and 23.13. For the unsuccessful efforts of conservation groups to have the courts strike down these exemptions see Ontario Nature, "Endangered Species Law Lawsuit," online: Ontario Nature <<https://www.ontarionature.org/protect/campaigns/lawsuit.php>> (accessed 18 January 2018).

not be piecemeal and it would be preventive, constraining human activities so that they do not cause species to become endangered or habitat destroyed in the first place. At the same time, the current extinction crisis seems to require immediate mitigation measures based on specific species status assessments. The extent to which reforms to these laws and their effective implementation and enforcement can help reverse the trends of population decline and loss of biodiversity is an urgent question beyond the scope of this thesis. Overall, the Act's explicit acknowledgement of the need to preserve biodiversity is certainly consistent with ecological law even though its approach is inadequate from this perspective.

I now turn to the provisions of the *Environmental Protection Act* reviewed here. Of particular interest are the monitoring provisions in the effluent regulations that require routinely submerging fish (rainbow trout) and crustaceans (*Daphnia magna*) in mine effluent to test effluent toxicity, setting the acceptable mortality rate at “no more than 50 per cent of the test organisms in 100 per cent effluent.”⁷⁸⁴ Under the principle of *ecocentrism* it would not be justified for law to require the routine killing of other beings in order to determine compliance with acceptable limits of a toxic substance discharged into the environment. These provisions reflect a wholly anthropocentric and utilitarian view of the human-Earth relationship underlying the law, where the environment is a receptacle for toxic effluent and fish and crustaceans are disposable “test organisms.” Arguably, ecological law would respond to this by only allowing the generation of effluent that may be recycled or neutralized, and by requiring testing procedures that do not involve destroying living beings. This would likely require costly innovations, but a certain amount of technology forcing has been possible through environmental

⁷⁸⁴ O Reg 560/94 - Effluent Monitoring and Effluent Limits - Metal Mining Sector, s 19.

regulations, and much more may be achievable. However, ecological law rests on the premise that technological solutions are not sufficient to avert the ecological crisis and enable sustainable production.

Lastly, under this part of the analysis we ask whether the principle of *ecocentrism* has resonance with Indigenous legal traditions that may be relevant in the Ring of Fire. In a 2014 statement, the Chief of Webequie First Nation spoke about the belief in the interconnectedness of beings at the core of his nation's law, stating:

Despite all the words written and spoken about the Ring of Fire, Webequie and our Indigenous neighbours remain invisible to most of the boosters, pundits and speculators. We are the unnamed 'First Nations' or 'Aboriginal people.' It is time people learned more about who we are and our vision for our lands and future.

We have always lived here. We are not going anywhere. We have our own laws separate from Canadian laws. Our laws were given to us by the Creator. We are the stewards of our lands. We are responsible to the Creator, our ancestors and our children to ensure that our lands are healthy and protected.

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. Our language is filled with words that capture the interconnectedness of all things and our obligations to all things. There are no equivalent words in English or French. ...⁷⁸⁵

⁷⁸⁵ Chief of Webequie First Nation, "What Really Needs to Happen to Make the Ring of Fire a Reality," (23 December 2014), online: Huffington Post <www.huffingtonpost.ca/chief-cornelius-wabasse/ring-of-fire-development_b_6367606.html> (accessed 20 January 2017).

Another example of resonance with the principle of *ecocentrism* is Anishinabek beliefs concerning the Earth as a living being, as described by John Borrows, who writes that

despite diverse perspectives, the land's sentience is a fundamental principle of Anishinabek law, one upon which many Anishinabek people attempt to build their societies and relationships. Of course they have not always been successful in this regard; like most peoples, they often fall short of their highest ideals. Nevertheless it is a fundamental principle ... that has tremendous implications for how we live with one another on the Earth's surface.⁷⁸⁶

Borrows also explains that, for some Anishinabek people, rocks (and presumably, minerals) have agency.

Rocks are animate or living in verb-oriented Algonkian languages, of which Anishinabemowin is one. The very way in which Anishinabek people conceive land as alive is hardwired through language ... The active nature of rocks means that they have an agency of their own that must be respected when people use them.⁷⁸⁷

In contrast, the *Mining Act* attributes no agency to minerals or the land. As noted earlier, the relationship to the land and to minerals underlying the *Mining Act* is about ownership, jurisdiction and use by humans, with no reciprocal responsibilities owed to the land.⁷⁸⁸ This is also true of UNDRIP, which consistently refers to land, water and

⁷⁸⁶ Borrows, "Living Law on a Living Earth," *supra* note 348 at 245.

⁷⁸⁷ Borrows, "Living Law on a Living Earth," *supra* note 348 at 245.

⁷⁸⁸ For example, *Mining Act* s 1 defines "mining lands" to include "(a) the lands and mining rights patented or leased under or by authority of a statute, regulation or order in council, respecting mines, minerals or mining, (b) lands or mining rights located, staked, used or intended to be used for mining purposes, and (b) lands or mining rights that are located, registered as a mining claim or used or intended to be used for mining purposes, and (c) surface rights granted solely for mining purposes."

other beings in proprietary terms, (including in UNDRIP Articles 26 and 32 cited in Section 4.2 above) and makes no specific reference to Indigenous notions of interconnectedness with other beings.⁷⁸⁹ For example, Article 25 provides that “Indigenous peoples have the right to maintain and strengthen their distinctive spiritual relationship with their traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources and to uphold their responsibilities to future generations in this regard.”⁷⁹⁰

4.4.2 Ecological Primacy

Ecological Primacy: ensure that social and economic behavior and systems are ecologically bound, respecting Planetary Boundaries

This principle involves several related elements: constraining material and energy use within ecological limits; ensuring human development is pursued without irreversibly impairing ecological integrity or crossing Planetary Boundaries; and promoting the restoration and maintenance of ecological integrity. Because of the relative intactness of the Far North, ecological integrity could be a particularly appropriate reference point in this case. The Draft Far North Land Use Strategy explicitly refers to ecological integrity when it describes 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.”⁷⁹¹ However, much remains to be learned about the region in order to understand the potential impacts of different types of development on ecological integrity and to establish proper baselines for monitoring

⁷⁸⁹ There may be good reasons for this—perhaps avoiding statements that could be interpreted as essentializing Indigenous peoples—but the point is that UNDRIP is wholly anthropocentric.

⁷⁹⁰ UNDRIP, *supra* note 660, art 25.

⁷⁹¹ Ontario, *Far North Land Use Strategy: A Draft*, *supra* note 735 at 7.

ecosystem responses to changing conditions (including those linked to climate change and human activities on the landscape).⁷⁹²

What can be said from the perspective of *ecological primacy* about the four sets of rules briefly summarized earlier?

Generally, the first and second sets of rules are less relevant to this matter than the third and fourth. The rules on access to minerals and benefits from their extraction are aimed at promoting mining, which is to be expected given that this is the purpose of the *Mining Act*. Also not surprisingly, there are no constraints on mining based on ecological limits, but instead, the stated approach is to minimize impacts on the environment.

The purpose of this Act is to encourage prospecting, staking and exploration for the development of mineral resources, in a manner consistent with the recognition and affirmation of existing Aboriginal and treaty rights in section 35 of the *Constitution Act, 1982*, including the duty to consult, and to minimize the impact of these activities on public health and safety and the environment.⁷⁹³

The rules regarding public participation and community consent, while procedural, have some potential to support *ecological primacy*. Rules mandating the provision of information to interested persons and requiring processes for participation and consultation, like those that apply in this case, provide opportunities to introduce ecological considerations into the decision making process. Certainly there is no guarantee that public participation and community consultation will result in decisions favouring ecological, over economic, interests. If this is because those consulted actually

⁷⁹² Ontario has invested \$23 million in environmental monitoring in the North, including \$5 million in baseline studies for the Ring of Fire. Chong, *Resource Development in Canada*, *supra* note 616 at 10.

⁷⁹³ *Mining Act*, s 2.

favour economic interests, strong public participation processes may at least enable discussions about the need to establish ecological constraints on economic activities. If, instead, decision makers disregard ecologically-based community or public opposition to a project, strong consultation requirements like the Crown's constitutional duty to consult Aboriginal communities may lead to the reversal of those decisions. For example, the Government of Canada approved the Northern Gateway Pipeline Project in 2014 and the Trans Mountain Expansion Project in 2016 despite strong opposition from First Nations and many others—predominantly (while not exclusively) due to ecological concerns—but the Federal Court of Appeal overturned the decisions, respectively in 2016 and 2018, because it found the government failed to properly consult First Nations.⁷⁹⁴

The other two sets of rules for purposes of this analysis—on authorizing mining and on harm and liability from mining operations—include on the one hand, a suite of requirements and environmental regulations that apply to specific mining projects, and on the other, a set of higher-level land use planning provisions for the region.⁷⁹⁵ As discussed below, there are some opportunities for *ecological primacy* in these provisions, but also important obstacles.

⁷⁹⁴ *Gitxaala Nation v Canada*, 2016 FCA 187 (Northern Gateway Pipeline project); and *Tsleil-Waututh Nation v Canada*, 2018 FCA 153 (Trans Mountain Expansion Project).

⁷⁹⁵ To recall, the rules in question authorizing mining activities include requirements to obtain a prospecting license, submission of a certified closure plan and provision of financial assurances; as well as the exclusion under the *Far North Act* and the *Mining Act* of mining activities absent a CBLUP that allows for such activities, and the possibility of EA. The rules to minimize harm and establish liability for harm during and after operations included requirements for rehabilitation and responsibility for addressing mine hazards, and two illustrative examples of environmental regulations—limits on effluent discharges and protection of endangered species and their habitat. See sections 4.3.3 and 4.3.4 above.

Specific environmental protection requirements

The specific environmental protection requirements that apply to mining purportedly set a high bar for environmental protection.⁷⁹⁶ Assuming this is the case and that these requirements are effectively enforced,⁷⁹⁷ from an *ecological primacy* perspective the problem is that the approach is piecemeal, setting limits and requirements for specific projects and components of projects (i.e. effluent discharge points) to minimize their impacts on specific parts of the environment (i.e. recipient water bodies), rather than holistically regulating economic activities in a specific area to ensure their combined and cumulative effects do not impair ecological integrity. In the case of mine effluent discharge limits under the *Environmental Protection Act* regulations, while they may be based on scientific assessments that include ecological considerations, their implementation is not linked to specific ecological limits at the site. In other words, there is no ongoing appraisal of the health of the water bodies mine effluent is discharged into to ensure their integrity is not being impaired despite compliance with the discharge limits. This is not to say that specific standards are not needed in a holistic approach. Detailed standards may play an important part in maintaining ecological integrity if they are set, regularly assessed and revised to consider cumulative effects and changes in the ecosystem in which they are being applied.

In the case of the *Endangered Species Act*, while the listing of a species is based on ecological concerns, this and the prohibitions to harm endangered species and their

⁷⁹⁶ For example, according to the Ontario Mining Association the “stringent regulatory environment, combined with the industry’s commitment to responsible practices and proactive approach to using new technologies, ensures that public health, public safety and the environment are protected.” Ontario Mining Association, “Mining 101,” online: OMA <<http://www.oma.on.ca/en/ontariominning/Mining101.asp>> (accessed 22 January 2019).

⁷⁹⁷ As noted, the aim is to consider examples of environmental regulations from the *lens of ecological law*, rather than provide a comprehensive critique of all environmental requirements that may apply to mining in Ontario’s Ring of Fire.

habitat are also narrow measures disconnected from the ecological integrity of specific ecosystems. However, as noted, this is a moot question in the case of mining in Ontario given that the regulations have prioritized economic interests by exempting mining from these prohibitions.

Environmental assessment is another environmental protection tool that is not mandatory for mining projects in Ontario, but can be undertaken voluntarily by the proponent or mandated by regulations.⁷⁹⁸ From the perspective of *ecological primacy* environmental assessments are generally inadequate, foremost because they are aimed at mitigating the significant adverse effects of proposed undertakings, not at constraining them within ecological limits. Yet there are proposals for adopting a different approach—sustainability assessment—that would practically be a shift toward *ecological primacy*. As professors Cole Atlin and Robert Gibson argue:

The “mitigation of significant adverse effects” concept is especially problematic where adverse effects may already be unsustainable (as they are globally in many key parameters). Moreover, it does not provide the information required to make decisions in wicked problem areas featuring complex and dynamic interactions among multiple factors, or cover the range of considerations involved in meeting expectations for social licence or social “acceptability”. Much more promising is planning and assessment centred on the more comprehensive and positive “contribution to sustainability” objective. In order to determine if a regional plan (or an individual project) can contribute to lasting sustainability gains, alternatives must be compared to see which scenario generates the maximum long term, fairly distributed benefits and minimizes tradeoffs. Sustainability-based assessment covers the full suite of socio-

⁷⁹⁸ *Environmental Assessment Act*, s. 6.3(2), 6.4.

economic, cultural and biophysical factors, and their interactions in its evaluation and determines what supporting programs, policies and initiatives must be in place for the proposed undertaking to succeed.⁷⁹⁹

Finally, the rehabilitation requirements in the *Mining Act* are also of interest from the perspective of *ecological primacy*. To recall, the Act requires progressive rehabilitation and rehabilitation upon closure; extends liability for rehabilitation fairly broadly to owners, beneficiaries and managers; and enables government to carry out rehabilitation and recover the costs. However, these requirements are not supported by substantive standards for rehabilitation aimed at environmental protection, let alone at restoring and maintaining ecological integrity. As Pardy and Stoehr note:

The Act does not contain standards for rehabilitation of mining sites. Instead, it authorizes regulations that may contain such standards. However, the regulation, which includes the Mine Rehabilitation Code of Ontario, does not contain substantive standards either. ... In the end, the minimum requirement is to rehabilitate mining sites so that they are suitable for a use that the Director sees fit, using methods that are practicable. “Practicable” means feasible, workable, or not too difficult. These provisions are consistent with the Mining Act’s purpose. The purpose of the Act is not to protect against environmental impact or provide for public safety, but to facilitate mining.⁸⁰⁰

Clearly, while the Mining Act’s overall purpose of facilitating mining is an obstacle for ecological law, rehabilitation measures for new, ongoing and abandoned mines like the ones already provided in the *Mining Act* could be important tools for

⁷⁹⁹ Atlin & Gibson, “Lasting Regional Gains from Non-renewable Resource Extraction,” *supra* note 651 at 6 [reference omitted].

⁸⁰⁰ Pardy & Stoehr, “The Failed Reform of Ontario’s Mining Laws,” *supra* note 682 at 12-13 [references omitted].

restoration and maintenance of ecological integrity, if they were tied to appropriate substantive standards.

What these restoration standards would be is a major challenge for ecological law. From an *ecological primacy* perspective, the standards for remediation should be based not on what is achievable technically and financially by the proponent, but on what is needed for functioning ecosystems to retain their integrity. While there are examples of heavily contaminated former mining sites that have been reclaimed,⁸⁰¹ restoring the ecological integrity of mine sites and the areas surrounding them is a different matter. As some experts plainly state: “‘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.”⁸⁰² Instead, the result 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).”⁸⁰³ The implication of this from an *ecological primacy* perspective is that areas with high levels of ecological integrity should be off limits to mining altogether, and mining should only be allowed in already disturbed sites. In the Ring of Fire, given the high ecological integrity of the region, extraction should not be carried out. Yet, because of the protection of pre-existing

⁸⁰¹ In Ontario, an “Abandoned Mine Rehabilitation Program (AMRP) was established in 1999” conducting “rehabilitation projects on more than 80 of the highest priority abandoned mine sites located throughout Ontario. The largest of these sites is the Kam Kotia Mine (KKM) near Timmins, where more than \$75 million has been spent to date to conduct extensive work on what was known as one of the worst abandoned mine sites in Canada. The rehabilitation of the KKM site is now more than 75% complete and Ontario expects to have completed all rehabilitation measures on the site before 2020.” National Orphaned/Abandoned Mines Initiative (NOAMI), *NOAMI Performance Update 2009-2015*, online: NOAMI Secretariat, Natural Resources Canada <www.abandoned-mines.org/wp/wp-content/uploads/2015/08/NOAMI-2015-UPDATE-ENG-WEB.pdf> (accessed 30 June 2018) at 13.

⁸⁰² Subijoy Dutta, Raj Rajaram & Bonnie Robinson, “Mineland Reclamation,” in *Sustainable Mining Practices*, (Taylor & Francis, 2005) at 179; and David Doley & Patrick Audet, “Adopting Novel Ecosystems as Suitable Rehabilitation Alternatives for Former Mine Sites,” (2013) 2:1 *Ecological Processes* 1.

⁸⁰³ Dutta, Rajaram & Robinson, “Mineland Reclamation,” *supra* note 802 at 180 [reference omitted].

mining claims that currently cover the Ring of Fire, even areas critical to ecological integrity within it may not be excluded from mining under the current legal framework.⁸⁰⁴

Land use planning provisions

As described earlier, the amendment of the *Mining Act* and the adoption of the *Far North Act* introduced some restrictions on the primacy of mineral interests under the free entry system in the Far North. Both Acts exclude mining from areas where a community based land use plan has not been completed or, where mining is not an activity consistent with a community based land use plan.⁸⁰⁵ The *Far North Act* further regulates the development of community based land use plans in the Far North, including by subjecting them to the guidance set in the Far North Land Use Strategy. A Draft Far North Land Use Strategy was released in September 2015 and has not been finalized. What can be said of these higher-level land use planning provisions from the perspective of *ecological primacy*?

Under the *Far North Act*, 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.⁸⁰⁶

⁸⁰⁴ *Far North Act*, 2010, s 14(3).

⁸⁰⁵ *Mining Act*, s 30(g), 204(2); *Far North Act*, s 12 (1)1.

⁸⁰⁶ *Far North Act*, s 5.

These two objectives are arguably consistent with an aim to respect Planetary Boundaries, although there is no explicit reference to Planetary Boundaries in the Act or the Draft Far North Land Use Strategy. Five of the nine Planetary Boundaries seem most relevant: land system change, freshwater use, biosphere integrity, ocean acidification and climate change.⁸⁰⁷ If indeed half of the region is shielded from major anthropogenic disturbance through an effective network of protected areas (as per objective 2), and if “biological diversity, ecological processes and ecological functions, including the storage and sequestration of carbon” are maintained throughout the region (as per objective 3), at least in theory, land use in the region might be favorably aligned with, or not add pressure to, the five Planetary Boundaries noted. Admittedly, as discussed in Chapter 2, the Planetary Boundaries framework involves evolving concepts and it is not yet clear how it can be implemented regionally.⁸⁰⁸ At the same time, it is an important step that the *Far North Act* reflects awareness of the global ecological challenges addressed by the Planetary Boundaries framework. In addition to this, in objective 3 cited above, the *Far North Act* recognizes the need to maintain ecological integrity. As the Far North Science Advisory Panel explains:

The overarching ecological objective of the Far North Act is “the maintenance of biological diversity, ecological processes and ecological functions, including the storage and sequestration of carbon in the Far North.” (Section 6[3]). In the context of land management, this goal is most appropriately expressed as the maintenance of “ecological integrity”, a concept that is usually expressed in terms of ecosystem structure and function.⁸⁰⁹

⁸⁰⁷ Steffen et al, “Planetary Boundaries,” *supra* note 26.

⁸⁰⁸ See Section 2.2 above; also Häyhä et al., “From Planetary Boundaries to National Fair Shares of the Global Safe Operating Space,” *supra* note 458.

⁸⁰⁹ The Far North Science Advisory Panel, *Science for a Changing Far North*, *supra* note 535 at 79.

However, the Draft Far North Land Use Strategy does not go on to establish the maintenance of ecological integrity as a constraint on the development of the area. Nor, for that matter, do the *Far North Act* and the *Mining Act*.

Yet some elements of the Draft Far North Land Use Strategy provide support for prioritizing ecological values. For example, the draft's guidance for establishing areas where mining is a desired use of the land in the development of community land use plans recognizes that ecological constraints may render off limits areas that have mineral potential, except for areas where there are existing rights.⁸¹⁰ Guidance for planners to “design land use areas and designations to reduce potential for cumulative effects” is another positive example.⁸¹¹

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.⁸¹² As described elsewhere, “[t]he 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.”⁸¹³

For its part, the Draft Far North Land Use Strategy proposes a “stewardship” approach that it deems similar to this model.

⁸¹⁰ “Guidance – Mineral resources, mineral exploration and mining: ...c. Apply land use designations to enable mineral exploration and development activities in areas of significant mineral potential, except where such activities have been determined through joint planning to be incompatible with other values and uses. d. For areas where there is limited information about the mineral potential, apply land-use designations that allow mineral exploration and development, where such activities are compatible with other values and uses...” Ontario, *Far North Land Use Strategy: A Draft*, *supra* note 735 at 42.

⁸¹¹ Ontario, *Far North Land Use Strategy: A Draft*, *supra* note 735 at 45.

⁸¹² The Far North Science Advisory Panel, *Science for a Changing Far North*, *supra* note 535 at xv.

⁸¹³ The Canadian BEACONS Project, “Conservation Matrix Model,” online: BEACONS Project <www.beaconsproject.ca/cmm> (accessed 28 June 2018).

Stewardship is about taking care of the land and its people. It is the responsibility that we all have—individuals, communities, companies, and governments—in managing and protecting the land’s natural and cultural wealth, both now and for future generations. In the Far North, stewardship is about conserving the unique geography and cultural landscape of the Far North, while also allowing its people to prosper through economic development.

In its Science Panel Report (2010), the Far North Science Advisory Panel described a concept similar to stewardship. Called a “conservation matrix” approach, the report talked about the need to balance protection and development with a focus on protecting all land—identifying those areas that should be protected from industrial development, and also carefully managing activities on the rest of the landscape.

Stewardship is not a new concept in the Far North; First Nations have long embraced this responsibility. Through land use planning, Ontario and First Nations have an opportunity to advance the commitment to stewardship and provide for “orderly development”. Joint planning teams aim to balance protection with economic development when making decisions about how land and water will be used into the future. The guidance provided in this Strategy reinforces and strengthens the stewardship approach in planning.⁸¹⁴

However, while the Conservation Matrix Model is consistent with *ecological primacy*, the above description of stewardship is not. *Ecological primacy* is not about “balancing” development and ecological protection, but about “constraining” development within ecological limits. Thus, at least from the perspective of *ecological*

⁸¹⁴ Ontario, *Far North Land Use Strategy: A Draft*, *supra* note 735 at 28.

primacy, there is a fundamental difference between the Conservation Matrix Model and the draft strategy's stewardship approach.

In addition, the Draft Far North Land Use Strategy does not include other recommended measures that would also support *ecological primacy*; in particular, the strategy does not “set out ecological disturbance thresholds [or] address management and mitigation of the long-term legacy effects of mining and other developments.”⁸¹⁵ As a final strategy has not yet been adopted, however, it remains to be seen whether it will live up to the expectations of conservationists, who had hoped that it could “transform regional planning to address sustainability.”⁸¹⁶

Despite the aforesaid opportunities to favor ecological considerations in determining how land may be used, the *Far North Act* also includes provisions that are inconsistent with *ecological primacy*. In particular, section 14 grants primacy to mining interests by establishing government discretion to allow mining in areas subject to a community based land use plan that does not allow mining, and in protected areas “in the social and economic interest of Ontario.”⁸¹⁷ Also, the Act sets out processes to amend community based land use plans and the boundaries of planning areas independent of ecological considerations.⁸¹⁸ Notwithstanding the importance of enabling flexibility, major amendments should be allowed only when they will not reduce ecological integrity (taking into account cumulative effects), but there is no such limitation under the Act. Finally, another major obstacle to *ecological primacy* is the exception for existing mineral rights, noted before. Mining that threatens ecological integrity should not be

⁸¹⁵ Chetkiewicz & Lintner, “Getting it Right in Ontario’s Far North,” *supra* note 624 at iv.

⁸¹⁶ Chetkiewicz & Lintner, “Getting it Right in Ontario’s Far North,” *supra* note 624 at iv.

⁸¹⁷ *Far North Act*, s 14(4); also *Mining Act*, s 204(3).

⁸¹⁸ *Far North Act*, s 10.

allowed, even if there are existing rights. As discussed earlier, fully restoring a mined site is deemed impossible, whereas lost mining rights could be subject to some form of compensation. Yet under the current legal framework areas critical to ecological integrity within the Ring of Fire could not be excluded from mining through a community based land use plan or become part of a protected area because of the pre-existing mining claims that cover the area.⁸¹⁹ Ultimately, economic interests are given primacy over community and ecological priorities.

Ontario's approach in practice to the proposed regional development of this area has been severely criticized by the Environmental Commissioner of Ontario (ECO),⁸²⁰ and by some who had praised the *Far North Act* for its conservation aims.⁸²¹ The main criticism has been the government's failure to act on recommendations to conduct a Regional Strategic Environmental Assessment (R-SEA) before any development in the area.⁸²² In response to a request for regulations to the *Environmental Assessment Act* establishing a R-SEA process, the ECO encouraged the Ontario government to establish such a process:

Development in the Ring of Fire represents the opening of a new frontier, which will constitute a fundamental redefinition of the entire socio-economic and environmental functioning of the region. This region will see many projects in the coming years, all of which will be operating on Crown land. The ECO believes that allowing this massive disposition of Crown resources to proceed without a comprehensive evaluation of the

⁸¹⁹ *Far North Act*, s 14(3). For maps showing mining claims in the Far North, see Meg Southee, "A picture paints a thousand words, but a map paints a million!" (Muddy Boots, Blog, Wildlife Conservation Society Canada, 19 November 2014), online: <<http://muddybootswcs.blogspot.com/2014/11/a-picture-paints-thousand-words-but-map.html?view=classic>> (accessed 10 October 2018), at maps 2 and 3.

⁸²⁰ ECO, *Annual Report 2012/13*, *supra* note 626.

⁸²¹ Chetkiewicz & Ray, "Ontario's Ring of Fire Development Plan Has Major Flaws," *supra* note 648.

⁸²² Chetkiewicz & Lintner, "Getting it Right in Ontario's Far North," *supra* note 624 at iv; Atlin & Gibson, "Lasting Regional Gains from Non-renewable Resource Extraction," *supra* note 651 at 46-50.

environmental consequences is a piecemeal approach which is contrary to the purpose, spirit, and intent of the EAA. The ECO believes that the applicants' request to establish a regulation under the EAA to act as the terms of reference for an R-SEA is an appropriate solution to this problem, and urges the government to take immediate action on this critical issue.⁸²³

The government of Ontario has not taken action toward a R-SEA in the Ring of Fire, as recommended by the ECO and others.

4.4.3 Ecological Justice

Ecological Justice: ensure equitable access to the Earth's sustaining capacity for present and future generations of humans and other beings, and avoid the inequitable allocation of environmental harms

To recall, this principle of the *lens of ecological law* is based primarily on Bosselmann's concept of ecological justice, which includes intragenerational, intergenerational or interspecies equity.⁸²⁴ Under this principle the main questions that arise include whether the law provides ethical grounding for decisions that lead to the equitable use of the planet's sustaining capacity; promotes taking only what one needs, and the fair distribution of, and restraint on, wealth; and whether environmental harms are equitably distributed among current and future generations of humans and other life.

It is clear that the purpose of the *Mining Act* to promote mineral extraction and the protection of mineral extraction interests in the *Far North Act* are not consistent with *ecological justice*. In particular, the exemption of areas with existing mining claims from designation for other uses in community-based land use plans and as protected areas does

⁸²³ ECO, *Annual Report 2012/13 supplement*, online: <<http://docs.assets.eco.on.ca/reports/environmental-protection/2012-2013/2012-13-AR-Supp.pdf>> (accessed 13 December 2017) at 185.

⁸²⁴ See section 2.2.3 above.

not provide grounding for decisions that lead to the equitable use of the Ring of Fire/Far North region's sustaining capacity. Instead, they tend to favor extraction of resources for the short-term gain of mining companies and their shareholders—in other words, for a few humans today, rather than equitably for present and future humans and other beings.

The rules reviewed herein generally do not support inter-species equity. While the conservation objectives of the *Far North Act* could in principle contribute to ensuring continued access to the region's sustaining capacity for all inhabitants of the region (human and nonhuman), as discussed earlier, economic interests can override these objectives. In addition, the exemption of mining from the *Endangered Species Act* prohibition of causing harm to endangered species and their habitat clearly undermines fairness toward nonhuman species. As for the effluent regulations, the fact that they allow harm to other beings as a result of wastewater disposal (fifty percent mortality for fish and crustaceans exposed to undiluted effluent) is unacceptable from an inter-species equity perspective. Moreover, given the importance of the region for (pre-existing) biodiversity,⁸²⁵ concern for inter-species equity means no mineral extraction should be carried out in the Ring of Fire, regardless of pre-existing mining claims. As the Far North Science Panel described the biodiversity in the Far North:

The region remains a stronghold for biodiversity, including mammals such as caribou, wolverine, Canada lynx, gray wolf, marten, and polar bear, that have suffered declines elsewhere in their ranges, including southern Ontario. Ten of Ontario's mammal species only occur in the Far North, most of them restricted to the Hudson Bay Lowland, and a suite of maritime mammals range along the coast and in river estuaries. The region is also of global importance for migratory birds. For many

⁸²⁵ The Far North Science Advisory Panel, *Science for a Changing Far North*, *supra* note 535 at xi.

migrating shorebirds and waterfowl, the shores and associated mudflats of James Bay and Hudson Bay are the only tidal saltwater habitats that are located between the maritime arctic to the north and the Gulf of St. Lawrence, Atlantic Ocean and Gulf of Mexico to the south. In particular, the migratory corridor along the Hudson Bay and James Bay coasts is of global significance for waterfowl and shorebird breeding and migration. The funnelling effect of the coastlines of Hudson Bay and James Bay, which concentrates bird numbers spectacularly during fall migration, is one of North America's few remaining examples of its former faunal abundance. Alteration of these habitats therefore has implications for biodiversity, not only locally but also at the continental and global scale.

At least 50 species of fish are currently known in the Far North, making it a biodiversity "hot spot" for fish in Canada. ...⁸²⁶

In terms of intra- and intergenerational equity among humans, as noted, the *Mining Act* and the *Far North Act* ultimately favor extraction of resources for the short-term gain of a few humans today (primarily mining companies and their shareholders). Professor Gibson argues, however, that mining projects can be "bridges to positive futures" if "negative legacies" (including depletion of a non-renewable resource; boom/bust effects; residual effects on the land; remaining infrastructure; and residual effects on communities) are avoided and "positive steps to build better future options" are taken.⁸²⁷

At the community level, positive initiatives include skills training, housing and facility improvements and other potentially lasting beneficial investments already on the common agenda for mine-related negotiations. But in many circumstances, effective

⁸²⁶ The Far North Science Advisory Panel, *Science for a Changing Far North*, *supra* note 535 at xi.

⁸²⁷ Robert B Gibson, "Turning Mines into Bridges: Gaining Positive Legacies from Non-renewable Resource Projects," (2014) 15 *Journal of Aboriginal Management* 4 at 7.

bridge building will also require efforts and arrangements explicitly aimed at ensuring positive legacy effects. There are many options, and communities will choose the ones best suited to their needs. But the following five actions indicate the nature of the possibilities.

- 1 Establish community legacy funds ...
- 2 Set future objectives ...
- 3 Demand sustainability-based assessments and approvals ...
- 4 Negotiate positive legacy agreements ...
- 5 Demand regional assessments and approvals ...⁸²⁸

Gibson points to three examples of mining projects where a positive legacy standard has been applied in their environmental assessment reviews instead of the limited focus on mitigation of significant adverse effects: the Voisey's Bay nickel mine and mill project in Northern Labrador, the Whites Point quarry in Nova Scotia and the Kemess North copper-gold mine in British Columbia.⁸²⁹

On the point of fair distribution of wealth as an element of *ecological justice*, the rules that are most obviously relevant are those establishing taxes and royalties, and the undertaking of resource revenue sharing agreements with local communities, in particular Frist Nation communities. In principle these are all mechanism to distribute some of the profits generated by the extraction of minerals to the state (which in turn, would use these, or part thereof, to pay for services and other measures supporting general well-being) and to affected communities to compensate for harm and perhaps build a positive future, as Gibson suggests. The problem with this form of wealth distribution is that it encourages extraction as an income generating activity, whereas from an *ecological justice* perspective it should be carried out as a means to satisfy needs (as further argued

⁸²⁸ Gibson, "Turning Mines into Bridges," *supra* note 827 at 7-8.

⁸²⁹ Gibson, "Turning Mines into Bridges," *supra* note 827 at 8. While it is beyond the scope of this thesis, these are good candidates for additional analysis from the *lens of ecological law*.

below). The same tension arises regarding agreements whereby local communities become shareholders of the company owning a nearby mine; although at the same time, these shareholders may help discourage the company from prioritizing profits over harm avoidance. While IBAs and other similar arrangements may address inequities by providing benefits to disadvantaged communities under current law, arguably this sort of negotiated mitigation would not be necessary under ecological law because Indigenous peoples and local communities would have priority access, over mining interests, to the sustaining capacity of the land.

Community participation in decisions about mineral extraction is another essential element of *ecological justice* because it enables those affected by these projects to influence how the benefits and harms entailed are distributed. In the case of mining in the Ring of Fire this means, at a minimum, obtaining the consent (FPIC) of the Matawa First Nations. As discussed earlier, however, the rules and practices currently in place—specifically, the government’s interpretation of the constitutional duty to consult and UNDRIP—do not meet this standard. More broadly, the participation of First Nations in establishing the framework for mining in the Ring of Fire does not appear to have met this standard either. First, “the omission of prospecting from the duty to consult, excludes Aboriginal communities in the early stages of development.”⁸³⁰ Secondly, as noted earlier, the *Far North Act* has been “unequivocally rejected by the Nishnawbe Aski Nation (NAN) ... and by nearly every First Nation and municipality within the area designated under the Act for its overt colonialism.”⁸³¹ Yet, it also bears recalling that

⁸³⁰ MA Smith, “The Role of Government Policy in Sustainable Mining Development: A Draft Policy Paper Based on Conference Discussions Held December 5-6, 2013 at Lakehead University,” (Thunder Bay, Ontario: Centre of Excellence for Sustainable Mining and Exploration, 2015) at 8.

⁸³¹ Mills, “Aki, Anishinaabek, kaye tahsh Crown,” *supra* note 722 at 113, footnote 15.

First Nations have engaged in planning under this framework, with four of the Matawa First Nations having developed terms of reference for community based land use plans, even though no final land use plans have been produced. For example, the Terms of Reference for Webequie First Nation present a vision for sustaining their traditional way of life into the future by relying on land beyond the reserve, which includes a “Protected Traditional Area,” and an “Area of Mutual Benefit.”⁸³² A Webequie policy on lands and resources cited in the Terms of Reference states:

*We have carried out our traditional way of life in these lands since before written history. However, we live in changing times. The ways of the world and the needs of the world change ever more quickly. Development and the harvesting of resources continue to move further north each year. It is our responsibility to look out for our people now and for the generations yet to come. We cannot survive and practice our traditional ways of life if we are confined to the reserve. It is still not of sufficient size to sustain our people in the practice of our traditional livelihood. It is our duty to see that our community and our people are sustained into the future.*⁸³³

However, the “Area of Interest for Planning” in these Terms of Reference seems to include most of the Ring of Fire area,⁸³⁴ which is subject of mining claims that (as noted repeatedly) the *Far North Act* prioritizes over other land uses.

Finally, a fundamental consideration from an *ecological justice* perspective is the actual needs that mineral extraction in the region will satisfy. Mining draws substantially on the Earth’s sustaining capacity by extracting non-renewable minerals and by

⁸³² Webequie First Nation CBLUP-TOR, *supra* note 737 at 2.

⁸³³ “Statement of the Elders and People of Webequie First Nation: Webequie Lands and Resources Policy-Ratified April 1st, 2004” in Webequie First Nation CBLUP-TOR, *supra* note 737 at 2.

⁸³⁴ See “Figure 1: Webequie Community Based Land Use Planning Reference Map” in Webequie First Nation CBLUP-TOR, *supra* note 737 at 5.

transforming (and at worst, destroying) the landscape, so fairness to other human and nonhuman beings requires that there be very good reasons to undertake it. If mining without causing harm to other beings and restoration of mined sites are deemed impossible, then mining can only be justified to obtain minerals to satisfy basic human needs and when there are no alternative means of obtaining them.

Under the *Far North Act*, 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.⁸³⁵ In the case of mining, community needs are not the driver for development; commodity markets drive mineral extraction and the benefits accrue to mining companies.⁸³⁶ And as Karl Skogstad and Ayman Alahmar observe in their analysis of mining projects in Northwestern Ontario, “[l]ittle can be done to overcome the fundamental economic conditions of the commodity market. If commodity prices are low, many projects will remain economically unfeasible, and the region’s mineral wealth will remain in the ground until prices make it profitable for the resource to be extracted.”⁸³⁷

The main arguments offered in favour of mining are that it contributes to economic growth, provides revenue to governments and communities, and satisfies demand for minerals needed for infrastructure, goods, and services that maintain and increase wellbeing.⁸³⁸ For example, a “report from the Ontario Chamber of Commerce suggests that the Ring of Fire could contribute \$5.1 to \$10 billion to the province’s GDP

⁸³⁵ *Far North Act*, ss 12(5)(f), 12(7).

⁸³⁶ Karl Skogstad & Ayman Alahmar, “The Mining Industry in Northwestern Ontario: An Analysis of Recent Developments and the Strategy for Success,” (Thunder Bay, Ontario: Northern Policy Institute, 2016) at 4.

⁸³⁷ Skogstad & Alahmar, “The Mining Industry in Northwestern Ontario,” *supra* note 836 at 4.

⁸³⁸ See e.g. Chong, *Resource Development in Canada*, *supra* note 616 at 5; Ontario Mineral Development Strategy 2015, *supra* note 628 at 10-11.

in the first 10 years and \$14.4 to \$27 billion in the first 32 years.”⁸³⁹ Many basic needs are not met in the communities of the Far North, including safe drinking water,⁸⁴⁰ and it is argued that mineral extraction in the region will contribute resources to address these basic needs.⁸⁴¹ 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 better futures,” as professor Gibson suggests.⁸⁴² Moreover, there are other sources of wealth that could be tapped more easily to satisfy these basic needs; most obviously, the escalating wealth of corporations and the extremely rich⁸⁴³ could be taxed more effectively.

In addition, there are claims that “[t]he chromite in the Ring of Fire could meet North American needs for two centuries.”⁸⁴⁴ Also, the minerals discovered in the Ring of Fire include copper and nickel, which are used in lithium-ion batteries for electric vehicles,⁸⁴⁵ and copper and titanium for solar panels,⁸⁴⁶ so these metals are supposedly needed for the fight against climate change. The question is whether these are basic needs that should be satisfied to ensure wellbeing, or rather, demand generated by commodity

⁸³⁹ Chong, *Resource Development in Canada*, *supra* note 616 at 5 [references omitted].

⁸⁴⁰ Most Matawa FN communities are under boil water advisories; since 1995 in the case of Neskantaga. Advisories for Ontario, online: Watertoday.ca <www.watertoday.ca/textm-p.asp?province=8> (accessed 24 January 2018).

⁸⁴¹ Chong, *Resource Development in Canada*, *supra* note 616 at 7-8.

⁸⁴² Generally, Gibson, “Turning Mines into Bridges,” *supra* note 827 and Atlin & Gibson, “Lasting Regional Gains from Non-renewable Resource Extraction,” *supra* note 651 at 49.

⁸⁴³ In January 2018, Oxfam International reported that the 2017 increase in wealth of the “2,043 dollar billionaires worldwide ... was enough to end extreme poverty seven times over. 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.”

6. Max Lawson, “Reward Work, not Wealth,” (Oxfam International, 2018), online: <https://www.oxfam.org/sites/www.oxfam.org/files/file_attachments/bp-reward-work-not-wealth-220118-summ-en.pdf> (accessed 10 October 2018) at 8.

⁸⁴⁴ Chong, *Resource Development in Canada*, *supra* note 616 at 3.

⁸⁴⁵ Mark Burton & Eddie Van Der Walt, “Electric-Car Revolution Shakes Up the Biggest Metals Markets,” (2 August 2017), online: Bloomberg LP <www.bloomberg.com/news/articles/2017-08-02/electric-car-revolution-is-shaking-up-the-biggest-metals-markets> (accessed 8 August, 2017).

⁸⁴⁶ Clean Energy Canada, “Mining for Clean Energy: Tracking the Clean Energy Revolution,” (Report, Clean Energy Canada, June 2017), online: <cleanenergycanada.org/wp-content/uploads/2017/06/MiningCleanEnergy2017.pdf> (accessed 30 June 2018) at 4.

markets and consumer preferences, including for individually owned (electric) cars and ever-increasing energy consumption. What would the “need” for chromite and the other metals in the Ring of Fire look like in a degrowth economy? Determining what needs justify mineral extraction is a key challenge for ecological law, but it is reasonable to suggest that mining would be based on minimizing depletion and harm, and therefore very limited, with high reliance on existing stocks and landfill-mining to satisfy a much-reduced demand for minerals.⁸⁴⁷ The *lens of ecological law* analysis above indicates mining in the Ring of Fire would be inconsistent with *ecological primacy* because of the high degree of ecological integrity of the region, and with *ecological justice* because of the importance of the region for biodiversity at risk and the lack of serious justification of need for the minerals to be extracted.

4.5 Conclusion

This case study focused on obstacles and opportunities for ecological law in the framework promising sustainable mining in one of the few remaining areas of the planet with high ecological integrity—the Ring of Fire and the Far North region of which it is part. Following a brief presentation of the context, I provided an overview of the main rules that apply to mining in the Ring of Fire (with a focus on access to minerals and benefits from their extraction; public participation and community consent; rules authorizing mining activities; and rules to minimize harm and establish liability for harm during and after operations), and then considered these rules from the perspective of the three principles of ecological law that constitute the *lens of ecological law*.

⁸⁴⁷ Sbert, “*Re-imagining Mining*,” *supra* note 529.

Overall, the rules governing mining in the Ring of Fire reviewed here are largely inconsistent with an ecological law approach to mining in the region, because they are anthropocentric, prioritize economic interests over ecological integrity, and favor a few mining-claims-holding humans today over current and future generations of humans (the majority of whom are First Nations on whose traditional territories the mining would occur regardless of whether they have provided their FPIC or not) and other beings. These rules would allow, and even promote, mining in the Ring of Fire. Under ecological law no mineral extraction would be allowed—let alone encouraged—in the Ring of Fire, (regardless of pre-existing mining claims) because the high ecological integrity of the Far North (*ecological primacy*) is of regional and global ecological significance and because of the region’s importance for biodiversity at risk (*ecological justice*).

In terms of *ecocentrism*, the main obstacles in these rules are their anthropocentric view and utilitarian approach to the land and other beings, including using living beings to test the lethality of waste discharged from metal mining operations. However, there may be synergies with ecological law if we look toward Indigenous notions of interconnectedness among all beings, and of the agency of rocks.⁸⁴⁸

The main obstacles from the perspective of *ecological primacy* are the provisions that prioritize mineral extraction over other land uses, in particular sections 204(3) of the *Mining Act* and 14(4) of the *Far North Act*, which allow for overriding community based land use planning decision to exclude mining in certain areas, and section 14(3) of the *Far North Act*, which precludes land uses that are incompatible with mining in areas with pre-existing mining claims. At the same time, there are opportunities to further *ecological primacy* in some of the tools that have been recommended to guide development in the

⁸⁴⁸ Borrows, “Living Law on a Living Earth,” *supra* note 348 at 245.

region, like the conservation matrix and sustainability-based regional assessments. Moreover, if demands for Indigenous jurisdiction succeed, Indigenous laws might bring into play values that resonate with ecological law, or present different obstacles (as discussed in section 1.5 above).

The main obstacles from the perspective of *ecological justice* are the failure to recognize the need to obtain the free prior and informed consent of the Matawa First Nations regarding development activities, including mining, in their traditional territories; and, again, the prioritizing of the interest of a few humans today (predominantly mining companies and their shareholders) over current and future generations of First Nations communities and other nonhuman beings that rely on the land for physical and cultural sustenance.

Finally, just as *ecological primacy* involves asking “‘how much is too much?’ with regards to human development on the landscape” (as per the conservation-matrix model),⁸⁴⁹ *ecological justice* requires questioning “what is truly needed?” with regards to mineral extraction. Yet, a question rarely posed of mining development is ‘what are the minerals for?’ Under the current system, the reason for mining is that companies and their shareholders greatly profit from extracting minerals for a wide array of uses that may or may not relate to the satisfaction of basic needs, including financial speculation. *Ecological justice* demands that ecological integrity be maintained for all beings to have continued access to the sustaining capacity of the Earth. Mining draws substantially on the Earth’s sustaining capacity by extracting non-renewable minerals and by transforming (and at worst, destroying) the landscape, directly and through induced development, so fairness to other human and nonhuman beings requires that there be very good reasons to

⁸⁴⁹ The Canadian BEACONS Project, “Conservation Matrix Model,” *supra* note 813.

undertake it. Because it is hard to imagine mineral extraction projects that benefit beings other than humans, and since it is practically impossible to mine without causing harm to other beings and restoration of mined sites is deemed impossible, *ecological justice* implies that extraction can only be justified when there are no alternative means of satisfying basic human needs. Developing a framework for ecologically-bound needs-based mineral extraction is one of the major challenges in a shift to ecological law and an ecologically sustainable economy.

While proposing a comprehensive plan to adopt an ecological law approach to mining in the Ring of Fire is not the purpose of this case study, a few specific recommendations can be drawn from it. Steps governments could take to move towards an ecological law approach with respect to mining there and beyond include:

- Recognizing First Nations jurisdiction in the Far North.
- Subjecting any development related to minerals in the Ring of Fire to the determination of whether it could be carried out without impairing ecological integrity in the Far North (through a regional sustainability assessment that includes cumulative effects) and to constraints based on a conservation matrix approach and requirements for a positive contribution to sustainability.
- Eliminating all exemptions and exceptions prioritizing mineral rights (with compensation based on incurred expenses, not expected profits, for any that need to be cancelled).
- Regulating economic activities holistically in any specific area to ensure their combined and cumulative effects do not impair ecological integrity.

Detailed standards should be set, regularly assessed and revised to consider cumulative effects and changes in the ecosystem in which they are being applied.

- Setting substantive standards for remediation based on what is needed for functioning ecosystems to retain their integrity, not on what is achievable technically and financially by the proponent.
- Eliminating the exemption for mining and other economic activities from the Ontario *Endangered Species Act* prohibitions to harm endangered species and their habitat.
- Eliminating testing of effluent contaminants on living beings.

CHAPTER 5 – MINING, RIGHTS OF NATURE AND SUMA QAMAÑA/VIVIR BIEN IN BOLIVIA FROM THE *LENS OF ECOLOGICAL LAW*

This case study considers, with a focus on mining, the implications for a shift to ecological law of a legal framework that enshrines the rights of nature and the Andean concept of *suma qamaña/vivir bien* or *sumak kawsay/buen vivir* (*living well*). Bolivia and Ecuador have adopted such frameworks. I chose to study the Bolivian framework primarily because scholars have already analyzed the Ecuadorean one from an ecological law perspective.⁸⁵⁰ This chapter thus focuses on selected Bolivian constitutional and legal provisions regarding the rights of nature, *living well* and mineral extraction, and considers the *Salar de Uyuni* lithium industrialization project as an example.

5.1 *Brief Context: Alternatives to Development and Neo-extractivism in Bolivia*

The majority of Bolivians (more than sixty percent) identify as Indigenous.⁸⁵¹ In December of 2005 Bolivia elected its first Indigenous (Aymara) president, Evo Morales.⁸⁵² Lalander describes the victory of Morales as “the outcome of decades of indigenous social movements’ struggles against neoliberal politics, which dominated the economic doctrine since 1985,” adding that “[i]ndigenous movement struggle is per se a

⁸⁵⁰ Louis J Kotzé & Paola Villavicencio Calzadilla, “Somewhere between Rhetoric and Reality: Environmental Constitutionalism and the Rights of Nature in Ecuador,” (2017) 6:3 Transnational Environmental Law 401; David Humphreys, “Rights of Pachamama: The Emergence of an Earth Jurisprudence in the Americas,” (2017) 20 Journal of International Relations & Development 459; Craig M Kauffman & Pamela L Martin, “Can Rights of Nature Make Development More Sustainable? Why Some Ecuadorean Lawsuits Succeed and Others Fail,” (2017) 92 World Development 130; Carolina Valladares & Rutgerd Boelens, “Extractivism and the Rights of Nature: Governmentality, ‘Convenient Communities’ and Epistemic Pacts in Ecuador,” (2017) 26:6 Environmental Politics 1015; Maria Akchurin, “Constructing the Rights of Nature: Constitutional Reform, Mobilization, and Environmental Protection in Ecuador,” (2015) 40:4 Law & Soc Inquiry 937.

⁸⁵¹ L Hancock, N Ralph & SH Ali, “Bolivia’s Lithium Frontier: Can Public Private Partnerships Deliver a Minerals Boom for Sustainable Development?,” (2018) 178 Journal of Cleaner Production 551, at 552.

⁸⁵² For an account of the rise of Evo Morales’ Movement towards Socialism see e.g. Rickard Lalander, “Ethnic Rights and the Dilemma of Extractive Development in Plurinational Bolivia,” (2017) 21:4 Int’l JHL 464.

proposal of systemic change and a rejection of global capitalism, imperialism and oppression along the lines of ethnicity and class.”⁸⁵³ Backed by a broad-ranging coalition of interests united as the Movement Toward Socialism (*Movimiento al Socialismo*), Morales’ election came with a promise to transcend capitalism in a new plurinational state that would uphold Indigenous rights, pursue *living well* and respect Mother Earth. The new Constitution, adopted in 2009,⁸⁵⁴ describes the new State it aims to build as follows:

A State based on the respect and equality of all, under principles of sovereignty, dignity, complementarity, solidarity, harmony and equity in the distribution and redistribution of the products of society, where the search for living well predominates; with respect for the economic, social, juridical, political and cultural plurality of the inhabitants of this land; in collective coexistence, with access to water, work, education, health and housing for all. We have left the colonial, republican and neo-liberal State in the past. We take on the historic challenge of collectively constructing the Unitary Social State of Plurinational Communitarian Law, which integrates and articulates the goals of advancing toward a Bolivia that is democratic, productive, that bears and inspires peace, and is committed to the integral development and free determination of peoples.⁸⁵⁵

Steps towards translating this vision on the ground have focused on alleviating poverty through social programs, apparently with considerable success so far. According to Bolivia’s Statistics Institute, the Morales administration has reduced poverty from 59.9

⁸⁵³ On the significance of the move from a republic to a plurinational state, see Lalander, “Ethnic Rights and the Dilemma of Extractive Development in Plurinational Bolivia,” *supra* note 852 at 464.

⁸⁵⁴ *Constitución Política del Estado (de Bolivia)* (Political Constitution of the State of Bolivia), 7 February 2009. The provisions quoted herein are as per my translation to English from the Spanish original [*Constitution of Bolivia*].

⁸⁵⁵ *Constitution of Bolivia*, Preamble.

percent in 2006 to 36.4 percent in 2017,⁸⁵⁶ and improved conditions for many through wealth redistribution and social programs supported by natural resource extraction (mainly hydrocarbons and mining).⁸⁵⁷ However, critics argue that the means chosen to finance these programs—extraction of natural resources—remain rooted in the past practices the new state is supposed to do away with.⁸⁵⁸

Mining is an important part of Bolivia's history. According to historian Kendall W. Brown, there was metallurgy and metalworking in the Andes since at least 1500 BCE.⁸⁵⁹ Three thousand years later, bullion from the silver mines in the Andes and Mexico, along with Brazilian gold “helped capitalism triumph over feudalism”—at a brutal cost to miners and with little benefit for the majority of the native population.⁸⁶⁰

⁸⁵⁶ “Pobreza en Bolivia se ubica en su nivel histórico más bajo,” (19 April 2018), online: *TeleSur* <<https://www.telesurtv.net/news/pobreza-nivel-historico-mas-bajo-bolivia-20180419-0036.html>> (accessed 12 October 2018). See also Eduardo Gudynas, “Development Alternatives in Bolivia: The Impulse, the Resistance, and the Restoration,” (2013) 46:1 *NACLA Report on the Americas* 22 at 24; C.f. Jose P Mauricio Vargas & Santiago Garriga, “Explaining Inequality and Poverty Reduction in Bolivia,” (IMF Working Paper, December 2015), online: <https://www.elibrary.imf.org/doc/IMF001/23003-9781513529608/23003-9781513529608/Other_formats/Source_PDF/23003-9781513591582.pdf> (crediting the Morales government only with political stability that has helped growth and helping the elderly poor through the Renta Dignidad program (accessed 12 October 2018) at 5.

⁸⁵⁷ Gudynas, “Development Alternatives in Bolivia,” *supra* note 856 at 26.

⁸⁵⁸ See e.g. Vladimir Diaz-Cuellar, “The Political Economy of Mining in Bolivia during the Government of the Movement Towards Socialism (2006–2015),” (2017) 4 *The Extractive Industries & Society* 120 (arguing “that the MAS [Morales’ party, Movimiento al Socialismo] government’s economic policies in the sector are fundamentally a continuation of the neoliberal economic model”); similarly Diego Andreucci & Isabella M Radhuber, “Limits to “Counter-neoliberal” Reform: Mining Expansion and the Marginalisation of Post-extractivist Forces in Evo Morales’s Bolivia,” (2017) 84 *Geoforum* 280; Lalander, “Ethnic Rights and the Dilemma of Extractive Development in Plurinational Bolivia,” *supra* note 852 (arguing that “during Evo Morales’ presidency, class-based human rights in practice tend to be superior to the ethnically defined rights, as a reflection of the dilemma of extractive development”); Franck Poupeau, “Bolivia between Pachamama and Extractive Model,” (2013) 46 *Ecologie politique* 109; Gudynas, “Development Alternatives in Bolivia: *supra* note 856; Benjamin Kohl & Linda Farthing, “Material Constraints to Popular Imaginaries: The Extractive Economy and Resource Nationalism in Bolivia,” (2012) 31 *Political Geography* 225.

⁸⁵⁹ Kendall A Brown, *A History of Mining in Latin America: From the Colonial Era to the Present*, (Albuquerque, New Mexico, USA; New Mexico University Press, 2012) at 6-8.

⁸⁶⁰ Brown, *A History of Mining in Latin America*, *supra* note 859 at 40. Moreover, Hancock notes: “The silver mines of Potosi (exploited for over 500 years), claimed an estimated eight million lives through accidents, pollution and disease since their opening in the Spanish colonial period, and have been ranked as one of the 100 deadliest atrocities in human history. [Citing M. White, *Atrocities: the 100 Deadliest Episodes in Human History*, (New York: WW Norton & Company, 2011)]” Hancock, Ralph & Ali, “Bolivia’s Lithium Frontier,” *supra* note 851 at 552.

Mining and “extractivism”—defined by Alberto Acosta as “those activities which remove large quantities of natural resources that are not processed (or processed only to a limited degree), especially for export”⁸⁶¹—remained a feature of Bolivia’s economy ever since. Despite Bolivia’s mineral (and other) resources, poverty has affected a large part of its population, but wealth redistribution and social programs to reduce poverty are now being supported by natural resource extraction (mainly hydrocarbons and mining).⁸⁶² This natural resource-based development adopted by progressive governments in Latin America was first referred to as “neo-extractivism” in 2009 by the Uruguayan social scientist Eduardo Gudynas.⁸⁶³ Critics of neo-extractivism note that it is incompatible with *living well* because it “maintains and reproduces key elements of the extractivism that dates back to colonial times,”⁸⁶⁴ and that in practice, community participation, Indigenous rights and respect for nature have too often been compromised because of it.⁸⁶⁵ Proponents of *living well* as an “alternative to development” are also disappointed with Morales’ neo-extractivism.⁸⁶⁶ Yet, Gudynas (among them) writes that “there have been

⁸⁶¹ According to Alberto Acosta: “Extractivism is a mode of accumulation that started to be established on a massive scale 500 years ago. The world economy – the capitalist system – began to be structured with the conquest and colonisation of the Americas, Africa and Asia. This extractivist mode of accumulation has been determined ever since by the demands of the metropolitan centres of nascent capitalism. Some regions specialised in the extraction and production of raw materials – primary commodities – while others took on the role of producing manufactured goods. The former export Nature, the latter import it [references omitted].” Alberto Acosta, “Extractivism and Neoextractivism: Two Sides of the Same Curse,” 61-86 in M Lang & D Mokrani, eds, *Beyond Development: Alternative Visions from Latin America*, (1st translated edition) (Amsterdam, The Netherlands; Quito, Ecuador: Transnational Institute; Rosa Luxemburg Foundation, 2013) at 62.

⁸⁶² Gudynas, “Development Alternatives in Bolivia,” *supra* note 856 at 26.

⁸⁶³ Hans-Jürgen Burchardt & Kristina Dietz, “(Neo-)extractivism: A New Challenge for Development Theory from Latin America,” (2014) 35:3 *Third World Quarterly* 468, at 469-470.

⁸⁶⁴ Acosta, “Extractivism and Neoextractivism,” *supra* note 861 at 73.

⁸⁶⁵ See generally Tom Perreault, “Performing Participation: Mining, Power, and the Limits of Public Consultation in Bolivia,” (2015) 20:3 *Journal of Latin American & Caribbean Anthropology* 433; Lalander, “Ethnic Rights and the Dilemma of Extractive Development in Plurinational Bolivia,” *supra* note 852 at 472; and Gudynas, “Development Alternatives in Bolivia” *supra* note 856 at 24.

⁸⁶⁶ See e.g. Eduardo Gudynas & Alberto Acosta, “El buen vivir más allá del desarrollo,” (2011) 181 *Revista Quehacer* 70; Gudynas, “Development Alternatives in Bolivia,” *supra* note 856; and C Unai

substantial changes in Bolivia, many of which have been quite positive,” and that “[e]verything considered, the national terms of debate have been modified, and the impulse for alternatives to development has not been extinguished, as it remains present in many social movements.”⁸⁶⁷

Living well as an alternative to development and rights of nature seem inherently aligned with ecological law. Section 5.2 below describes the main provisions of the Bolivian framework regarding the rights of nature, *living well* and mineral resources; section 5.3 contains an analysis of these from the *lens of ecological law*; and section 5.4 applies this analysis to the *Salar de Uyuni* lithium industrialization project.

5.2 Selected Law

5.2.1 The Rights of Mother Earth

In contrast to the 2008 *Constitution of Ecuador*—which is the first in the world to enshrine the rights of nature⁸⁶⁸—the 2009 *Constitution of Bolivia* mentions Mother Earth (*Madre Tierra* or *Pachamama*) only in its preamble.⁸⁶⁹ In Bolivia, the rights of nature were established instead in the 2010 *Rights of Mother Earth Law*⁸⁷⁰ and “upgraded”⁸⁷¹

Villalba-Eguiluz & Iker Etxano, “*Buen Vivir* vs Development (II): The Limits of (Neo-) Extractivism,” (2017) 138 *Ecological Economics* 1.

⁸⁶⁷ Gudynas, “Development Alternatives in Bolivia,” *supra* note 856 at 26.

⁸⁶⁸ See e.g. The Rights of Nature, “Ecuador Adopts Rights of Nature in Constitution,” online: The Rights of Nature <<https://therightsofnature.org/ecuador-rights/>> (accessed 12 March 2018).

⁸⁶⁹ *Constitution of Bolivia*, Preamble, par 1, 6.

⁸⁷⁰ *Ley de Derechos de la Madre Tierra, (Ley N° 071)* (Rights of Mother Earth Law), 21 December 2010. The provisions quoted herein are as per my translation to English from the Spanish original [*Rights of Mother Earth Law*].

⁸⁷¹ According to Lalander, “[t]he framework character of the law implies that it is superior to other laws. For instance, the laws of mining, hydrocarbons, water, etc. should correspond to the contents of the *Framework Law*.” Lalander, “Ethnic Rights and the Dilemma of Extractive Development in Plurinational Bolivia,” *supra* note 852 at 472.

and linked to *living well* and *integral development* in the 2012 *Framework Law of Mother Earth and Integral Development for Living Well* (hereinafter the “*Framework Law*”).⁸⁷²

The *Framework Law* defines “Mother Earth” as

the dynamic live system comprised of the indivisible community of all living systems and living beings that are interrelated, interdependent and complementary, and share a common destiny. Mother Earth is considered sacred; nourishes and is the home that contains, sustains and reproduces all living beings, ecosystems, biodiversity, organic societies and the individuals that constitute them.⁸⁷³

The object of the *Rights of Mother Earth Law* “is to recognize the rights of Mother Earth, as well as the obligations and duties of the Plurinational State and of society to ensure these rights are respected.”⁸⁷⁴ Without prejudice to the existence of other rights of Mother Earth,⁸⁷⁵ this law articulates seven rights: to life, to the diversity of life, to water, to clean air, to equilibrium, to restoration, and to pollution-free living.⁸⁷⁶

The *Rights of Mother Earth Law* describes the legal status of Mother Earth as a “collective public interest subject”⁸⁷⁷ and provides direction for exercising the rights of

⁸⁷² *Ley Marco de la Madre Tierra y Desarrollo Integral para Vivir Bien (Ley No. 300)* (Framework Law of Mother Earth and Integral Development for Living Well), 15 October 2012. The provisions of this law quoted herein are as per my translation to English from the Spanish original [*Framework Law*].

⁸⁷³ *Framework Law*, art 5. Article 3 of the *Rights of Mother Earth Law* offers a very similar definition: “Mother Earth is the dynamic live system comprised of the indivisible community of all the living systems and living beings, interrelated, interdependent and complementary that share a common destiny. Mother Earth is considered sacred from the worldviews of indigenous native campesino nations and peoples.” In turn, “indigenous native campesino nations and peoples” (“*nación y pueblo indígena originario campesino*”) is defined by article 30-I of the *Constitution of Bolivia* as follows: “Every human collective that shares cultural identity, language, historic tradition, institutions, territoriality and worldview, whose existence predates the Spanish colonial invasion, is an indigenous native campesino nation and people.” For a discussion of the meaning and significance of this set of terms, see Lalander, “Ethnic Rights and the Dilemma of Extractive Development in Plurinational Bolivia,” *supra* note 852 at 470, 475.

⁸⁷⁴ *Rights of Mother Earth Law*, art 1.

⁸⁷⁵ *Rights of Mother Earth Law*, art 5.

⁸⁷⁶ *Rights of Mother Earth Law*, art 7.

⁸⁷⁷ *Rights of Mother Earth Law*, art 5.

Mother Earth so as to ensure “the functionality of living systems is not affected irreversibly.”⁸⁷⁸ Its Article 2 establishes six principles: 1) Harmony; 2) Collective Good; 3) Guarantee of Regeneration of Mother Earth; 4) Respect and Defense of the Rights of Mother Earth; 5) No Commercialization; and 6) Interculturalism. The *Framework Law* also sets out 17 principles, restating and adding to the principles established in the *Rights of Mother Earth Law*.⁸⁷⁹

Finally, the *Rights of Mother Earth Law* establishes the obligations of the State and the duties of natural and juridical persons, and creates a Mother Earth Ombudsman Office.⁸⁸⁰ Among others, the obligations of the State include developing “balanced forms of production and consumption patterns to satisfy the needs of the Bolivian people for Living Well, while safeguarding the regenerative capacities and the integrity of the cycles, processes and vital equilibria of Mother Earth.”⁸⁸¹ The duties of persons include, for example, defending and respecting the rights of Mother Earth, adopting “production practices and consumer habits in harmony” with these rights, and ensuring “the sustainable use and exploitation of the components of Mother Earth.”⁸⁸²

⁸⁷⁸ *Rights of Mother Earth Law*, art 6. “Living systems” are defined in art 4 of the *Rights of Mother Earth Law*, cited in *infra* note 936.

⁸⁷⁹ *Framework Law*, art 4. The principles are: 1) Compatibility/complementarity of rights, obligations and duties; 2) No Commercialization of the Environmental Functions of Mother Earth; 3) Integration [*Integralidad*]; 4) Precaution; 5) Guarantee of Restoration of Mother Earth; 6) Guarantee of Regeneration of Mother Earth; 7) Historical Responsibility; 8) Priority for Prevention; 9) Plural Participation; 10) Water for Life; 11) Solidarity between Human Beings; 12) Harmonious Relation; 13) Social Justice; 14) Climate Justice; 15) Plural Economy; 16) Complementarity and Equilibrium; and 17) Dialogue of Ways of Knowing.

⁸⁸⁰ *Rights of Mother Earth Law*, arts 8, 9 and 10, respectively. As of October 2018, the Mother Earth Ombudsman Office had not been established.

⁸⁸¹ *Rights of Mother Earth Law*, art 8.2.

⁸⁸² *Rights of Mother Earth Law*, arts 9.1, 9.4, 9.5, respectively.

5.2.2 *Suma Qamaña/Vivir Bien (Living Well) and Integral Development for Living Well*

Suma qamaña/vivir bien or *living well* is a concept rooted in Indigenous Andean worldviews that was adopted by the Morales government in Bolivia as a core value and goal for state policies (and also espoused by the Correa government in Ecuador as *sumak kawsay/buen vivir*).⁸⁸³ According to Artaraz and Calestani, while the term is Aymara, “*suma qamaña/vivir bien*” is meant to reflect many similar concepts from different cultural groups in Bolivia.⁸⁸⁴ It means something closer to “*vivir bien juntos*” or “*convivir bien*” (live/coexist well together) and reflects relations among humans, as well as between humans and nature.⁸⁸⁵ The concept implies a shift from a conception of wellbeing as pertaining to individuals to collective wellbeing.⁸⁸⁶

Also, according to Lalander “[a]dvocates of Suma Qamaña suggest that development/progress as most people understand it is unnecessary” and “[a]cademics, social movement activists and politicians in Bolivia, Ecuador and elsewhere frequently use the Vivir Bien concept, both as a critique of development (understood as progress/economic growth) and as a principle of harmonious and ecologically sustainable life.”⁸⁸⁷ Indeed, *living well* has been characterised as an “alternative to development”⁸⁸⁸ and is said to have much in common with degrowth—both being “attempts to re-politicize

⁸⁸³ See e.g. Andreu Viola Recasens, “Discursos ‘pachamamistas’ versus políticas desarrollistas: el debate sobre el sumak kawsay en los Andes,” (2015) 42:5 *Latin American Perspectives* 216 (including a critical appraisal of the origins of this concept); and Kepa Artaraz & Melania Calestani, “Vivir bien, entre utopía y realidad,” (2013) 18 *Tabula Rasa* 105.

⁸⁸⁴ Artaraz & Calestani, “Vivir bien, entre utopía y realidad,” *supra* note 883 at 115.

⁸⁸⁵ Artaraz & Calestani, “Vivir bien, entre utopía y realidad,” *supra* note 883 at 116.

⁸⁸⁶ Artaraz & Calestani, “Vivir bien, entre utopía y realidad,” *supra* note 883 at 119.

⁸⁸⁷ Lalander, “Ethnic Rights and the Dilemma of Extractive Development in Plurinational Bolivia,” *supra* note 852 at 470 [reference omitted].

⁸⁸⁸ See e.g. Gudynas & Acosta, “El buen vivir más allá del desarrollo,” *supra* note 866 Gudynas, “Development Alternatives in Bolivia,” *supra* note 856; and Villalba-Eguiluz & Etxano, “*Buen Vivir* vs Development (II),” *supra* note 866.

the public debate by identifying and naming different socio-environmental futures,”⁸⁸⁹ and sharing values such as:

... bio-ethics or respect for all life and the rights of (and stewardship towards) nonhuman nature; holistic human well-being that puts non-material (including spiritual) and material aspects on the same footing; equity and justice; diversity and pluralism; governance based on subsidiarity and direct participation; collective work, solidarity and reciprocity while respecting the individual; responsibility; ecological integrity and resilience; simplicity (or the ethic of ‘enoughness’ and sufficiency ...); dignity of work; and qualitative pursuit of happiness.”⁸⁹⁰

However, as noted earlier and discussed in the *lens of ecological law* analysis below, those who see *living well* as an alternative to development consider the Bolivian framework’s linking of *living well* with the concept of *integral development* (explained below) as a betrayal of the former.⁸⁹¹

The *Constitution of Bolivia* includes *living well* as one of the “ethical-moral principles of the plural society,”⁸⁹² but it is the *Framework Law* that fully introduces this concept as a long-term goal of state actions, defining it as the “civilizational and cultural horizon alternative to capitalism and modernity” that “means living in complementarity, in harmony and equilibrium with Mother Earth and societies, in equity and solidarity, and

⁸⁸⁹ A Kothari, F Demaria & A Acosta, “Buen Vivir, Degrowth and Ecological Swaraj: Alternatives to Development and the Green Economy,” (2015) 57 Development 362 at 370.

⁸⁹⁰ Kothari, Demaria & Acosta, “Buen Vivir, Degrowth and Ecological Swaraj,” *supra* note 889 at 370.

⁸⁹¹ Gudynas, “Development Alternatives in Bolivia,” *supra* note 856 at 25.

⁸⁹² Article 8 of the *Constitution of Bolivia* reads: “I. The State assumes and promotes as ethical-moral principles of the plural society: ama qhilla, ama llulla, ama suwa (do not be lazy, a liar, nor a thief), suma qamaña (living well), ñandereko (harmonious life), teko kavi (good life), ivi maraei (land without evil) and qhapaj ñan (noble path or life).” [My translation]

eliminating inequalities and mechanisms of domination.”⁸⁹³ The *Framework Law* then attempts to reconcile *integral development* with *living well* through the definition of *integral development for living well* as an “intermediate phase” consisting of the ongoing process “for the creation, provision and strengthening of conditions, capacities and material, social and spiritual means ... to promote relations of solidarity, support and mutual cooperation, complementarity, and to strengthen edifying community and collective links to achieve Living Well in harmony with Mother Earth.”⁸⁹⁴ This is consistent with the point C. Unai Villalba-Eguiluz and Iker Etxano make that

those who defend the path of deepening extractivism to later overcome it are not necessarily defending the compatibility of extractivism with BV [Buen Vivir]. Instead they are proposing (neo-)extractivism as a transitory stage of material accumulation that is indispensable for generating the enabling conditions for a process of change towards BV.

... For the case of Bolivia, [Bolivian Vice-President] García-Linera argues that it is not possible to break with the international division of labour from a single country and, given the restrictions derived from the global political economy, he characterises the extractivist policies promoted by the government as a first stage that will make it possible to create the material conditions to abandon extractivism at a future time.⁸⁹⁵

The *Framework Law* contains an elaborate layering of definitions, principles, objectives and guidance for policies, etc. Among these, it sets out 17 principles⁸⁹⁶ and establishes ten specific “Objectives of Living Well Through Integral Development” that

⁸⁹³ *Framework Law*, art 5.2.

⁸⁹⁴ *Framework Law*, art 5.3.

⁸⁹⁵ Villalba-Eguiluz & Etxano, “*Buen Vivir* vs Development (II),” *supra* note 866 at 4 and footnote 3 [reference omitted].

⁸⁹⁶ *Framework Law*, art 4. See *supra* note 879.

are “set forth in order to build a just, equitable and solidary society”⁸⁹⁷ for which the *Framework Law* thereafter establishes guidance and creates policy, institutional and financial mechanisms aimed at implementing these objectives. The objectives include the promotion of “sustainable consumption habits,” of production processes “that are nonpolluting and respect the capacity of regeneration of Mother Earth, in accordance with the collective interest,” the conservation of “the components, zones and living systems of Mother Earth within an integral and sustainable management framework,” the need to guide “investment and distribution of wealth by social justice,” and the need to “[e]nable equitable access to the components of Mother Earth.”⁸⁹⁸ Finally, the *Framework Law* also reflects the Morales administration’s understanding of *integral development* as a transition toward the future attainment of *living well* noted above, by establishing that “the foundations of the concept of Living Well through integral development in harmony and equilibrium with Mother Earth established in this Law, *shall be applied and implemented gradually* by the Plurinational State of Bolivia and the Bolivian people, through specific laws, regulations, policies, norms, plans, programs and projects.”⁸⁹⁹

5.2.3 Mineral Resources

The *Constitution of Bolivia* is clear about the importance of natural resources and the role of the state in promoting their extraction and transformation within Bolivia. The exploitation of natural resources, including minerals, is an essential part of *integral development*. First, the *Constitution* conceives of natural resources extensively to include

⁸⁹⁷ *Framework Law*, art 12.

⁸⁹⁸ *Framework Law*, art 12

⁸⁹⁹ *Framework Law*, Additional Provisions, Second [emphasis added]

“the minerals in all their states, hydrocarbons, water, air, soil and subsoil, forests, biodiversity, the electromagnetic spectrum and all elements and physical forces susceptible of exploitation” and establishes that they “are strategic and of public interest for the development of the country.”⁹⁰⁰ The *Framework Law* then provides that natural resources are “components of Mother Earth for Living Well” defining the latter as “the beings, elements and processes that form the living systems located in the different zones of life, that pursuant to the conditions of sustainable development, can be used or consumed as natural resources by human beings, as established in the Political Constitution of the State.”⁹⁰¹ Moreover, the *Framework Law* defines “exploitation” (*aprovechamiento*) and “use” (*uso*) of natural resources as “the utilization of the products of the components of Mother Earth,” in the case of exploitation, “by individual and collective persons for integral development, for public interest and/or commercial ends, authorized by the Plurinational State of Bolivia,” and in the case of use, “by the Bolivian people in a sustainable manner for noncommercial ends,” but in both cases, “in harmony and equilibrium with Mother Earth.”⁹⁰²

In addition, the *Framework Law* also spells out the “Foundations and Directions for Living Well through Integral Development in Harmony and Equilibrium with Mother Earth” for several different sectors, from agriculture to education.⁹⁰³ In the case of mining, it provides that it “will be carried out progressively, with the most adequate and clean technologies for purposes of reducing environmental and social damages to the greatest extent;” effects on living systems will be regulated and subject to recurrent

⁹⁰⁰ *Constitution of Bolivia*, art 348.

⁹⁰¹ *Framework Law*, art 5.4.

⁹⁰² *Framework Law*, arts 5.6 and 5.14.

⁹⁰³ *Framework Law*, Title III.

participatory (and culturally appropriate) audits; “processes for industrialization in mining ... that guarantee the maintenance of the capacities of regeneration of the zones of life and living systems” will be developed under state guidance; mineral producers will be required to carry out “restoration processes of the zones of life and to mitigate damages” and those who “cause irreversible damages to the components of Mother Earth [will] be held responsible in accordance with a specific Law;” and, finally, that “[e]very form of exploitation of the components of Mother Earth—nonmetallic, brine, evaporation and others—shall be carried out through extraction and transformation processes in keeping with harmony and equilibrium with Mother Earth.”⁹⁰⁴

Bolivia adopted a new mining law in May 2014, the *Mining and Metallurgy Law*.⁹⁰⁵ This law also establishes a set of principles, including “reciprocity with Mother Earth,” which states that mining activities shall be developed in keeping with the *Constitution*, the *Framework Law*, and other applicable norms.⁹⁰⁶ The *Mining and Metallurgy Law*’s chapter on the environment,⁹⁰⁷ states that mining activities shall be developed in accordance with the *Constitution*, the *Mining and Metallurgy Law*, the *Law of Environment*⁹⁰⁸ and its regulations, and other legal norms in effect,⁹⁰⁹ making no explicit reference to the rights of Mother Earth or the directions for mining established in the Article 26 of the *Framework Law*. Likewise, in establishing the “priority foundations” for mining, Article 6 of the *Mining and Metallurgy Law* includes the “protection of the

⁹⁰⁴ *Framework Law*, art 26.1

⁹⁰⁵ *Ley de Minería y Metalurgia* (Ley No. 535) (Mining and Metallurgy Law), 28 May 2014 [*Mining and Metallurgy Law*].

⁹⁰⁶ *Mining and Metallurgy Law*, art 5.

⁹⁰⁷ *Mining and Metallurgy Law*, Title VI, Chapter III (arts 217-222).

⁹⁰⁸ *Ley de Medio Ambiente* (Law N° 1333) (Law of the Environment), 27 April 1992 [*Law of the Environment*].

⁹⁰⁹ *Mining and Metallurgy Law*, art 217.

environment as an obligation for the development of mineral activities, in accordance to environmental norms,” but makes no reference to the rights of Mother Earth.⁹¹⁰

The chapter on the environment also provides that “mineral rights holders who for whatever reason lose these rights remain bound by any environmental remediation obligations they had under their environmental license and applicable norms.”⁹¹¹ Article 220 provides that mining activities are allowed within protected areas and forest areas as long as they comply with the applicable environmental regulations and “do not affect the attainment of the protection objectives of the specific area.”

The *Mining and Metallurgy Law* also provides that any new mining operation (except prospecting and exploration) requires prior, free and informed consultation with Indigenous native campesino nations and peoples and intercultural and afro-Bolivian communities.⁹¹² The government is to lead the consultations, which should include participation of the mining proponent, and be aimed at a binding agreement. The law does not recognize Indigenous peoples’ right to free prior and informed *consent*, stating that the extraction of mineral resources is a strategic national interest under the Constitution and that Indigenous peoples do not have a veto under ILO Convention 169 and UNDRIP.⁹¹³

For its part, the *Law of the Environment* provides that the exploitation of mineral resources should be carried out “taking into account the integral exploitation of primary resources, the treatment of wastes, the safe disposal of tailings, the efficient use of energy

⁹¹⁰ *Mining and Metallurgy Law*, art 6(h).

⁹¹¹ *Mining and Metallurgy Law*, art 114, III

⁹¹² *Mining and Metallurgy Law*, Title VI, Chapters I and II (art 207-216).

⁹¹³ *Mining and Metallurgy Law*, art 208, III.

and the rational use of deposits;”⁹¹⁴ and that “mineral extraction operations, during and after their activities, should consider the rehabilitation of the exploited areas in order to reduce and control erosion, stabilize lands and protect, flowing and thermal waters.”⁹¹⁵ The Ministries of Mining and Metallurgy and of the Environment may jointly set specific technical norms for mining operations,⁹¹⁶ in addition to the licensing and other requirements set out in the law’s regulations.⁹¹⁷

In the section that follows, I review the provisions summarized above on the rights of Mother Earth, *living well* and mineral resource extraction from the *lens of ecological law*. The section thereafter expands on the analysis by considering how these provisions have been implemented in the case of the *Salar de Uyuni* lithium industrialization project.

5.3 Rights of Mother Earth, Living Well and Extraction of Mineral Resources in Bolivia from the Lens of Ecological Law

5.3.1 Ecocentrism

Ecocentrism: recognize and respect the value of all beings and the interconnectedness among them, equally promoting the interests of human and nonhuman members of the Earth community

This principle 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 humans and other beings are equally valued.

The Bolivian framework under consideration here has elements of both anthropocentrism and ecocentrism. The *Constitution of Bolivia* is predominantly

⁹¹⁴ *Law of the Environment*, art 70.

⁹¹⁵ *Law of the Environment*, art 71.

⁹¹⁶ *Law of the Environment*, art 72.

⁹¹⁷ *Law of the Environment*, arts 20-21, 24-26.

anthropocentric, except for the first passage of its preamble, which refers to *Pachamama* and Mother Earth, and evokes the diversity and interconnectedness of all beings by stating that in times immemorial Bolivians “populated this sacred Mother Earth with different faces and ever since comprehended the effective plurality of all things and our diversity as beings and cultures.”⁹¹⁸ There is no reference to Mother Earth elsewhere in the Constitution. Moreover, the *Constitution* declares that “[t]he State holds the human being as the highest value.”⁹¹⁹ Its multiple provisions regarding natural resources are anthropocentric, treating them as objects of property, use and exploitation by the State, enterprises, communities and individuals.⁹²⁰

In contrast, there is a predominantly ecocentric worldview underlying the *Rights of Mother Earth Law* and the *Framework Law*. The interconnectedness of all beings is at the heart of the definitions of “Mother Earth” as “the dynamic live system comprised of the indivisible community of all the living systems and living beings, interrelated, interdependent and complementary that share a common destiny;”⁹²¹ and of “living systems,” as “complex and dynamic communities ... where human communities and the rest of nature interact as a functional unit...”⁹²²

The recognition of the rights of Mother Earth in and of itself reflects the equal value of all beings. In particular, the “right to the diversity of life” stands out, defined by the law as “the right to the preservation of the differentiation and variety of beings that

⁹¹⁸ *Constitution of Bolivia*, Preamble.

⁹¹⁹ *Constitution of Bolivia*, art 306.V.

⁹²⁰ *Constitution of Bolivia*, art 349.I reads: “Natural resources are the property and direct, indivisible and imprescriptible dominion of the Bolivian people, and their administration will correspond to the State pursuant to the collective interest.”

⁹²¹ *Rights of Mother Earth Law*, art 3.

⁹²² *Rights of Mother Earth Law*, art 4.

compose Mother Earth, without being altered genetically or modified structurally in an artificial way that threatens their existence, functioning and future potential.”⁹²³

Also, among the principles established by the *Rights of Mother Earth Law*, the “No Commercialization” principle underscores the equal value of all beings by establishing that “the living systems and the processes that sustain them cannot be commercialized, nor can they become anyone’s private property.”⁹²⁴ Interestingly, however, Article 4 of the *Framework Law* narrows the scope of this principle to “No Commercialization of the Environmental Functions of Mother Earth,” stating that “[t]he environmental functions and natural processes of the components and living systems of Mother Earth are not considered as commercial goods, but as gifts of the sacred Mother Earth.”⁹²⁵ Presumably this is intended to clarify that natural resources can be commercialized, and only *environmental functions and natural processes* cannot. Finally, the principle of “Complementarity and Equilibrium” also resonates with *ecocentrism*, as it provides that “[t]he Plurinational State of Bolivia promotes the complementarity of living beings in Mother Earth for Living Well.”⁹²⁶

The *Rights of Mother Earth Law* is especially aligned with Earth jurisprudence theory (discussed in Chapter 1.2.2 above).⁹²⁷ First, Article 5 regarding the legal status of

⁹²³ *Rights of Mother Earth Law*, art 1.2.

⁹²⁴ *Rights of Mother Earth Law*, art 2.5.

⁹²⁵ *Framework Law*, art 4.2.

⁹²⁶ *Framework Law*, art 4.16.

⁹²⁷ See Humphreys, “Rights of Pachamama,” *supra* note 850; and Akchurin, “Constructing the Rights of Nature,” *supra* note 850. These two articles probe the reasons why it was possible to recognize the rights of nature—constitutionally in the case of Ecuador, and through a law in Bolivia. Both discuss the role of international legal advocates in the Ecuadorean case, with Humphreys indicating that “[t]here is no evidence that a transnational network played a similar role in Bolivia, although the Ecuador case served as a precedent for Bolivia by providing the first national-level legal recognition of rights of nature.” Humphreys, “Rights of Pachamama,” *supra* note 850 at 471. The alignment between Earth jurisprudence and Bolivian support for the rights of nature is also evident in the United Nations dialogue on this topic: “In 2009, under the leadership of the Plurinational State of Bolivia, intergovernmental negotiations were

Mother Earth can be read as stating that nature already has rights and what the law does is to recognize some of these rights: “Mother Earth and all of her components, including human communities, are holders of all the *inherent rights recognized in this Law*... The rights established under this Law do *not limit the existence of other rights* of Mother Earth [emphasis added].” Secondly, the statement in the same article that “[t]he specifics and particularities of the various components of Mother Earth will be taken into account in applying her rights” is arguably a recognition of the diverse nature of the rights of different beings, as in Thomas Berry’s proposition that “Rivers have river rights. Birds have bird rights. Insects have insect rights. Humans have human rights. Difference in rights is qualitative, not quantitative. The rights of an insect would be of no value to a tree or a fish.”⁹²⁸

In addition, it can be argued that this law conceives of human rights as “ecological human rights” as put forth by Bosselmann (also discussed in Chapter 1.2.3 above). Article 6 of the *Rights of Mother Earth Law* states that “[t]he exercise of individual rights is limited by the exercise of collective rights in the living systems of Mother Earth” and that “any conflict between rights must be resolved in such a way that the functionality of living systems is not affected irreversibly,” which means that the rights of all Bolivians are ecologically bound.

In sum, it is clear that from the perspective of the principle of *ecocentrism* the *Rights of Mother Earth Law*, and some aspects of the *Framework Law*—if not of the *Constitution*—are well aligned with ecological law.

initiated on the principles of Harmony with Nature.” <<http://www.harmonywithnatureun.org/chronology/>> (accessed 9 April 2018).

⁹²⁸ Berry, “Rights of the Earth,” *supra* note 137 at 229.

5.3.2 *Ecological Primacy*

Ecological Primacy: ensure that social and economic behavior and systems are ecologically bound, respecting Planetary Boundaries

Under this principle, the main considerations include ensuring human development is pursued without irreversibly impairing ecological integrity or crossing Planetary Boundaries; constraining material and energy use within ecological limits; and promoting the restoration and maintenance of ecological integrity. Most of these elements can be found in the Bolivian laws under consideration here.

First, the importance of ecological integrity is clearly recognized by the *Rights of Mother Earth Law*. In particular, three of the rights recognized in Article 7 relate to ecological integrity: the right of Mother Earth to life (described as “the right to the maintenance of the integrity of living systems and the natural processes that sustain them, as well as the capacities and conditions for their regeneration”); the right to equilibrium, (described as “the right to the maintenance or restoration of the interrelationship, interdependence, complementarity and functionality of the components of Mother Earth in a balanced way for the continuation of her cycles and reproduction of her vital processes”); and the right “to timely and effective restoration of living systems affected directly or indirectly by human activities.” In addition, the *Framework Law* also provides that “[t]he integrity of the zones [of life] and living systems [of Mother Earth] shall be guaranteed through the control and participative monitoring by the Plurinational State of Bolivia at all territorial levels, and complementarily with producers and local communities.”⁹²⁹

⁹²⁹ *Framework Law*, art 16.9.

Second, there are several ways in which the laws under review recognize ecological limits. For example, the principle “Guarantee of Regeneration of Mother Earth” explicitly recognizes that “there are limits on the capacity of living systems to regenerate and that humanity is limited in its ability to reverse its actions.”⁹³⁰ Under the *Rights of Mother Earth Law*, the Bolivian state has the obligation to develop policies and actions to prevent human activities from causing extinctions or “altering the processes and cycles that guarantee life,” including the climate; and to set ecological constraints on economic activity by “[d]evelop[ing] balanced forms of production and consumption patterns to satisfy the needs of the Bolivian people for Living Well, while safeguarding the regenerative capacities and the integrity of the cycles, processes and vital equilibria of Mother Earth.”⁹³¹ And as part of its objective to “establish production processes that are non-polluting and respect the regeneration capacity of Mother Earth according to the public interest,” the *Framework Law* also explicitly recognizes “*that economic relations are constrained by the capacity for regeneration of Mother Earth and her zones of life*, in keeping with the collective interest for Living Well...”⁹³² Also, the *Constitution* recognizes water as finite and a “most fundamental [*fundamentalísimo*] right for life,” excludes it from “private appropriation” and prioritizes its use “for life” over other uses.⁹³³

Third, the definitions of “restoration” and “regeneration” in the *Framework Law* are generally consistent with the aim of the principle of *ecological primacy* to restore and maintain ecological integrity. The law provides that:

⁹³⁰ *Rights of Mother Earth Law*, art 2.

⁹³¹ *Rights of Mother Earth Law*, art 8.

⁹³² *Framework Law*, art 15 [italics added].

⁹³³ *Constitution of Bolivia*, arts 373, 374,

Restoration. Is the planned process of intentional modification of a zone of life or living system, through alterations aimed at reestablishing the diversity of its components, processes, cycles, relations and interactions, and its dynamics, so as to approximate the conditions that existed prior to the damage, within a defined timeframe. The resulting system shall be self-sustaining ecologically, socially, culturally and economically.

... Regeneration. Is the capacity of a zone of life or living system of Mother Earth to absorb harm, adapt to perturbations and regenerate, without significantly altering its structural characteristics and initial functionality.⁹³⁴

Indeed the definitions refer to important elements of ecological integrity, like diversity, cycles and functionality, while at the same time recognizing the impossibility of reestablishing the original conditions of a site completely, so that the goal is, instead, to approximate them. However, the definition of restoration also sets the benchmark conditions as the state of the site before “the damage,” which is problematic considering that ecological degradation is the result of cumulative impacts. Also, this definition is consistent with an understanding of ecological integrity as coexisting with human impacts, although under *ecological primacy* achieving a system that is “self-sustaining ecologically, socially, culturally and economically” will likely involve constraints on the social, cultural and economic elements of that system.

Beyond these multiple elements of *ecological primacy*, the Bolivian framework under review arguably establishes a standard of respect for ecological integrity. Throughout the *Framework Law*, the phrase “in harmony and equilibrium with Mother Earth” qualifies provisions regarding the use and exploitation of natural resources and

⁹³⁴ *Framework Law*, arts 5.10 and 5.11.

other human activities. No definition of this phrase is provided, but from a purely logical perspective, *in harmony and equilibrium with Mother Earth* must mean (at a minimum) *respecting the rights of Mother Earth*, and as noted earlier, the right of Mother Earth to life is effectively a right to ecological integrity.⁹³⁵

Another reason *harmony and equilibrium with Mother Earth* can be interpreted as being analogous to, or encompassing maintenance of ecological integrity is as follows. Ecological integrity is a condition of ecosystems, which in the Bolivian framework are referred to as “living systems” of Mother Earth.⁹³⁶ Under the plain language definition used herein, there is ecological integrity when the “native components and processes” of ecosystems are “intact” (in the sense of unimpaired rather than undisturbed). In turn, “harmony” generally is “concord”⁹³⁷ and “equilibrium,” as described in the right of Mother Earth to equilibrium,⁹³⁸ is “the interrelationship, interdependence, complementarity and *functionality of the components* of Mother Earth in a balanced way for the continuation of her cycles and *reproduction of her vital processes*.” Thus, generally speaking, *harmony and equilibrium with Mother Earth* involves maintaining the components and processes of ecosystems intact; that is, maintaining ecological integrity.

⁹³⁵ *Rights of Mother Earth Law*, art 7. See section 5.3.1 above.

⁹³⁶ “Ecosystem” is “a biological community of interacting organisms and their physical environment.” *The New Oxford American Dictionary*, 3rd ed, *sub verbo* “ecosystem”. For its part, article 4 of the *Rights of Mother Earth Law*, defines “living systems” as “complex and dynamic communities of plants, animals, microorganisms and other beings and their environment, where human communities and the rest of nature interact as a functional unit, under the influence of climatic, physiographic and geological factors, as well as of the production practices and cultural diversity of Bolivians, and the worldviews of the indigenous native campesino nations and peoples, and intercultural and Afro-Bolivian communities.”

⁹³⁷ Using the definition in *The New Oxford American Dictionary*, *sub verbo* “harmony”, as the Bolivian framework does not define this term.

⁹³⁸ *Rights of Mother Earth Law*, art 7.5.

The concurrence between the *Framework Law* and *ecological primacy* does not end there, however. It can be argued that the need to maintain ecological integrity is also embedded in the concepts of Living Well and integral development. The stated purpose of the *Framework Law* is to “establish the vision and the foundations of *integral development in harmony and equilibrium with Mother Earth for Living Well*, guaranteeing the continuity of the capacity for regeneration of the components and systems of life of Mother Earth. ...”⁹³⁹ Similarly, one of the law’s objectives is to “guide the specific laws, policies, norms, strategies, plans, programs and projects of the Plurinational State of Bolivia for *Living Well through integral development in harmony and equilibrium with Mother Earth*.”⁹⁴⁰ As such, throughout the *Framework Law* in *harmony and equilibrium with Mother Earth* accompanies the terms “Living Well” and “integral development.”

Ultimately, the pervasiveness of the phrase *in harmony and equilibrium with Mother Earth* throughout the *Framework Law* is either a clear indication of a solid commitment to *ecological primacy*, or no more than a rhetorical device aimed at predetermining that all state-sanctioned use and exploitation of nature is, by definition, to be deemed ecologically sound. Or one could agree (more moderately), that “[e]ven if the environmental concerns are fundamental, the integral development component adds a more pragmatic dimension in considering human needs and rights as well.”⁹⁴¹ From the perspective of ecological law, a meaningful commitment to *ecological primacy* would require not only adopting a standard of ecological integrity—in *harmony and equilibrium*

⁹³⁹ *Framework Law*, art 1 [italics added].

⁹⁴⁰ *Framework Law*, art 3.3 [italics added].

⁹⁴¹ Lalander, “Ethnic Rights and the Dilemma of Extractive Development in Plurinational Bolivia,” *supra* note 852 at 472.

with *Mother Earth*—but also that specific laws, policies and plans effectively bar activities that would compromise such harmony and equilibrium, and support actions that would foster it. Whether this has been so in the context of the *Salar de Uyuni* lithium industrialization project is considered further below, after a brief examination of how the standard *in harmony and equilibrium with Mother Earth* applies to resource extraction and, in particular, to mining.

Minerals are natural resources as per Article 348 of the *Constitution*. It is “a duty of the State and of the population to conserve, protect and exploit in a sustainable manner natural resources and biodiversity, as well as to maintain the equilibrium of the environment,”⁹⁴² and a duty of Bolivians to “[p]rotect and defend natural resources and contribute to their sustainable use, to preserve the rights of future generations.”⁹⁴³ Under the *Framework Law*, natural resources are “components of Mother Earth for Living Well” and their use or consumption is subject to “the conditions of sustainable development.”⁹⁴⁴ So far, the standard for use or consumption of natural resources is sustainability, rather than ecological integrity.

However, also under the *Framework Law*, the use and exploitation of natural resources is subject to the *in harmony and equilibrium with Mother Earth* requirement. The *Framework Law* defines “exploitation” (*aprovechamiento*) of natural resources as “the utilization of the products of the components of Mother Earth by individual and

⁹⁴² *Constitution of Bolivia*, art 342.

⁹⁴³ *Constitution of Bolivia*, art 108.15.

⁹⁴⁴ Article 5.4 of the *Framework Law* defines “Components of Mother Earth for Living Well” as “the beings, elements and processes that form the living systems located in the different zones of life, that pursuant to the conditions of sustainable development, can be used or consumed as natural resources by human beings, as established in the Political Constitution of the State.” Article 2 of the *Law of Environment* defines “sustainable development” as “the process whereby the needs of the current generation are satisfied without jeopardizing the satisfaction of the needs of future generations” and adds that the “concept of sustainable development implies a permanent global task.” [My translation.]

collective persons for integral development, for public interest and/or commercial ends, authorized by the Plurinational State of Bolivia, *in harmony and equilibrium with Mother Earth*,” and “use” (*uso*) of natural resources, as “the utilization of the components of Mother Earth by the Bolivian people in a sustainable manner for noncommercial ends and *in harmony and equilibrium with Mother Earth*.”⁹⁴⁵ Moreover, in establishing the “foundations and directions of Living Well through integral development in mining and hydrocarbons,” the *Framework Law* includes that “[e]very form of exploitation of the components of Mother Earth—nonmetallic, brine, evaporation and others—shall be carried out through extraction and transformation processes *in keeping with harmony and equilibrium with Mother Earth*.”⁹⁴⁶ Thus, the *Framework Law* establishes a standard of respect for ecological integrity expressed as *in harmony and equilibrium with Mother Earth*, which explicitly applies to mining.

At the same time, the *Constitution* provides that the exploitation of natural resources is a key goal of the state and the economy, which is problematic from the perspective of *ecological primacy*. Under Article 9.6 of the *Constitution* one of the “essential goals and functions of the State” is to “promote and guarantee the responsible and planned exploitation of natural resources, and spur their industrialization, through the development and strengthening of the productive base in its different dimensions and levels.”⁹⁴⁷ Among the “functions of the State in the economy,” Article 316 includes “[p]romoting as a priority the industrialization of renewable and non-renewable natural resources.”⁹⁴⁸ Likewise, Article 313 provides that the “productive industrializing

⁹⁴⁵ *Framework Law*, arts 5.6, 5.14.

⁹⁴⁶ *Framework Law*, art 26.6.

⁹⁴⁷ *Constitution of Bolivia*, art 9.6.

⁹⁴⁸ *Constitution of Bolivia*, art 316.6.

development of natural resources” is one of the purposes of “Bolivian economic organization.”⁹⁴⁹ Finally, according to Article 356 “[t]he exploration, exploitation, refining, industrialization, transportation and commercialization of non-renewable natural resources will have the character of state necessity and public utility.”⁹⁵⁰

However, the *Constitution* ties these goals to social objectives and environmental sustainability. These goals are to be pursued “[i]n order to eliminate poverty and social and economic exclusion, to achieve living well in its multiples dimensions,”⁹⁵¹ along with “the conservation of the environment for the wellbeing of current and future generations,”⁹⁵² and “in keeping with respect and protection of the environment, in order to guarantee the generation of employment and of economic and social inputs for the population.”⁹⁵³ Indeed, the “plural economy”—the economic model mandated by the *Constitution*—⁹⁵⁴ “comprises ... the industrialization of natural resources to overcome the dependence on the export of raw materials and achieve an economy with a productive base, in keeping with sustainable development in harmony with nature.”⁹⁵⁵ This could be interpreted as setting ecological constraints on economic activity, if read in the context of the *Rights of Mother Earth Law* and the *Framework Law*,⁹⁵⁶ although the language used echoes an understanding of sustainability as the balancing of economic, social and environmental goals.⁹⁵⁷

⁹⁴⁹ *Constitution of Bolivia*, art 313.5.

⁹⁵⁰ *Constitution of Bolivia*, art 356.

⁹⁵¹ *Constitution of Bolivia*, art 313.5.

⁹⁵² *Constitution of Bolivia*, art 9.

⁹⁵³ *Constitution of Bolivia*, art 9.6.

⁹⁵⁴ *Constitution of Bolivia*, art 306.

⁹⁵⁵ *Constitution of Bolivia*, art 311.II.

⁹⁵⁶ Although the language differs from that used in the *Rights of Mother Earth Law* and *Framework Law*, noted above. Since all laws are hierarchically inferior to the *Constitution* (*Constitution of Bolivia*, art 410), this discrepancy would presumably not work in favour of a strict ecological reading.

⁹⁵⁷ See Chapter 1.4 above.

Despite the stated aim of the new Bolivian state to move beyond capitalism and modernity,⁹⁵⁸ this approach to natural resources does not appear to break away from the liberal state's "productionist orientation" that M'Gonigle shows is at the heart of the state's inability to stop ecological degradation.⁹⁵⁹ In an ecological society, as Bosselmann suggests, the state would be an "environmental trustee,"⁹⁶⁰ and presumably this means that its main goals would not include promoting the exploitation of natural resources, but rather, ensuring that these resources are only used to satisfy needs and without compromising ecological integrity. This is also more akin to *living well* as an *alternative* to development.⁹⁶¹ Needs-based extraction, however, seems incompatible with the current profit-driven commodity markets of the global economy in which states and mining are currently embedded. The crucial question of how to shift away from this economic model is beyond the scope of this thesis. However, the legally established role of the state and the economy regarding natural resource extraction is critical because it is either an enabler or an obstacle to a shift towards an ecologically constrained economy. As we have seen, what the Bolivian framework proposes is to use the extraction and industrialization of minerals and other natural resources (*integral development*) to move gradually to a different paradigm, *living well*, and to do this without compromising ecological integrity. Deeper criticism of this approach aside,⁹⁶² a potential obstacle is that the legal mandate for resource extraction is firmly established in the *Constitution*, while legal support for ecological constraints is only generally delineated in the *Framework*

⁹⁵⁸ See the definition of "Living Well" in art 5.2 of the *Framework Law* as "the civilizational and cultural horizon alternative to capitalism and modernity..." cited in *infra* 966.

⁹⁵⁹ M'Gonigle & Takeda, "The Liberal Limits of Environmental Law," *supra* note 64 at 1022.

⁹⁶⁰ Bosselmann, *Earth Governance*, *supra* note 173 at 155.

⁹⁶¹ Gudynas, "Development Alternatives in Bolivia," *supra* note 856.

⁹⁶² Gudynas, "Development Alternatives in Bolivia," *supra* note 856 at 25.

Law and the Rights of Mother Earth Law, which are hierarchically inferior to the *Constitution*, thus presumably easier to change, challenge, or ignore.

In summary, from the perspective of the principle of *ecological primacy* the Bolivian laws under review include many elements that support *ecological primacy*, including a standard of respect for ecological integrity expressed as a requirement for *harmony and equilibrium with Mother Earth*, that generally applies to integral development for *living well* and, specifically to mineral resource extraction and industrialization. At the same time, the *Constitution* sets an extractivist/productionist role for the state and direction for the economy that are generally contrary to this principle. Whether in practice this constitutional direction has limited the effects of the Rights of Mother Earth and the *Framework Law* is an open question, but mining has increased⁹⁶³ and at least one detailed study concluded that the *Mining and Metallurgy Law* is contrary to the rights of Mother Earth, that environmental regulations for mining are weak, mining enterprises (especially mining cooperatives) do not duly observe them and the authorities do not enforce them effectively due to lack of resources, expertise and political will.⁹⁶⁴

5.3.3 *Ecological Justice*

Ecological Justice: ensure equitable access to the Earth's sustaining capacity for present and future generations of humans and other beings, and avoid inequitable allocation of environmental harms

⁹⁶³ See e.g. Diaz-Cuellar, "The Political Economy of Mining in Bolivia during the Government of the Movement Towards Socialism (2006–2015)," *supra* note 858 at 120-121; and Andreucci & Radhuber, "Limits to "Counter-neoliberal" Reform," *supra* note 858 at 285-286, 288-289.

⁹⁶⁴ Diego Andreucci y Helga Gruberg Cazón, *Evaluación de la gestión socio-ambiental del sector minero en Bolivia. El caso de la cuenca del lago Poopó*, (Cochabamba, Bolivia: Centro de Comunicación y Desarrollo Andino, 2015).

To recall, this principle of the *lens of ecological law* is based primarily on Bosselmann's concept of ecological justice, which includes intragenerational, intergenerational and interspecies equity.⁹⁶⁵ This principle questions whether the law provides ethical grounding for decisions that lead to the equitable use of the planet's sustaining capacity; promotes taking only what one needs, and the fair distribution of, and restraint on, wealth; and whether environmental harms are equitably distributed within and among current and future generations of humans and other beings.

First, it can be said that the notion of *living well* as adopted in the Bolivian laws under review is generally compatible with the principle of *ecological justice*, especially as it involves "the harmonious coming together of the ensemble of beings, components and resources of Mother Earth" and "means living in complementarity, in harmony and equilibrium with Mother Earth and societies, in equity and solidarity, and eliminating inequalities and mechanisms of domination."⁹⁶⁶ The same is true for *integral development* as interpreted in the section on *ecological primacy* above to include the standard of respect of ecological integrity expressed as *in harmony and equilibrium with Mother Earth*.

⁹⁶⁵ See Chapter 1.2.3 above.

⁹⁶⁶ Article 5.2 of the *Framework Law* defines "Living Well" as "the civilizational and cultural horizon alternative to capitalism and modernity that is born in the worldviews of the indigenous native campesino nations and peoples, and the intercultural and Afro-Bolivian communities, and is conceived in the context of interculturalism. It is reached in a collective, complementary manner and in solidarity, integrating in its practical execution, among others, the social, cultural, political, economic, ecological and affective dimensions, to allow for the harmonious coming together of the ensemble of beings, components and resources of Mother Earth. It means living in complementarity, in harmony and equilibrium with Mother Earth and societies, in equity and solidarity, and eliminating inequalities and mechanisms of domination. It is Living Well among each other, Living Well with what surrounds us, and Living Well with oneself."

In contrast, the comprehensive definition of “natural resources” in the *Constitution*⁹⁶⁷ and the appropriation of nature by humans—“[n]atural resources are the property and direct, indivisible and imprescriptible dominion of the Bolivian people, and their administration will lie with the State in accordance with the collective interest”—is less easily reconciled with *ecological justice* because it emphasizes property⁹⁶⁸ and dominance by humans over other members of the Earth community. Instead, *ecological justice* requires “mutually enhancing relationships.”⁹⁶⁹ Under the *Framework Law*,⁹⁷⁰ there is an attempt to address human use of non-human beings by defining “components of Mother Earth for Living Well” as “the beings, elements and processes that form the living systems located in the different zones of life, that pursuant to the conditions of sustainable development, can be used or consumed as natural resources by human beings, as established in the Political Constitution of the State.” However, as discussed above, the constitutional approach to natural resources is one of dominance and extractivism.

Overall, the Bolivian framework emphasizes *intragenerational equity*. Eliminating poverty and the equitable distribution of wealth are explicit goals for the state and the economy.⁹⁷¹ The *Constitution* provides that “[t]he Bolivian people will have

⁹⁶⁷ *Constitution of Bolivia*, arts 348 and 349. “Article 349. I. Natural resources are the property and direct, indivisible and imprescriptible dominion of the Bolivian people, and their administration will lie with the State in accordance with the collective interest...”

⁹⁶⁸ Interrogating the concept of property is a key area of research in ecological law See e.g. Peter Burdon, *Earth Jurisprudence: Private Property and the Environment*, (Abingdon, UK; NY, USA: Routledge, 2015); David Grinlinton & Prue Taylor, eds, *Property Rights and Sustainability: The Evolution of Property Rights to Meet Ecological Challenges*, (Leiden, The Netherlands; Boston, USA: Martinus Nijhoff Publishers, 2011); Peter Burdon, “What Is Good Land Use? From Rights to Relationship,” (210) 34 *Melbourne UL Rev* 708; Nicole Graham, *Landscape: Property, Environment and Law*, (Abingdon: Routledge-Cavendish, 2010); Eric T Freyfogle, *The Land We Share: Private Property and the Common Good*, (Washington, DC: Island Press, c2003).

⁹⁶⁹ Peter Burdon argues for (re)conceptualizing “private property as a relationship between members of the Earth community, through tangible or intangible items.” Burdon, *Earth Jurisprudence*, *supra* note 968 at 102.

⁹⁷⁰ *Framework Law*, Article 5.4, cited in *supra* note 944.

⁹⁷¹ For example, *Constitution of Bolivia*, arts 306 (I) and (V), and 312.

equitable access to the benefits derived from the exploitation of all natural resources. The territories where these resources are situated and a priority part of these benefits will be allocated to indigenous native campesino nations and peoples.”⁹⁷² In addition, among its 17 principles, Article 4 of the *Framework Law* includes three principles that articulate aspects of the intragenerational equity component of *ecological justice*, as follows:

11. Solidarity Among Human Beings. The Plurinational State of Bolivia promotes integral development actions that prioritize people having lower economic revenues and greater problems to satisfy their material, social and spiritual needs, and the full enjoyment of their fundamental rights.

... 13. Social Justice. The aim of the Plurinational State of Bolivia is to build a just, equitable and solidary society without material, social and spiritual poverty, which means that the Bolivian people will jointly have the capacities, conditions, means and economic income necessary to satisfy their material, social and affective needs, in keeping with respect towards the economic, social, legal, political and cultural plurality for the fulfillment of Living Well.

14. Climate Justice. The Plurinational State of Bolivia, in accordance with equity and the common but differentiated responsibilities of countries in the face of climate change, recognizes the right of the Bolivian people, and in particular those most affected by climate change, to achieve Living Well through their integral development in keeping with respect towards the regeneration capacities of Mother Earth.

Notably, these principles include references to the satisfaction of needs and to “respect towards the regeneration capacities of Mother Earth,” which may be interpreted as potentially bounding the creation of wealth within social and ecological limits, thus

⁹⁷² *Constitution of Bolivia*, art 353.

also supporting intergenerational and interspecies equity. Also, one of the “Objectives of Living Well Through Integral Development” set out by the *Framework Law* is to “[e]nable equitable access to the components of Mother Earth.”⁹⁷³ As has been discussed, in addition to the equitable *distribution* of wealth, the principle of *ecological justice* also implies that there should be *limits* to wealth. As Garver argues, this notion is a key part of degrowth.⁹⁷⁴ While less explicitly, it is also part of the concept of *living well*, which emphasizes quality of life as opposed to material accumulation, and “points to the ‘decoupling’ of quality of life from economic growth and the destruction of the environment.”⁹⁷⁵ However, for Gudynas, in Bolivian law *living well* has been deprived of its true meaning because the *Framework Law*

restores the idea of development, legitimating it in a political norm and placing it as a necessary element for *vivir bien*. In other words, among the varieties of development, the law selects one, “integral development,” and then places it as a necessary measure for achieving the *vivir bien* of the future. This turnaround should not be understated, because it minimizes *vivir bien* and robs it of its vocation as a radical break with development and the transcendence of modernity. Not only this, but now a certain type of development is necessary to achieve *vivir bien*. This restoration of the idea of development closes a chapter in the Bolivian process. Now it is possible to promote extractivism and defend it as a necessary form of integral development without falling into contradictions.⁹⁷⁶

Still, there is a shift away from wealth accumulation and economic growth as social objectives supported by the law. The two sole references that the *Constitution of*

⁹⁷³ *Framework Law*, art 12.7.

⁹⁷⁴ Garver, “The Rule of Ecological Law,” *supra* note 5 at 328.

⁹⁷⁵ Gudynas & Acosta, “El buen vivir mas allá del desarrollo,” *supra* note 866 at 81 [my translation].

⁹⁷⁶ Gudynas, “Development Alternatives in Bolivia,” *supra* note 856 at 25.

Bolivia makes to “wealth” are linked to the elimination of poverty and geared to its equitable “distribution and redistribution,”⁹⁷⁷ and the *Constitution* does not establish “economic growth” as a goal or use the term “growth” at all. For its part, the *Framework Law* likewise never speaks of “economic growth.”⁹⁷⁸ The alternative goal of “Living Well through integral development” is perhaps simply rhetoric or impossible to achieve, but at least in paper, it focuses economic activities on the satisfaction of needs and recognizes they are constrained by ecological limits (as discussed above in relation to *ecological primacy*).

As for the intergenerational and interspecies equity components of *ecological justice*, these are reflected in the constitutional duties of Bolivians to “[s]afeguard, defend and protect the natural, economic and cultural heritage of Bolivia,” “[p]rotect and defend natural resources and contribute to their sustainable use, to preserve the rights of future generations, and “[p]rotect and defend an environment that is adequate for the development of living beings.”⁹⁷⁹ And they are included in the principle of “Harmonious Relation” established in the *Framework Law*, as follows: “The Plurinational State of Bolivia promotes a harmonious, dynamic, adaptive and balanced relation between the needs of the Bolivian people and the regenerative capacities of the components and living systems of Mother Earth.”⁹⁸⁰

⁹⁷⁷ The *Constitution of Bolivia* states: “Article 313. In order to eliminate poverty and social and economic exclusion, to achieve living well in its multiples dimensions, Bolivian economic organization has the following purposes: ...2. The just production, distribution and redistribution of wealth and of economic surpluses;” and: “Article 316. The function of the State in the economy consists of: ...7. Promoting policies for the equitable distribution of the wealth and natural resources of the country, with the purpose of avoiding inequality, social and economic exclusion, and eradicating poverty in its multiple dimensions.”

⁹⁷⁸ The *Framework Law* uses the term “growth” twice: it refers to the “healthy growth of persons” in the context of food security (Article 13), and to the “growth of the productive matrix” in the context of the “democratization of the means and factors of production” (art 20).

⁹⁷⁹ *Constitution of Bolivia*, art 108.

⁹⁸⁰ *Framework Law*, art 4.12.

In addition, although the *Constitution* does not recognize the rights of nature, it establishes a right to a healthy environment for current and future generations that explicitly aims to benefit not only human, but nonhuman living beings, as well. Article 33 provides: “Persons have the right to a healthy, protected and balanced environment. The exercise of this right must allow individuals and collectives of present and future generations, in addition to other living beings, to develop in a normal and permanent manner.”⁹⁸¹ Also, among the above-cited constitutional duties of Bolivians, it includes “[p]rotect[ing] and defend[ing] an environment that is adequate for the development of living beings.”⁹⁸²

As for community and Indigenous participation and consent, the *Framework Law* makes a general reference to “free prior and informed consultation” rather than recognizing the right of Indigenous peoples to require their FPIC with respect to development in their traditional territories.⁹⁸³ Whereas, the *Mining and Metallurgy Law* sets out consultation processes aimed at binding agreements, but does not recognize Indigenous peoples’ right to free prior and informed *consent*, stating that the extraction of mineral resources is a strategic national interest under the *Constitution* and that Indigenous peoples do not have a veto.⁹⁸⁴

Finally, a last question from an *ecological justice* perspective is whether environmental harms are equitably distributed among current and future generations of humans and other life. Except for the principle on climate justice referred to above, in the laws under review there are no provisions explicitly addressing inequitable harm from

⁹⁸¹ *Constitution of Bolivia*, art 33.

⁹⁸² *Constitution of Bolivia*, art 108.

⁹⁸³ *Framework Law*, art 16.1.

⁹⁸⁴ *Mining and Metallurgy Law*, art 208, III.

pollution or environmental degradation (environmental injustice). Yet, several constitutional provisions indirectly set a strong basis for the equitable distribution of environmental harms among current and future generations of humans and other life, in particular: the right to a healthy environment in Article 33, the value of equality and equity recognized in Article 8.II, the fundamental right to non-discrimination in Article 14.II,⁹⁸⁵ and the duty to protect “an environment adequate for the development of living beings” in Article 108. Moreover, humans and other beings—as part of Mother Earth—also benefit from the right of Mother Earth to “pollution-free living” and the stipulations against pollution included in the rights of Mother Earth to water and clean air.⁹⁸⁶

In sum, the Bolivian laws reviewed here include elements that are generally consistent with the principle of *ecological justice*, along with a few that are not. While *intragenerational* equity among humans (eliminating poverty and inequality affecting Bolivians) predominates as a concern supported by these laws, *intergenerational* equity and *interspecies* equity (ensuring all Bolivians *live well* and other beings have equitable access to the Earth’s sustaining capacity) are also supported. However, the approach of these laws to natural resources does not fully align with *ecological justice* because the *Framework Law*’s prescription to exploit natural resources *in harmony and equilibrium with Mother Earth* is hard to reconcile with the approach of dominance by humans over other members of the Earth community and prioritization of resource extraction in the *Constitution*; in addition to the rejection of FPIC in the *Mining and Metallurgy Law*.⁹⁸⁷

⁹⁸⁵ For analysis of two Canadian examples of the environmental justice implications of constitutional rights to equality and non-discrimination, see Nathalie J. Chalifour, “Environmental Justice and the Charter: Do Environmental Injustices Infringe Sections 7 and 15 of the Charter?,” (2015) 28:1 J Envtl L & Prac 89 and Nathalie J. Chalifour, “Environmental Discrimination and the Charter’s Equality Guarantee: The Case of Drinking Water for First Nations Living on Reserves,” (2013) 43 RGD 183.

⁹⁸⁶ *Rights of Mother Earth Law*, arts 7.7, 7.3, 7.4

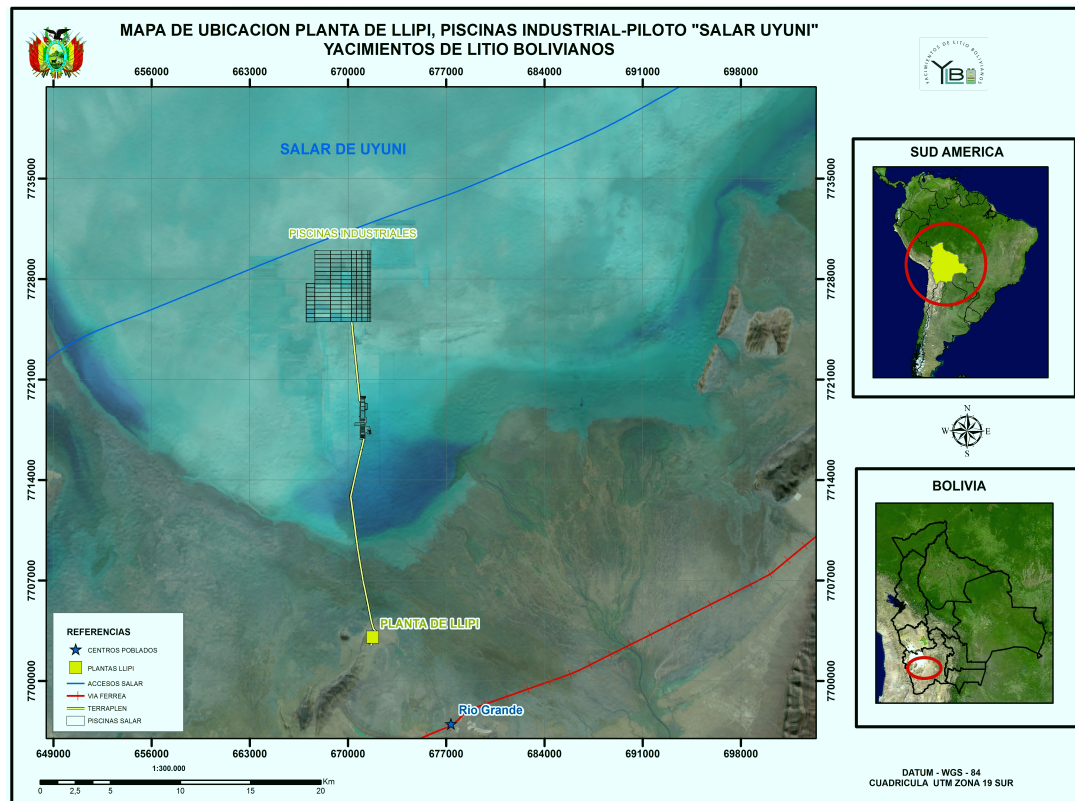
⁹⁸⁷ *Mining and Metallurgy Law*, art 208, III

5.4 *The Salar de Uyuni Lithium Industrialization Project: Implications for a Shift to Ecological Law*

5.4.1 *The Project*

A fundamental proposition of *integral development* is the industrialization of natural resources within the country (as opposed to their extraction for export as raw materials), to be achieved while respecting the rights of nature, in order to eliminate poverty and inequality, and to enable *living well*. Industrialization of natural resources within Bolivia is at the heart of the *Salar de Uyuni* lithium industrialization project announced by President Morales in 2008.⁹⁸⁸

⁹⁸⁸ For an account (in Spanish) of efforts to develop the salt and other mineral resources in the Salar de Uyuni beginning in the 1970s, including by Lithco Corporation, see Luis Alberto Echazú Alvarado, “Un proyecto 100% estatal. Industrializando Carbonato de Litio y Cloruro de Potasio con dignidad y soberanía,” in Federico Nacif & Miguel Lacabana, eds, *ABC del litio sudamericano*, (Buenos Aires & Quilmes; Ediciones del Centro Cultural de la Cooperación Floreal Gorini & Universidad Nacional de Quilmes, 2015) 303 at 305-31.



Location of the lithium extraction and pilot plant operations in the Salar de Uyuni; of Bolivia within South America; and of the Salar de Uyuni within Bolivia. Source: Yacimientos de Lito Bolivianos, available at <<https://www.ylb.gob.bo/inicio/mapas>>

The vast salt flats of the *Salar de Uyuni*—located in one of the most remote and poor regions of Bolivia—are estimated to hold the “largest single reserve of lithium” in the world.⁹⁸⁹ Lithium is currently considered a strategic mineral, essential for the renewable energy transition as a key material for electric vehicle and other batteries, in addition to its pharmaceutical and other uses.⁹⁹⁰ The mineral resources in the *Salar de Uyuni* (and

⁹⁸⁹ Hancock & Ali, “Bolivia’s Lithium Frontier,” *supra* note 851 at 552.

⁹⁹⁰ T Prior et al, “Sustainable Governance of Scarce Metals: The Case of Lithium,” (2013) 461-462 *Science of the Total Environment* 785, at 786; Hughes-Marie Aulanier, “Lithium, a Key Stake for Industry, the Economy and the Environment in the 21st Century,” (2016) 82 *Responsabilité et environnement* 92; Saleem H Ali et al, “Resourcing Green Technologies through Smart Mineral Enterprise Development: A Case Analysis of Cobalt,” (Columbia Center on Sustainable Investment, Columbia University, February

other Bolivian salt flats and lakes) are also considered strategic under the *Constitution of Bolivia* for purposes of industrialization within Bolivia, rather than as commodities for export.⁹⁹¹ In addition to lithium, the *Salar de Uyuni* brine is rich in other minerals like potassium and magnesium, which poses both processing challenges and opportunities to commercialize other products.⁹⁹² The project has three phases: 1) research and pilot production of lithium carbonate and potassium chloride; 2) industrial production of lithium carbonate and potassium chloride; and 3) manufacture of cathode materials and lithium ion batteries. The *Gerencia Nacional de Recursos Evaporíticos* (GNRE), a branch of government overseen by the state mining company COMIBOL, managed the project until January 2017 when it was transferred to the *Empresa Pública Nacional Estratégica de Recursos Evaporíticos* (known as *Yacimientos de Litio Bolivianos*, YLB) created for that purpose and overseen by the Ministry of Energy.⁹⁹³ The GNRE engaged on public-private partnerships with foreign corporations (principally German, Chinese, French and Japanese) to establish the pilot plants, but according to Hancock et al, there were problems with technology transfer that made the experience “underwhelming.”⁹⁹⁴ As a “strategic public enterprise,” the role of YLB is to undertake the industrial extraction, processing and commercialization of the lithium and other resources of the

2018) (identifying “Lithium and Cobalt as having the highest criticality and significance for the future of global green technology”).

⁹⁹¹ *Constitution of Bolivia*, art 369.II. Despite this aim to move away from export of raw materials, the project is often labeled by critics as neo-extractivist; for example, Jana Jetmarová, “El encuentro de Pachamama con la economía global: Una reflexión sobre las paradojas del proyecto político boliviano,” (2012) 1 ELOHI - Peuples indigènes et environnement 87 at 96.

⁹⁹² Generally, Juan Carlos Montenegro & Edwin Limbert Bustillos, “Reciclaje de residuos del proceso de obtención de carbonato de litio del Salar de Uyuni,” 343-352 in Nacif & Lacabana, eds, *ABC del litio sudamericano*, *supra* note 988; & Echazú Alvarado, “Un proyecto 100% estatal,” *supra* note 988.

⁹⁹³ Creación de Yacimientos de Litio Bolivianos (YBL), Supreme Decree No. 3058, 22 January 2017, online: <<https://www.minenergias.gob.bo/viceministerio-altas-tecnologias-energeticas>> (accessed 27 May 2018) [YBL Decree].

⁹⁹⁴ Hancock & Ali, “Bolivia’s Lithium Frontier,” *supra* note 851 at 555.

Salar de Uyuni and all other similar reserves within Bolivia, keeping majority control, while still being able to partner and enter into contracts with foreign companies.⁹⁹⁵

Despite delays, pilot plants for potassium chloride and lithium carbonate opened in 2012 and 2013, respectively; the industrial plants for both compounds are programmed to open in 2018; and a pilot lithium ion cathodes and batteries plant was inaugurated in 2014.⁹⁹⁶ Bolivia exported 10 tons of lithium carbonate to China in 2016.⁹⁹⁷ In 2017, production reached 20 tons of lithium carbonate and 2000 tons of potassium chloride; while the aim is to produce 40 tons of lithium carbonate and 700 tons of potassium chloride monthly.⁹⁹⁸ Developing local capacity to operate, monitor and further develop the technologies is an important aim of the project, including the establishment of a specialized research center, the *Centro de Investigación de Materiales y Recursos Evaporíticos de Bolivia*.⁹⁹⁹ Research in collaboration with universities and others towards the use of residual components like potassium and magnesium salts and gypsum, primarily in agriculture and the construction industry, are also ongoing.¹⁰⁰⁰

⁹⁹⁵ YBL Decree, *supra* note 993; and Hancock & Ali, “Bolivia’s Lithium Frontier,” *supra* note 851 at 555.

⁹⁹⁶ Juan Carlos Montenegro Bravo & Yara Montenegro Pinto, “El proyecto estatal de industrialización del litio y potasio en Bolivia. Impactos previstos,” 67-124 in Ricardo Calla et al, *Un presente sin futuro*, (La Paz: CEDLA, 2014) at 87-92.

⁹⁹⁷ Hancock & Ali, “Bolivia’s Lithium Frontier,” *supra* note 851 at 555.

⁹⁹⁸ Ministry of Energy (*Ministerio de Energías*), “YLB, Audiencia inicial de rendición pública de cuentas 2018,” (PPP), online: <<https://www.minenergias.gob.bo/rendicion-cuentas>> accessed 22 May 2018, at slide 7; see also Echazú Alvarado, “Un proyecto 100% estatal,” *supra* note 988 at 326 (the author was head of the GNRE from 2010-2017 and is currently the deputy minister of energy overseeing YLB); and J Salvador Lizca-Pérez, “El proyecto del Litio en el salar de Uyuni: impactos, cronología y situación actual,” (16 August 2017), online: Natural Zone <<http://www.natzone.org/index.php/component/content/article/18-frontpage-blog/analisis-socioambiental/402-el-proyecto-del-litio-en-el-salar-de-uyuni-impactos-cronologia-y-situacion-actual?Itemid=101>> (accessed 18 April 2018).

⁹⁹⁹ YLB, *Memoria 2017*, (La Paz, Bolivia: Empresa Pública Nacional Estratégica Yacimientos de Litio Bolivianos) at 16.

¹⁰⁰⁰ YLB, *Memoria 2017*, *supra* note 999 at 60.

It appears that most Bolivians view the project positively, and that it is a source of hope and pride for many others, especially in the Uyuni region.¹⁰⁰¹ Some worry, however, that local livelihoods (in particular llama husbandry, quinoa production and tourism)¹⁰⁰² as well as the unique landscape and ecology of the region (including three species of rare flamingos that occur in the Rio Grande delta),¹⁰⁰³ will be compromised by the extraction of lithium, which is water-intensive and generates very large volumes of sludge.¹⁰⁰⁴ Praise for the project is also tempered by a sense that—despite the rhetoric and legal requirements for community participation—its planning and implementation have lacked transparency and local authorities and community members have been practically ignored.¹⁰⁰⁵

5.4.2 The Rights of Mother Earth and Living Well in the Salar de Uyuni Lithium Industrialization Project

The *Rights of Mother Earth Law* does not establish licensing requirements or processes to ensure undertakings respect the rights of Mother Earth, nor are there any regulations under this law or the *Framework Law* (in particular, regulations regarding the already noted directions established for mining in Article 26, including audits of living systems, “processes for industrialization ... that guarantee the maintenance of the capacities of regeneration of the zones of life and living systems,” and restoration).

Instead, undertakings continue to be governed by the *Law of Environment* (1992) and the

¹⁰⁰¹ Anna C Revette, “This Time It’s Different: Lithium Extraction, Cultural Politics and Development in Bolivia,” (2017) 38:1 Third World Quarterly 149 at 154.

¹⁰⁰² Jetmarová, “El encuentro de Pachamama con la economía global,” *supra* note 991 at 97.

¹⁰⁰³ The *Salar de Uyuni* is north of an Important Bird Area encompassing several saline lakes. See BirdLife International, “Important Bird Areas factsheet: Lagunas Salinas del Suroeste de Potosí,” (2018), online: BirdLife International <<http://datazone.birdlife.org/site/factsheet/lagunas-salinas-del-suroeste-de-potos%C3%AD-iba-bolivia>> (accessed 18 April 2018).

¹⁰⁰⁴ For further details on the potential environmental impacts of lithium extraction and differences between brine and hard rock sources, see Hancock & Ali, “Bolivia’s Lithium Frontier,” *supra* note 851 at 553.

¹⁰⁰⁵ Revette, “This Time It’s Different,” *supra* note 1001 at 157-158.

General Regulations of Environmental Management (1995, amended 2018).¹⁰⁰⁶ Critics, however, argue that the environmental laws in place in Bolivia are not stringent or effectively enforced on mining operations generally.¹⁰⁰⁷

The National Environmental Information System (*Sistema Nacional de Información Ambiental*) under the Ministry of Environment and Water (*Ministerio de Medio Ambiente y Agua*) includes a searchable registry with information regarding compliance with environmental licensing requirements.¹⁰⁰⁸ However, this system is difficult to use and, while a search may result in a list of environmental licenses, environmental impact statements, etc. for a specific project, the documents themselves cannot be accessed online. My efforts to search the database for documents related to the lithium industrialization project rendered no results. In his study of Bolivia's lithium industrialization project, Olivera Andrade identifies the lack of access to environmental information as one of the governance problems of the project—calling the former administrator of the project, the GNRE, “hermetic”—and suggests the need for mechanisms to share information broadly and with local actors, (including making the project's environmental impact studies available online).¹⁰⁰⁹ Although some information is available, this does not appear to have changed substantially with the transfer of the project from the GNRE to YLB.

¹⁰⁰⁶ Amendments to the General Regulations were adopted on 2 May 2018 in order to integrate all environmental permits and simplify the permitting and compliance processes through a series of templates that those responsible for projects need to file with the local, regional or national authority, depending on the type of activity. Supreme Decree No. 24176, as amended by Supreme Decree No. 3549, 2 May 2018.

¹⁰⁰⁷ Andreucci & Gruberg Cazón, *Evaluación de la gestión socio-ambiental del sector minero en Bolivia*, *supra* note 964; & Rafael Sagárnaga López, “Hay que tomar recaudos ambientales en el Salar,” (24 November 2015), online: El País <<http://www.elpaisonline.com/index.php/2013-01-15-14-16-26/local/item/195455-hay-que-tomar-recaudos-ambientales-en-el-salar>> (accessed 10 May 2018).

¹⁰⁰⁸ *Sistema Nacional de Información Ambiental*, online: Ministry of Environment and Water, MMYA <<http://snia.mmaya.gob.bo/web/Index.php>> (accessed 10 May 2018).

¹⁰⁰⁹ Manuel Olivera Andrade, *La industrialización del litio en Bolivia. Un proyecto estatal y los retos de la gobernanza, el extractivismo histórico y el capital internacional*, (Bolivia : UNESCO/CIDES, 2016) at 267-268.

According to YLB, all aspects of the project comply with the applicable environmental laws and are operating with the required licenses.¹⁰¹⁰ The company lists on its website the authorizations covering different aspects of the project, including a “dispensation certificate” exempting the pilot brine extraction and lithium plant from preparing an environmental impact assessment study; and the “approval statement” for the pilot and industrial potassium chloride plant following its environmental impact assessment study.¹⁰¹¹ There is no reference on the YLB website to the *Rights of Mother Earth Law* and the *Framework Law*, or any indication that these environmental licensing processes considered the projects’ potential interactions with the rights of Mother Earth or the *Framework Law*. The documents themselves (impact studies, decisions or terms of the licenses) are not available online.

The YLB 2017 Annual Report includes a heading on environmental “aspects” which states that the facilities have submitted the reports required under their licenses and regularly monitor environmental impacts and fauna in the project area. The report provides some details on solid waste management and water use at the administrative facilities, but no detailed information regarding waste generation or other environmental impacts from the extraction and processing operations.¹⁰¹² The information on local fauna is scant and circumstantial.¹⁰¹³ This report also makes no reference to the *Rights of Mother Earth Law* and the *Framework Law*.

¹⁰¹⁰ YLB, “Medio Ambiente,” online: Estado Plurinacional de Bolivia, YLB <http://www.ylb.gob.bo/inicio/medio_ambiente> (accessed 31 October 2018).

¹⁰¹¹ YLB, “Medio Ambiente,” *supra* note 1010; Sagárnaga López questions the legitimacy of the project’s environmental permits, Sagárnaga López, “Hay que tomar recaudos ambientales en el Salar,” *supra* note 1007.

¹⁰¹² YLB, *Memoria 2017*, *supra* note 999 at 54-55.

¹⁰¹³ YLB, *Memoria 2017*, *supra* note 999 at 54-55.

Among the commentaries on the lithium project reviewed for this analysis only one discusses the *Rights of Mother Earth Law* and the *Framework Law*,¹⁰¹⁴ while the others do not even mention them.¹⁰¹⁵ Official documents available online regarding the project do not mention them either.¹⁰¹⁶ There is no evidence (online, at least) that the *Rights of Mother Earth Law* and the *Framework Law* are being applied in the implementation of the lithium industrialization project. The Mother Earth Ombudsman Office would presumably bring accountability on these matters to the project, but it has not been set up as of October 2018.

5.4.3 *The Salar de Uyuni Lithium Industrialization Project from the Lens of Ecological Law*

The *lens of ecological law* is meant as a tool for assessing laws, rather than projects. However, based on the review above of the *Salar de Uyuni* lithium industrialization project and on the *lens of ecological law* analysis of the Bolivian framework in section 5.3 above, I reflect on some of the questions the project raises for implementing ecological law.

Ecocentrism

Jana Jetmarová argues that the Bolivian State's extractivist policies conflict with the rights of Mother Earth and that by making the lithium project in the *Salar de Uyuni* a national priority, Bolivia infringes on the rights of Mother Earth and the principle of

¹⁰¹⁴ Jetmarová, "El encuentro de Pachamama con la economía global," *supra* note 991 at 96-97.

¹⁰¹⁵ Detailed studies of the project (most of them Bolivian) that do not mention the *Rights of Mother Earth Law* and mention the concept of *living well* in passing, if at all, include: Olivera Andrade, *La industrialización del litio en Bolivia*, *supra* note 1009; Nacif & Lacabana, eds, *ABC del litio sudamericano*, *supra* note 988; Calla et al, *Un presente sin futuro*, *supra* note 996; and Revette, "This Time It's Different," *supra* note 1001.

¹⁰¹⁶ For example, YLB's 2017 Report (YLB, Memoria 2017, *supra* note 999) does not mention Mother Earth and refers to *living well* only as part of the name of a plan.

living well.¹⁰¹⁷ According to Jetmarová, “the salar meets the definition of a ‘system of life’ under the *Rights of Mother Earth Law*,” and its “fragile ecological balance is sensitive to any human intervention that may alter it irreversibly.”¹⁰¹⁸

What would respecting the rights of Mother Earth in the *Salar de Uyuni* involve? The *Rights of Mother Earth Law* provides that “Mother Earth and all of her components, including human communities, are entitled to all the inherent rights recognized in this Law” and that “[t]he specifics and particularities of the various components of Mother Earth will be taken into account in applying her rights.”¹⁰¹⁹ The question then, is what do “salar rights” consist of? Hypothetically, “salar rights” might include the right to minimum brine levels required to maintain hydrological flows, the right to the diversity of life that exists in it, and the right to maintain its ecological functions at the landscape level. Possibly, they might include also the right to maintain the unique character of the landscape (or perhaps this is not a “salar right” but part of a human environmental right). Moreover, if the lithium extraction project infringes upon these rights, presumably it would have to be changed to ensure “any conflict between rights [is] resolved in such a way that the functionality of living systems is not affected irreversibly,” as required by Article 6 of the *Rights of Mother Earth Law*. This complexity and the general difficulty of establishing proof in environmental cases, begs the question whether the *Rights of Mother Earth Law* could be implemented effectively even with the most dedicated effort; and if not, whether legal recognition of the rights of nature (in this detailed way at least) is a viable path for ecological law.

¹⁰¹⁷ Jetmarová, “El encuentro de Pachamama con la economía global,” *supra* note 991 at 96-97.

¹⁰¹⁸ Jetmarová, “El encuentro de Pachamama con la economía global,” *supra* note 991 at 96.

¹⁰¹⁹ *Rights of Mother Earth Law*, art 5.

Ecological Primacy

There is no evidence that measures have been adopted to ensure the *Salar de Uyuni* lithium extraction and industrialization project is being carried out in *harmony and equilibrium with Mother Earth*, nor that any consideration has been given to how it could meet this (ecological integrity) standard. Implementing the project in *harmony and equilibrium with Mother Earth* as per the *Framework Law* arguably would at a minimum require understanding the regeneration capacity of the *Salar de Uyuni* ecosystem and ensuring the project does not jeopardize this capacity;¹⁰²⁰ and creating a comprehensive restoration program to guarantee a “resulting system” that is “self-sustaining ecologically, socially, culturally and economically.”¹⁰²¹

Jetmarová warns that it is likely the lithium industrialization project will have devastating effects on the *Salar de Uyuni* ecosystem and local communities, pointing to a study that claims lithium extraction will generate dangerous by-products and could severely affect water levels in the area, and given that the potential effects of the industrial plants have not been studied.¹⁰²² Others argue that the lithium project footprint is small in size (planned to total 18.5 km²)¹⁰²³ relative to the huge area covered by the *Salar de Uyuni* (10,000 km²), and that seasonal rains will replenish the brine levels.¹⁰²⁴

¹⁰²⁰ *Framework Law*, art 5.10 (cited above at text to footnote 934).

¹⁰²¹ *Framework Law*, art 5.11 (cited above at text to footnote 934).

¹⁰²² Jetmarová, “El encuentro de Pachamama con la economía global,” *supra* note 991 at 97.

¹⁰²³ Montenegro Bravo & Montenegro Pinto, “El proyecto estatal de industrialización del litio y potasio en Bolivia,” *supra* note 996 at 106.

¹⁰²⁴ Montenegro Bravo & Montenegro Pinto, “El proyecto estatal de industrialización del litio y potasio en Bolivia,” *supra* note 996 at 108.

The *Salar de Uyuni* is known to be important to the region's hydrology, but its specific role is yet to be well understood.¹⁰²⁵ The studies underway seem to focus on understanding the implications of the hydrogeology of the region for the extractive project—i.e. how it affects the size and nature of the reserves and the effectiveness of different extraction and processing technologies—rather than on identifying the ecological constraints within which the project would have to operate to avoid negative effects on the aquifer and watershed. The region already houses a huge mine, which draws very large amounts of water from the same watershed.¹⁰²⁶ According to Axel Anlauf, the official assessments of the project pay practically no attention to two mechanisms that put the area's hydrological balance at risk: the fact that the groundwater is “fossil water” and thus, non-renewable, and the potential for large quantities of brine extraction to depress the aquifer level in the watershed.¹⁰²⁷ This is despite water being, under the Constitution, a “most fundamental right for life” whose use “for life” should be prioritized over other uses.¹⁰²⁸

In addition, concerns have been raised that huge amounts of waste would be generated (4000 tons a day, by one estimate)¹⁰²⁹ because to produce lithium carbonate, lime must be added to remove high levels of magnesium also contained in the brine.¹⁰³⁰ However, it is not clear from the information and reports available online whether lime is being added to the brine or to the crystalized salts (which would allegedly produce 5%

¹⁰²⁵ Anlauf, “¿Secar la tierra para sacar litio?,” in Nacif & Lacabana, eds, *ABC del litio sudamericano*, *supra* note 988, 171 at 177-178 (citing Prof. Dr. Broder Merkel y Lic. Robert Sieland, Freiburg University of Technology, Germany).

¹⁰²⁶ Robert E Moran, *Minando el agua: la mina San Cristóbal, Bolivia*, (Uyuni: Federación Regional Única de los Trabajadores Campesinos del Altiplano Sud, FRUTCAS).

¹⁰²⁷ Anlauf, “¿Secar la tierra para sacar litio?,” *supra* note 1025 at 185-6.

¹⁰²⁸ *Constitution of Bolivia*, Article 373 & 374.

¹⁰²⁹ Sagárnaga López, “Hay que tomar recaudos ambientales en el Salar,” *supra* note 1007.

¹⁰³⁰ Montenegro Bravo & Montenegro Pinto, “El proyecto estatal de industrialización del litio y potasio en Bolivia,” *supra* note 996 at 102-103.

the volume of waste,¹⁰³¹ including some that can be used to make other products).¹⁰³² Nor is there publicly available information on how much waste is being generated daily and how much will be produced when industrial scale production begins. As noted above, only the industrial potassium chloride component of the project has undergone an environmental impact assessment so far, but the study is not publicly available.

For the project to be carried out *in harmony and equilibrium with Mother Earth*, a comprehensive social-ecological understanding of the region would be needed, with the possibility that the extraction and industrialization project is not viable, as planned, or at all. The precaution required under this standard and under *ecological primacy* demands that actions that may cause ecological damage not be carried out until it is clear they will not cause that damage, so presumably the lithium project should await a better understanding of the Salar de Uyuni region and the project's potential impacts.

Ecological Justice

From the perspective of *ecological justice*, the project could support intragenerational equity if the benefits of extraction, processing and manufacturing facilities and expertise were equitably distributed and the impacts on other users of the *Salar de Uyuni* region were avoided (or equitably addressed),¹⁰³³ and it could perhaps support intergenerational and interspecies equity if limits were set to avoid depletion of the vast, but non-renewable, mineral resources in the *Salar de Uyuni* and to ensure its

¹⁰³¹ Juan Carlos Montenegro Bravo, "Especulaciones en torno a la industrialización de litio en Bolivia," 340-342 in Nacif & Lacabana, eds, *ABC del litio sudamericano*, *supra* note 988 at 341. (The author of this chapter has been Executive Manager of YLB since July 2017.)

¹⁰³² Juan Carlos Montenegro y Edwin Limbert Bustillos, "Reciclaje de residuos del proceso de obtención de carbonato de litio del Salar de Uyuni," in Nacif & Lacabana, eds, *ABC del litio sudamericano*, *supra* note 988, 343 at 344.

¹⁰³³ See e.g. Pablo Poveda Ávila, "Impacto económico de la industrialización del litio del salar de Uyuni en la región," 125-171 in Calla et al, *Un presente sin futuro*, *supra* note 996 at 163.

ecological integrity is maintained. As noted earlier, however, this would require a comprehensive social-ecological understanding of the region that is not yet available.

Other important issues from an *ecological justice* perspective are the scale, rate and ecological footprint of extraction and the ecological sustainability of both the production processes of the end products *and* the consumption patterns these are feeding into. As discussed in the two previous case studies, it is key to consider the reasons for extracting minerals. Lithium is said to be critical for renewable energy technologies. Some argue that it is one of the “technology minerals [that] are fundamental to the economic growth and stability of all nations, and to the success of the Paris Agreement.”¹⁰³⁴ Contributing to the shift to renewable energy use is undoubtedly positive from an ecological law perspective, but only if it is accompanied by a parallel shift to reduced material and energy flows, rather than contributing to economic growth. Also, it matters whether lithium batteries are produced for electronics that are too frequently replaced because of planned obsolescence and marketing, or for individually owned electric vehicles, rather than public transit vehicles.

As part of a path to *living well* and from the perspective of ecological law, the fundamental contradictions and challenges of this industrialization project are rooted in the fact that lithium carbonate production is driven by unsustainable consumption of energy and technology. For it to be consistent with *ecological justice* and supportive of a path toward *living well in harmony with Mother Earth*, it would have to be, instead, driven by basic needs. The government would find legal support for this in Article 8.2 of the *Rights of Mother Earth Law* that states the obligation of the Plurinational State to

¹⁰³⁴ Ali et al, “Resourcing Green Technologies through Smart Mineral Enterprise Development,” *supra* note 990.

“[d]evelop balanced forms of production and consumption patterns to satisfy the needs of the Bolivian people for Living Well, while safeguarding the regenerative capacities and the integrity of the cycles, processes and vital equilibria of Mother Earth;” and on the principle of “Harmonious Relation” in Article 4.12 of the *Framework Law*, which calls for promoting “a harmonious, dynamic, adaptive and balanced relation between the needs of the Bolivian people and the regenerative capacities of the components and living systems of Mother Earth.” And more generally, it could base it on its commitment to building the conditions for *living well* as a “civilizational and cultural horizon alternative to capitalism and modernity.”¹⁰³⁵

Finally, regarding consent and participation of Indigenous people and local communities—another important aspect of *ecological justice*—the lithium industrialization project seems to have been weak, even in terms of the consultation required by applicable laws. Some argue that proper prior consultation with local communities was not carried out,¹⁰³⁶ and others claim that the state worked to divide and undermine local unions in order to impose the project.¹⁰³⁷

In sum, it is hard to conclude from this case study that the potentially transformative recognition of the rights of Mother Earth and direction towards *living well* in Bolivian laws have had any bearing on the actual implementation of a project as nationally important as that of lithium industrialization. While there may be a commitment to extract and process the lithium and other minerals in the *Salar de Uyuni* with “the most environmentally appropriate technologies,”¹⁰³⁸ there is no evidence that

¹⁰³⁵ *Framework Law*, art 5.2.

¹⁰³⁶ Revette, “This Time It’s Different,” *supra* note 1001 at 157-158.

¹⁰³⁷ Sagárnaga López, “Hay que tomar recaudos ambientales en el Salar,” *supra* note 1007.

¹⁰³⁸ Hancock & Ali, “Bolivia’s Lithium Frontier,” *supra* note 851 at 552.

this means maintaining ecological integrity and actually constraining these activities within ecological limits, or even that there is an understanding of what the relevant ecological limits are. Also, if there is an ecocentric approach in this project, it is not apparent.

If the lithium project succeeds it will be an accomplishment for the Bolivian government and may have positive outcomes for Bolivians, but it is not at all clear that it will contribute to *living well in harmony and equilibrium with Mother Earth*. Overall, to the extent the Bolivian law reviewed in this chapter provides prospects for a shift to ecological law, in the case of the *Salar de Uyuni* lithium project these opportunities are not being operationalized in practice.

5.5 Conclusion

This chapter considered the implications for a shift to ecological law of the Bolivian framework on the rights of Mother Earth and *living well* in the context of mining. It included an analysis from the *lens of ecological law* of a number of legal provisions from the *Constitution of Bolivia*, the *Rights of Mother Earth Law*, and the *Framework Law on Mother Earth and Integral Development for Living Well*; while also noting some provisions from the *Law of Environment* and the *Mining and Metallurgy Law*. Based on this analysis, the chapter considered the implementation of these laws in the context of the *Salar de Uyuni* lithium industrialization project and the implications for ecological law.

The *Rights of Mother Earth Law* and the *Framework Law*, on paper at least, are important steps towards ecological law, with multiple elements that resonate with the principles of *ecocentrism*, *ecological primacy* and *ecological integrity*. While these laws

focus mainly on establishing rights, definitions, statements of purpose and principles, and are thin on measures to implement them (perhaps reasonably, especially in the case of the latter given its nature as a *Framework Law*), they are an important contribution to the shift in legal paradigm studied here. The Bolivian framework combines a rights-based approach with provisions establishing obligations and responsibilities of the state, enterprises and other collective and individual members of society to maintain the integrity of Mother Earth. Most notably, the *Framework Law* sets a standard for economic activities, including mineral extraction and industrialization, that requires them to be carried out *in harmony and equilibrium with Mother Earth*, which is tantamount to requiring that they do not compromise ecological integrity. Viewed from the *lens of ecological law*, these laws have the potential to foster an ecocentric view of the human-Earth relationship, and promote reduced material and energy throughput, maintenance and restoration of ecological integrity, ecologically constrained economic activities and steps towards intergenerational, intragenerational and interspecies justice, *if strictly implemented*.

There are important obstacles for the implementation of these laws, however. First, their ecological integrity standard seems inconsistent with the constitutional prioritization of resource extraction. At the same time, the analysis in this chapter shows that, at least in the case of the lithium industrialization project, the problem is the failure to implement these laws altogether, rather than difficulties posed by any contradictions with the *Constitution* or other laws. Still, an important risk is that concepts like *living well* might be rendered meaningless by these contradictions, or as Kothari, Demaria &

Acosta argue, be subject to “attempts of semantic appropriation” by green economy proponents. As these authors explain:

In a comparative analysis of the GE [green economy] approach and development strategies of some Latin American countries based on these indigenous visions (e.g., Vivir Bien in Bolivia, Sumak Kawsay in Ecuador), UNEP (2013) argues that there is essential similarity between the two. UNEP is able to assert this because, in adapting these concepts into constitutional, legal, or administrative provisions, these countries have either distorted their original meanings and/or clubbed them with other contradictory concepts.¹⁰³⁹

Second, the effective implementation of these laws requires mechanisms of enforcement and accountability, which are lacking. The prescription to implement these laws gradually is perhaps realistic, but it lacks any direction on when and how implementation should start, opening the door for ignoring them altogether. As of October 2018 the Mother Earth Ombudsman Office mandated by the law in December 2010 has not been put in place.¹⁰⁴⁰ Moreover, in the example of the *Salar de Uyuni* lithium industrialization project it does not appear the *Rights of Mother Earth Law* and *Framework Law* have been implemented at all. Imagining what respecting the rights of Mother Earth with respect to the *Salar de Uyuni* looks like, as done above, raises questions of the viability of this ecological law approach.

This project cannot be seen as an attempt at *integral development for living well in harmony and equilibrium with Mother Earth*. Thus, whether large-scale mineral

¹⁰³⁹ Kothari, Demaria & Acosta, “Buen Vivir, Degrowth and Ecological Swaraj,” *supra* note 889 at 371-372.

¹⁰⁴⁰ *Rights of Mother Earth Law*, art 10. Also providing that a special law regulating the Ombudsman Office would be adopted, which has not been happened, either.

extraction and industrialization can be carried out in accordance with the requirements of the *Rights of Mother Earth* and *Framework Laws* remains an open question. Gudynas argues that through the concept of *integral development* the *Framework Law* betrays *living well* and provides a basis for neo-extractivism, but he also admits that there is great merit in the fact that Bolivia is grappling with the challenge of transitioning away from capitalism to an alternative paradigm.¹⁰⁴¹ It may be too soon to condemn the rights of Mother Earth and *integral development for living well*—which as argued here, is subject to an ecological integrity standard—as an unviable attempt to set a path towards a different paradigm.¹⁰⁴² Given the enormous difficulty of a shift away from closely interconnected and interdependent societies that are growth-dependent, ecologically unsustainable and inequitable, flawed attempts to chart a path for this shift are nonetheless valuable.

Finally, as noted in this and the previous chapters, a fundamental question that is not yet part of the discussion on the role of resource extraction in the transition to, and in, an ecological society is what extracted minerals are for, why they are needed. The Bolivian framework links mineral extraction broadly to satisfying the needs of Bolivians but stops there. A needs-based framework for minerals is an important area for development of ecological law, further discussed in the conclusion below.

Suggesting a plan to adopt an ecological law approach to mining in Bolivia is not the purpose of this case study, but a key recommendation can be drawn from it: The *Salar de Uyuni* lithium industrialization project should be revisited to ensure it strictly complies with the *Rights of Mother Earth Law* and *Framework Law*. In particular, a

¹⁰⁴¹ Gudynas, “Development Alternatives in Bolivia,” *supra* note 856 at 25.

¹⁰⁴² In their study of the Ecuadorean attempt to use extraction as a path toward *living well*, Villalba-Eguiluz & Etxano “conclude that (neo-)extractivism has proved to be incompatible with the structural transformations that are required for moving towards BV [Bien Vivir].” Villalba-Eguiluz & Etxano, “*Buen Vivir* vs Development (II),” *supra* note 866 at 9.

detailed study should be developed to determine whether the project can meet the ecological integrity standard of being *in harmony and equilibrium with Mother Earth*; in which case, the project could proceed subject to a detailed plan for that purpose.

CONCLUSION

This conclusion has four sections. The first summarizes Chapters 1 through 5 of this thesis. Section 2 presents a preliminary assessment of the *lens of ecological law* proposed in Chapter 2, based on how it was applied in the case studies in Chapters 3 through 5. The third section contains a summary of the obstacles and opportunities for a shift to ecological law as they relate to mining, based on the three case studies in Chapters 3 through 5. Finally, section 4 offers recommendations on an ecological law re-formation of mining, and closes with suggestions of areas for further research.

1. *Summary*

A legal paradigm that can be termed ecological law is emerging in response to the current ecological crisis and the need to build an ecologically just society. The question this thesis aimed to answer is what are the main challenges and opportunities in existing laws, particularly in the context of mining, for a shift to this new paradigm. Part one of the thesis concerned the theoretical framework and methodological approach, while part two presented three case studies.

The first chapter summarized the main critiques, scientific and economic concepts, legal scholarship and proposals that contribute to the theory of ecological law. It also discussed the relationship and potential synergies of ecological law with Indigenous legal traditions and with Green Legal Theory.

A critique of environmental law is at the core of the theory of ecological law, arguing, among other things, that environmental law does not address economic growth as the root cause of ecological degradation, but only provides measures to mitigate its

impacts. The critique also notes environmental law is anthropocentric, disconnected from science, fragmented, reactive and mechanistic.

In contrast to environmental law, ecological law is premised on the understanding that humans are part of nature and everything is connected, and on the need for law to be holistic and adapted to the complex and dynamic nature of social-ecological systems. It is grounded on the scientific understanding of Earth Systems and of the effects human activities may have on their stability—including the concept of the Anthropocene epoch—and on frameworks to help humanity avoid pushing the Earth out of its current stable state, like Planetary Boundaries.

In addition, the vision of ecological economics whereby the economy is embedded in society, and both are embedded and constrained within the environment, informs ecological law. This includes critiques of economic growth as a societal priority, an understanding of sustainability as strong sustainability and arguments for degrowth.

From these foundations, a definition of ecological law was proposed as follows: ecological law is an emerging approach to law aimed at constraining economic activity within ecological limits, restoring and preserving ecological integrity, and building and supporting an ecologically just society. The chapter further discussed the paradigm shift ecological law entails, concluding that it is feasible, but dependent on a larger shift of worldview and its social, economic and political dimensions.

Ecological law is a new approach to law in the sense that it emerges in response to the ecological crisis and the failed approach of environmental law to this crisis, but it is not the first to recognize the interconnectedness of humans and nature and acknowledge the need to ensure humans maintain a healthy relationship with the Earth and the other

beings that are integral to it. This awareness is part of other legal traditions, in particular, of some Indigenous legal traditions. Section 5 of Chapter 1 thus suggested that it is fair to expect potentially rich connections between Indigenous legal traditions and ecological law. It discussed the main assumptions on which this suggestion is based, and some of the challenges it poses, given the occasional examples of Indigenous laws (as I understand them) highlighted in this thesis.

Finally, Chapter 1 concluded with a consideration of the relationship between ecological law and professor Michael M’Gonigle’s Green Legal Theory. There are many commonalities and synergies between Green Legal Theory and ecological law, including a common appreciation of the root causes of the ecological crisis in the commitment to unfettered economic growth and of the reasons environmental law has failed. They agree that what is needed is not a reform of environmental law, but a deeper transformation of law. Green Legal Theory calls for “re-formation,”¹⁰⁴³ while ecological law is itself an emerging alternative to environmental law and thus part of this “re-formation.” The *lens of ecological law* proposed in this thesis is comprised of principles that, in effect and in full agreement with Green Legal Theory, deeply challenge the capitalist growth paradigm by putting nature at the center of law.¹⁰⁴⁴

The second chapter of this thesis built on the theoretical foundations discussed in the first chapter to propose a *lens of ecological law* as an analytical tool to help improve the understanding of what a shift from existing law to ecological law would entail. In particular, it built on the work of Geoffrey Garver regarding “the rule of ecological law as a legal complement to degrowth economics,” professor Klaus Bosselmann’s concept of

¹⁰⁴³ M’Gonigle & Takeda, “The Liberal Limits of Environmental Law,” *supra* note 64 at 1111-4.

¹⁰⁴⁴ M’Gonigle & Takeda, “The Liberal Limits of Environmental Law,” *supra* note 64 at 1014 footnote 24.

ecological justice, and Cormac Cullinan's advocacy for an Earth jurisprudence and wild law. The *lens of ecological law* was crafted as a tool to critique current laws and identify the major affinities and inconsistencies with ecological law. It was not conceived as a framework for building a new legal system of ecological law, although the principles comprising it could be part of such a framework. The *lens of ecological law* is made of three interconnected principles of ecological law:

Ecocentrism – Recognize and respect the value of all beings and the interconnectedness among them, equitably promoting the interests of human and nonhuman members of the Earth community

Ecological Primacy – Ensure that social and economic behavior and systems are ecologically bound, respecting Planetary Boundaries

Ecological Justice – Ensure equitable access to the Earth's sustaining capacity for present and future generations of humans and other beings, and avoid the inequitable allocation of environmental harms.

The second part of this thesis included three case studies in which the *lens of ecological law* was applied to three different legal approaches to mining in order to reflect on their implications for a shift to ecological law. By looking to El Salvador, Chapter 3 explored whether the first ban on metal mining worldwide is a step in the direction of ecological law. In considering mineral extraction proposed in Ontario's Ring of Fire, Chapter 4 searched for elements of ecological law in a legal framework that purportedly ensures mineral extraction is sustainable in one of the most ecologically intact regions of the world. Finally, by turning to Bolivia, Chapter 5 examined the interactions between mineral extraction, in particular of lithium from the *Salar de Uyuni*,

and the rights of Mother Earth and the Andean concept of *living well* recently recognized by Bolivian law, and then considered their significance for a shift to ecological law.

Case Study 1 – El Salvador’s Metal Mining Ban

El Salvador adopted the *Law Prohibiting Metal Mining* in March of 2017. There were no active mining projects at the time, but the law cancelled any existing metal mining rights, established a two-year period for artisanal metal miners to transition to other activities, with the government’s support, and foreclosed any future metal mining. Also, it mandated the government to carry out the restoration of sites contaminated by mining. The *Law Prohibiting Metal Mining* does not amount to a shift in paradigm towards ecological law because it is completely anthropocentric and was based on a calculation that the environmental and social costs of mining are higher than its social and economic benefits, rather than on a determination that mining could not be allowed because its impacts would likely compromise ecological limits. However, by foreclosing metal extraction and ordering the restoration of degraded areas in light of the country’s stressed ecological systems, the metal mining ban establishes a precedent in favor of decisions that recognize ecological sustainability as a precondition for flourishing societies and economies. Lawmakers in El Salvador and elsewhere could look to the precedent set by the *Law Prohibiting Metal Mining* to introduce ecologically-based constraints on other economic activities. From the perspective of *ecological justice*, the transition for artisanal miners and the restoration of affected areas could be implemented in a way that contributes to equity and reduces exposure to environmental harms for current and future generations of El Salvador’s human and non-human inhabitants. Yet in practice, implementation of the *Law Prohibiting Metal Mining* seems to have been

limited to the cancellation of concessions and there is no apparent progress on remediation of contaminated sites or support to artisanal miners to transition to other activities. The metal mining ban is not grounded on an ecocentric worldview—which makes it vulnerable to shifting short-term human interests. Also, from an *ecological primacy* perspective, it would be necessary to consider the use of minerals in El Salvador within the global context of mineral use and extraction, since a ban may simply displace demand to other jurisdictions, which would not necessarily be ecologically sound.

Case Study 2 – Mining in Ontario’s Ring of Fire

The Far North region of Ontario is one of the remaining areas of the planet with high ecological integrity. In 2008, the discovery of rich mineral deposits in an area of the Far North called the Ring of Fire spurred plans for mining and related development in the region. This case study applied the *lens of ecological law* to rules governing mining in the Ring of Fire drawn primarily from the *Mining Act* and the *Far North Act*, in addition to the *Environmental Protection Act* and the *Endangered Species Act*. The rules reviewed focus on access to minerals and benefits from their extraction; public participation and community consent; authorization of mining activities; and measures to minimize harm and establish liability for harm during and after operations. Overall, these rules are largely inconsistent with an ecological law approach to mining in the region because they are anthropocentric, prioritize economic interests over ecological integrity, and favor a few mining-claims-holding humans today over current and future generations of humans and other beings that rely on the land for physical and cultural sustenance. These rules promote mining in the Ring of Fire irrespective of whether the Matawa First Nations on whose traditional territories the mining would occur have given their consent. In contrast,

under ecological law no mineral extraction would be allowed in the Ring of Fire, regardless of pre-existing mining claims because the high ecological integrity of the Far North (*ecological primacy*) is of regional and global ecological significance, because of the region's importance for biodiversity at risk (*ecological justice*), and because of the lack of Matawa First Nations consent (*ecological justice*).

Case Study 3 – Mining, the Rights of Mother Earth and Vivir Bien in Bolivia

Following the election of Evo Morales in 2006, Bolivia adopted a new constitution and laws to support the transformation of the country based, among other things, on the Andean concept of *vivir bien* or *living well*—often described as an alternative to development—and the recognition of the rights of nature. It has also embraced *integral development* as a transitory path to this new society, which has been much criticized as neo-extractivism and the betrayal of *living well*. This case study focused on a number of legal provisions from the *Constitution of Bolivia*, the *Rights of Mother Earth Law*, and the *Framework Law on Mother Earth and Integral Development for Living Well*; while also noting some provisions from the *Law of Environment* and the *Mining and Metallurgy Law*. The analysis included the implementation of these laws in the context of the *Salar de Uyuni* lithium industrialization project and the implications for ecological law.

The *Rights of Mother Earth Law* and the *Framework Law*, on paper at least, are important steps towards ecological law. The Bolivian framework combines a rights-based approach with provisions establishing obligations and responsibilities of the state, enterprises and other collective and individual members of society to maintain the integrity of Mother Earth. Most notably, the *Framework Law* sets a standard for *integral*

development (including mineral extraction and industrialization) that requires it to be carried out *in harmony and equilibrium with Mother Earth*, which is tantamount to requiring that ecological integrity not be compromised. Viewed from the *lens of ecological law*, these laws have the potential to foster an ecocentric view of the human-Earth relationship, and promote ecologically constrained economic activity, maintenance and restoration of ecological integrity, and steps towards intergenerational, intragenerational and interspecies justice, *if strictly implemented*. Important obstacles for the implementation of these laws, however, are that the ecological integrity standard seems inconsistent with the constitutional prioritization of resource extraction, and that mechanisms of enforcement and accountability are lacking. Moreover, while these laws are supposed to be implemented gradually, in the example of the *Salar de Uyuni* lithium industrialization project there is no sign the *Rights of Mother Earth Law* and *Framework Law* have been considered at all. Thus, whether large-scale mineral extraction and industrialization can be carried out in accordance with the ecological law requirements in these laws remains an open question. The attempt to set a path towards a different paradigm is nonetheless of great value and one from which ecological law scholars and advocates can learn.

In sum, ecological law could be advanced in these three cases by:

- 1) Maintaining the metal mining ban in El Salvador while framing it within a larger program that regulates the use and import of metals based on needs and creatively implements the *LPMM*'s provisions on restoration of mining sites and on the transition of artisanal miners, based on objectives set with the active participation of affected persons and communities, guided by *ecological justice*.

2) Recognizing First Nations jurisdiction in the Far North; subjecting any development related to minerals in the Ring of Fire to the determination of whether it could be carried out without impairing ecological integrity in the Far North (through a regional sustainability assessment that includes cumulative effects) and to constraints based on a conservation matrix approach and requirements for a positive contribution to sustainability; and eliminating all exemptions and exceptions prioritizing mineral rights (with compensation based on incurred expenses, not expected profits, for any that need to be cancelled).

3) In Bolivia, revisiting the *Salar de Uyuni* lithium industrialization project to ensure it strictly complies with the *Rights of Mother Earth Law* and *Framework Law*, in particular, that it meets the ecological integrity standard of being *in harmony and equilibrium with Mother Earth*.

Before summarizing the main findings of this thesis and offering recommendations, what follows is a preliminary assessment of the proposed *lens of ecological law* as a tool to critique existing laws.

2. Assessment of the Lens of Ecological Law

The purpose of the *lens of ecological law* is to provide an analytical tool for contrasting existing laws with the alternative paradigm of ecological law. Chapter 2 explained the reasons why it is comprised of principles of ecological law, which are defined as “statements of a core value to guide behavior toward the objectives of ecological law.” Having constructed the *lens of ecological* and tested it in three case studies, it is pertinent to critique the tool itself.

In my view an analytical tool should be easy to use, effective and rigorous, so this preliminary assessment of the proposed *lens of ecological law* focuses on three questions: Is it easy to use? Does it help identify the inconsistencies and points of convergence between existing laws and ecological law that are obstacles and opportunities for a shift to the latter? Does it render clear and thorough results?

1) Is it easy to use?

Overall, the *lens of ecological law* is easy to use. The *ecocentrism* component is reasonably straightforward. Parts of the *ecological primacy* component are easy to apply, in particular whether ecological integrity is prioritized over economic interests. The Planetary Boundaries component of *ecological primacy*, in contrast, is not as easy to frame as a question applied to laws. The *ecological justice* principle is harder to apply because it is very high level, broad, and has many elements, including some that are hard to define, like ‘equitable access to the Earth’s sustaining capacity.’

Another challenge is deciding what to apply the *lens of ecological law* to: complete statutes, selected provisions from different statutes, regulations, policies, projects, etc. Even though it was designed specifically to critique laws, it is possible to use it more broadly, for example on strategies and projects.

For this thesis, I considered using a Green Legal Theory approach to identify the “processes of regulation” governing mining and critique these with the *lens of ecological law*. I was not able to do this in the end, possibly because of difficulties in determining the role of the concept of “process of regulation” in Green Legal Theory (although it is fair to recall that this theory is still under development). Instead, the critiques are of “legal laws” and the decision of what laws or norms to review for each case study was

based on the nature of the case and focused on norms governing access to minerals and decisions about what, why, where, how to mine and who decides. In turn, the cases were chosen based on an expectation that they would render interesting results given the presence of elements that seemed *prima facie* aligned with ecological law, like the rights of nature in Bolivia or the restriction of mining to protect water in El Salvador; or with the values ecological law aims to protect, such as ecological integrity in the Far North of Ontario. Consistent with Green Legal Theory, the norms that determine whether and where mining is allowed did not turn out to be environmental laws but higher level norms reflected in mining laws and constitutions, as well as land use planning law in the case of the Far North of Ontario.

2) Does the *lens of ecological law* help identify the inconsistencies and points of convergence between existing laws and ecological law that are obstacles and opportunities for a shift to the latter?

The *lens* is a useful tool to critique existing laws and helps in developing a general sense of how existing laws compare to ecological law. At the same time, the results of applying it might seem obvious, and there may be a problem with circularity because the critiques of environmental law that underpin ecological law (as described in Chapter 1) overlap with many of the obstacles identified with the *lens*. For example, one of the main critiques of environmental law is that it is anthropocentric, while applying the principle of *ecocentrism* results in identifying anthropocentrism in many of the laws reviewed, and thus as an obstacle for a shift to ecological law.

Another observation is that by applying the *lens* to mainstream laws like mining law and constitutional provisions, the scope and pervasiveness of the obstacles may

become clearer. However, the analysis seems the most useful when applied to proposals that are in some way advancing alternative legal approaches, as in the cases of Bolivia and El Salvador.

In addition to effectively identifying points of comparison between existing and ecological law, using the *lens* helps bring into focus important issues within ecological law theory. For example, the case studies illustrate some of the advantages and limitations of the concept of ecological integrity (integral to the principle of *ecological primacy*) and of a rights-based approach to ecocentric law. Also, the relative difficulty in applying the Planetary Boundaries component of *ecological primacy* shows the Anthropocene challenge of aligning laws with planetary constraints.

3) Does applying the *lens of ecological law* render clear and thorough results?

The *lens* should not be expected to produce unequivocal conclusions, but based on the experience with the three case studies in this thesis, it could be refined to produce more clear and thorough results. There is perhaps too much room for interpretation in the principles of ecological law. They are general and broad, as they should be, but it was necessary to break them down into several elements to guide the assessment under each principle. The problem is that these elements are also general. Perhaps they could be revised or complemented with a checklist of concrete questions.

For example, the principle of *ecological primacy* is to “ensure that social and economic behavior and systems are ecologically bound, respecting Planetary Boundaries.” The related elements it involves are: “ensuring human development is pursued without irreversibly impairing ecological integrity or crossing Planetary Boundaries; constraining material and energy use within ecological limits; and promoting

the restoration and maintenance of ecological integrity.” Concrete questions that could improve the use of this principle include:

- Are human activities that may compromise ecological integrity allowed?
- Are economic activities constrained based on ecological limits at the relevant scales (ecosystem/watershed, planetary)?
- Is restoration of degraded sites required and is it based on ecological integrity criteria?

Another challenge is that because the principles are interconnected, the same issue may be relevant under more than one. For example, the question of human needs is relevant to *ecological primacy* and *ecological justice*. In the case studies here, needs tended to be addressed under *ecological justice* because satisfying needs is intrinsic to sustenance and thus a key criterion to equitably accessing the sustaining capacity of the Earth (recall Atleo). At the same time, economic activities are given priority over ecological values often based on the argument that they produce things that are needed, so asking whether the driver is consumerism or accumulation (i.e., the definition of “need”) also arises in the context of *ecological primacy*. Clearly stating the question of needs under the checklist of one or the other principle (preferably *ecological justice*) could improve the analysis. Another example is concern for nonhuman species, which is relevant to all three principles. In the case studies it surfaced in *ecocentrism* as rights of nature, in *ecological primacy* as intrinsic to ecological integrity, and in *ecological justice* as a matter of interspecies equity.

The *lens of ecological law* is a work in progress, proposed as a potentially useful tool for ecological law as its theory continues to develop. Refining the principles or

crafting checklists to make their application more rigorous beyond the rough suggestions above is not within the scope of this thesis, but it is hoped that others will use the *lens of ecological law* and make adjustments to improve it. For instance, it would be interesting to apply the *lens of ecological law* to the “mines as bridges” examples professor Gibson points to in Canada (the Voisey’s Bay nickel mine and mill project in Northern Labrador, the Whites Point quarry in Nova Scotia and the Kemess North copper-gold mine in British Columbia);¹⁰⁴⁵ the legal framework for the Whanganui River in New Zealand;¹⁰⁴⁶ and the judicial decision recognizing the rights of the Ganges and Yamuna Rivers in India,¹⁰⁴⁷ to name a few.

3. Obstacles and Opportunities for a Shift to Ecological Law in Relation to Mining

This thesis aims to contribute to answering, in the context of mining, the question: what are the obstacles and opportunities in existing laws for a shift to ecological law? To explore this question, the *lens of ecological law* was tested in three case studies. The results are summarized and discussed below. The types of findings varied considerably across the three cases because of the differences between the cases themselves. They differ in the approach they illustrate, roughly speaking: no metal mining,¹⁰⁴⁸ neoliberal mining and mining ‘in harmony with Mother Earth.’ The context of each case also brings

¹⁰⁴⁵ Gibson, “Turning Mines into Bridges,” *supra* note 827 at 8.

¹⁰⁴⁶ “New Zealand’s Whanganui River Granted Legal Status as a Person after 170-year Battle,” *supra* note 306.

¹⁰⁴⁷ Michael Safi & agencies, “Ganges and Yamuna Rivers Granted Same Legal Rights as Human Beings,” (21 March 2017), online: The Guardian <<https://www.theguardian.com/world/2017/mar/21/ganges-and-yamuna-rivers-granted-same-legal-rights-as-human-beings>> (accessed 27 October 2018).

¹⁰⁴⁸ As Broad & Cavanagh note, however: “While El Salvador is the first to adopt a total ban on metallic mining, during the many years of this struggle there have been important victories against destructive mining in other countries. Movements have won an end to mining in indigenous areas in Panama, a ban on open-pit mining and the use of cyanide in Costa Rica, an end to mining in the uplands of Colombia, and an end to mining near glaciers in Argentina. In the Philippines, an activist minister of the environment has initiated the suspension of mining at numerous sites.” Broad & Cavanagh, “El Salvador Votes for Water over Gold,” *supra* note 576.

to bear different questions, for example, that of Indigenous jurisdiction in the Ring of Fire; or the question of alternatives to development underlying the Bolivian case. All three cases, however, focus primarily on laws only as written, rather than as written and implemented because in the cases of the Ring of Fire and El Salvador, there was no actual project to consider, while in the case of Bolivia it turned out that the law has not actually been applied to the mining project reviewed.

Obstacles

1. Anthropocentrism is the most patent obstacle for a shift to ecological law in the context of mining, and a major one. Not only are most laws reviewed in these case studies anthropocentric, but also where ecocentric laws have been adopted, as in Bolivia, they do not appear to have been implemented or have any effect on mining decisions.

The metal mining ban in El Salvador and the Ontario laws reviewed are completely anthropocentric. The most salient example is the utilitarian approach of the Ontario effluent regulations for mining that prescribe using nonhuman living beings to test the lethality of waste discharged from metal mining operations, which is inconsistent with *ecocentrism* and interspecies equity (*ecological justice*).¹⁰⁴⁹

The Bolivian *Rights of Mother Earth Law* and *Framework Law* are clearly ecocentric, but it does not seem they have been implemented. The rights of nature recognized in those laws do not appear to have had any effect in one of the country's most prominent mining projects, in an area that is described as ecologically fragile. It is too soon to consider this a failure, and other cases may have resulted in better

¹⁰⁴⁹ O Reg 560/94 - Effluent Monitoring and Effluent Limits - Metal Mining Sector, s 19.

outcomes,¹⁰⁵⁰ but it does beg the question of whether recognizing the rights of nature actually advances ecological values or only provides false impressions that ecological values are being protected. In studying and analyzing laws one assumes that they will be applied, at least to some extent. Yet so often they are not applied at all. At a certain point, one also perceives a correlation between ambitious progressive laws, and weak accountability mechanisms and the pervasive practice of ignoring these laws. This question is not exclusive to ecological interests, but is it worth it to recognize the rights of nature if they will not be enforced? Perhaps it is, if such recognition may start a global trend that eventually produces positive outcomes for nature protection, as David Boyd shows about constitutionally recognized rights to a healthy environment.¹⁰⁵¹ At the same time, there is a risk that concepts like the rights of nature might be rendered meaningless by these contradictions, or as Kothari, Demaria & Acosta argue regarding *living well*, be subject to “attempts of semantic appropriation.”¹⁰⁵²

2. The notion of minerals as “resources” and as property is an important challenge for ecological law.¹⁰⁵³ It is inconsistent with an ecocentric view of the human-Earth relationship, and it encourages extraction for profit rather than to satisfy needs.

The Bolivian *Framework Law* tries to reconcile the rights of Mother Earth with mineral (and other) extraction principally by defining natural resources as the parts of the Earth that can be used, exploited and commodified. Natural resources are “components of Mother Earth for Living Well” and their exploitation and use are subject to “the

¹⁰⁵⁰ Kauffman & Martin, “Can Rights of Nature Make Development More Sustainable?,” *supra* note 850.

¹⁰⁵¹ David R Boyd, *The Environmental Rights Revolution: A Global Study of Constitutions, Human Rights, and the Environment*, (UBC Press, 2012) at 278.

¹⁰⁵² Kothari, Demaria & Acosta, “Buen Vivir, Degrowth and Ecological Swaraj,” *supra* note 889 at 371-372.

¹⁰⁵³ Generally, Burdon, *Earth Jurisprudence*, *supra* note 968; Brown, “Are There Any Natural Resources?,” *supra* note 504.

conditions of sustainable development” and the *in harmony and equilibrium with Mother Earth* requirement.¹⁰⁵⁴ Meanwhile, these components of Mother Earth are also subject to anthropocentric dominion: “natural resources are the property and direct, indivisible and imprescriptible dominion of the Bolivian people, and their administration will lie with the State in accordance with the collective interest...”¹⁰⁵⁵ In contrast, in some Indigenous legal orders, relationships with other beings and the land are not based on property and dominion, but on notions such as kinship and stewardship.¹⁰⁵⁶

Another example of the challenge property poses for ecological law is evident in the different expressions of the principle of “No Commercialization” in the Bolivian laws reviewed. Under the *Rights of Mother Earth Law*, “No Commercialization” means that “the living systems and the processes that sustain them cannot be commercialized, nor can they become anyone’s private property,”¹⁰⁵⁷ In the *Framework Law*, which was adopted later, the name of the principle is “No Commercialization of the Environmental Functions of Mother Earth,” and its description avoids any mention of private property, stating that “[t]he environmental functions and natural processes of the components and living systems of Mother Earth are not considered as commercial goods, but as gifts of the sacred Mother Earth.”¹⁰⁵⁸

3. Prioritizing mineral extraction over other land uses is a major obstacle for ecological law. It is inconsistent with *ecological primacy* in places where mining would compromise ecological integrity, and with *ecological justice*, because it favors the

¹⁰⁵⁴ *Framework Law*, arts 5.4, 5.6, 5.14.

¹⁰⁵⁵ *Constitution of Bolivia*, art 349.I.

¹⁰⁵⁶ E.g. Bradley Bryan, “Property as Ontology: On Aboriginal and English Understandings of Ownership,” (2000) 13 Can JL & Jur 3.

¹⁰⁵⁷ *Rights of Mother Earth Law*, art 2.5.

¹⁰⁵⁸ *Framework Law*, art 4.2.

interests of a few humans today (predominantly mining companies and their shareholders) over current and future generations of humans, especially Indigenous communities, and other nonhuman beings that rely on the land for physical and cultural sustenance.

However, it is a widely used approach reflected, for example: in the free mining system itself; in rules that limit the rights of the surface landowner;¹⁰⁵⁹ in the broad rights granted to mineral operators;¹⁰⁶⁰ and is explicitly established in the *Constitution of Bolivia*,¹⁰⁶¹ in the Mining Law of Mexico (and many other countries promoting mining),¹⁰⁶² and in Ontario's *Far North Act* and *Mining Act* by way of the exceptions that allow mining to be carried out in areas where community-based land use plans have excluded mining.¹⁰⁶³

Barton's historical explanation of the attachment to free entry in Canada and his reflections on its current inadequacy are worth recalling here because they so clearly show the nature of this obstacle to ecological law:

One can see the free entry system as a covenant between the mining community and the government or wider community. Historically, the covenant was that the miner would be the pioneer and would open up the wilds, the untamed and forbidding wilderness. The miner would be the first agent of settlement and would push back the frontier, permitting other settlers such as

¹⁰⁵⁹ "In all jurisdictions, the common law rules dealing with surface rights [reference omitted] are put aside for activities under mining legislation. The statutes provide for the conditions under which a miner can enter private land in pursuit of Crown minerals and the manner in which the miner is to pay compensation to the surface owner and occupier." Barton, *Canadian Law of Mining*, *supra* note 654 at 192.

¹⁰⁶⁰ "The rights granted to the mineral operator are usually couched in broad terms that permit virtually any kind of activity necessary for mineral exploration, development, and extraction." Barton, *Canadian Law of Mining*, *supra* note 654 at 198.

¹⁰⁶¹ *Constitution of Bolivia*, Article 348.II

¹⁰⁶² Mexico, *Mining Law*, art 6. See Sbert Carlsson, "Amparos Filed by Indigenous Communities against Mining Concessions in Mexico," *supra* note 530.

¹⁰⁶³ *Mining Act*, s 204(3); *Far North Act*, ss 14(3), 14(4).

farmers to follow in due course. The miner would seek out and develop the resources of the new lands and would create new wealth. In return, the miner sought little. The main concern was to be left alone by the government, especially (in the early days) in financial terms. The implicit covenant by the government was that the fees and royalties extracted from mining would not be large. The government's main duty was to provide a stable legal framework and to provide mining laws that would encourage the industry, especially the small prospector.

...

The premises on which the parties entered into this covenant in the nineteenth century have changed. Above all, our concept of wilderness has changed. Originally, we thought of Crown lands as the 'waste lands of the Crown'. ... Now we are aware of the value of wilderness and undeveloped land for a multitude of purposes such as wildlife habitats or recreational and tourism resources. There are other values besides mineral exploration that need nurturing. The public is conscious of its ability to threaten the wilderness and indeed to threaten the welfare of the environment on a planetary scale. The wilderness no longer seems infinite; road networks gradually extend further, and there are few places where one person's activities will not be seen as affecting the interest of other persons. The reality is that the frontier has closed.¹⁰⁶⁴

Yet the covenant seems to hold despite the growing awareness of the value of nature and the risk of crossing Planetary Boundaries. In Bolivia, mining is allowed in protected areas under Article 220 of the *Mining and Metallurgy Law*. In Ontario, sections 204(3) of the *Mining Act* and 14(3) and 14(4) of the *Far North Act* establish exceptions

¹⁰⁶⁴ Barton, *Canadian Law of Mining*, *supra* note 654 at 167 [references omitted].

for allowing mining in protected areas and in areas where community based land use planning would exclude mining.

Efforts to end this preference for extractive land uses are gaining momentum, not only with respect to mining, but also regarding fracking and other mega-projects, like hydroelectric development, often in the form of broad movements of resistance and struggle and also through municipal ordinances, community bills of rights, and community declarations that territories are “free of mining” or otherwise off limits to extractive activities.¹⁰⁶⁵ These efforts are very valuable precedents for ecological law.

4. Obligations to restore mining sites, where in place, are based on anthropocentric interests (risks to humans and future human uses) and limited to what is practicable (as in the case of Ontario) or not implemented (as in El Salvador and the Bolivian *Salar de Uyuni* project).

What these restoration standards would be is a major challenge for ecological law. From an *ecological primacy* perspective, the standards for remediation should be based not on what is achievable technically and financially by the proponent, but on what is needed for functioning ecosystems to retain their integrity.¹⁰⁶⁶ If remediation is technically and financially achievable under this standard, the limits of this possibility would be one of the initial constraints on the scope and nature of the project itself. For example, if open pit mining cannot achieve this standard it would not be allowed, but the deposit could perhaps be mined underground if remediation under this standard is

¹⁰⁶⁵ E.g. Sara Rodrigues, “Localising ‘the Rights of Nature’: A Critical Discourse Analysis,” (2014) (6 April) Green Letters 1; Red Mexicana de Afectados por la Minería, REMA (Mexican Network of Those Affected by Mining) www.remamx.org.

¹⁰⁶⁶ Garver, “Ecological Integrity in the Anthropocene,” *supra* note 483 at 198, 200.

achievable for this technology. Remediation to support novel ecosystems could perhaps be an appropriate standard in disturbed sites, for example, for landfill mining.¹⁰⁶⁷

5. An important obstacle for *ecological justice* is that consent from Indigenous peoples and active participation by local communities are usually not required for mineral extraction. In Ontario's Far North, the Matawa First Nations assert the need to obtain their free prior and informed consent regarding development activities in their traditional territories,¹⁰⁶⁸ including mining in the Ring of Fire, but provincial and federal governments do not accept that this right under UNDRIP could involve saying no to a project.¹⁰⁶⁹ In Bolivia, the law does not recognize the right of Indigenous peoples to free prior and informed *consent* regarding mining. The extraction of mineral resources is a strategic national interest under the Constitution, which explicitly states that Indigenous peoples do not have a veto under ILO Convention 169 and UNDRIP.¹⁰⁷⁰

In contrast, it is worth recalling that in El Salvador, the mining law that preceded the ban subjected the granting of an exploitation concession to the requirement of ownership by the proponent of the surface rights, or proof that the proponent has obtained the consent of the surface owner. Failure to seek this consent was at the heart of Pacific Rim's failure to gain the concession for the El Dorado project and of the tribunal's

¹⁰⁶⁷ David Doley & Patrick Audet, "Adopting Novel Ecosystems as Suitable Rehabilitation Alternatives for Former Mine Sites," *supra* note 802; Joakim Krook, Niclas Svensson & Mats Eklund, "Landfill Mining: A Critical Review of Two Decades of Research," (2012) 32 Waste Management 513 (indicating that "so far, landfill mining has primarily been seen as a way to solve traditional management issues related to landfills such as lack of landfill space and local pollution concerns."); C.f. Garver, "Ecological Integrity in the Anthropocene," *supra* note 483 at 198.

¹⁰⁶⁸ Matawa Chiefs Council, *Unity Declaration*, *supra* note 659.

¹⁰⁶⁹ UNDRIP, *supra* note 660.

¹⁰⁷⁰ *Mining and Metallurgy Law*, art 208, III.

decision in favor of El Salvador in the investor-state dispute launched by the company.¹⁰⁷¹

Opportunities

1. As the resurgence of Indigenous legal traditions takes hold and struggles for Indigenous jurisdiction gain ground, Indigenous laws might bring into play values that resonate with ecological law. For example, if Canada and Ontario were to recognize that the Matawa First Nations have, as the FNs claim, shared jurisdiction in the Ring of Fire, the rules that result from this joint jurisdiction for determining whether and how mining could occur there might turn out to be examples of ecological law.

2. Regional sustainability assessment processes, positive contribution to sustainability requirements and “cumulative effects as a mindset,”¹⁰⁷² recommended for adoption generally in Canada and specifically before any mining in the Ring of Fire,¹⁰⁷³ are important opportunities to advance *ecological primacy*. Moreover, according to Anthony Hodge from the International Council on Mining and Metals, the positive contribution to sustainability requirement is feasible from an engineering perspective, but “it has not been applied and not surprisingly, it has not been achieved.”¹⁰⁷⁴

3. Constitutional or legal adoption of rights of nature is another important opportunity for ecological law. Where such rights have already been recognized, like in Bolivia and Ecuador, much can be learned, and perhaps a shift toward ecological law can

¹⁰⁷¹ See Chapters 3.2 and 3.4 above.

¹⁰⁷² A John Sinclair, Meinhard Doelle & Peter N Duinker, “Looking Up, Down, and Sideways: Reconceiving Cumulative Effects Assessment as a Mindset,” (2017) 62 Environmental Impact Assessment Review 183.

¹⁰⁷³ Gibson, Doelle & Sinclair, “Fulfilling the Promise,” *supra* note 1072; Atlin & Gibson, “Lasting Regional Gains from Non-renewable Resource Extraction,” *supra* note 651.

¹⁰⁷⁴ R Anthony Hodge (International Council on Mining and Metals), “Mining Company Performance and Community Conflict: Moving Beyond a Seeming Paradox,” (2014) 84 Journal of Cleaner Production 27 at 30.

be advanced, by ensuring they are effectively implemented. At the same time, these rights should be complemented by detailed and enforceable responsibilities and obligations of care for ecological integrity.

4. The failure of existing laws to address the question of needs is an opportunity for ecological law to develop a needs-based approach to mineral use and extraction. How to define basic needs is obviously not a new problem or one that is easy to solve,¹⁰⁷⁵ and this thesis can only note its importance from an ecological law perspective and underscore that it demands further research and democratic debate. Mining draws substantially on the Earth's sustaining capacity by extracting non-renewable minerals and by transforming (and at worst, destroying) the landscape, directly and through induced development, so fairness to other human and nonhuman beings requires that there be very good reasons to undertake it. Since it is practically impossible to mine without causing harm to other beings; and because full restoration of mined sites is deemed impossible, *ecological justice* implies that extraction can only be justified when there are no alternative means of satisfying basic human needs. This would also contribute to reducing the throughput of materials and energy.¹⁰⁷⁶

¹⁰⁷⁵ In 2002, a report from an MMSD North America and IISD task force explained that the problem is that “[i]n market economies, governments accept the proponent’s feasibility study along with their willingness to invest as a demonstration of need” while “a broad sense has emerged that such market-driven decision-making may not always lead to satisfactory results in terms of the resulting human and ecological implications... However, such a sense begs some fundamental questions including: (1) how, in practice, should a needs assessment that improves on the current approach be undertaken?; (2) whose needs should drive the assessment?; and (3) who should be the judge? These are profound questions of public policy for which there are no simple or widely accepted answers.” MMSD North America & IISD, *Seven Questions to Sustainability: How to Assess the Contribution of Mining and Minerals Activities*, (Winnipeg, Manitoba: IISD, 2002) at 22.

¹⁰⁷⁶ L Akenji et al, “Ossified Materialism: Introduction to the Special Volume on Absolute Reductions in Materials Throughput and Emissions,” (2016) 132 *Journal of Cleaner Production* 1; Anke Schaffartzik et al, “Global Patterns of Metal Extractivism, 1950–2010: Providing the Bones for the Industrial Society’s Skeleton,” (2016) 122 *Ecological Economics* 101; Eric Kemp-Benedict, “Material Needs and Aggregate Demand,” (2013) 44 *Journal of Socio-Economics* 16.

4. Recommendations

Ecological Law Re-formation in Mining

As argued in Chapter 1.6, a shift to ecological law is part of the transformative change that Green Legal Theory says is needed to confront unsustainability. Based on the case studies findings and discussion, and building on previously published work,¹⁰⁷⁷ a preliminary sketch of what we might expect mining to be like in an ecologically just society is suggested below. An ecological transformation of mining would entail, in Green Legal Theory terms, a re-formation rather than reform confined to “legal laws.”

Minerals will likely always be required to some extent in goods, services and infrastructure to satisfy basic human needs, and be demanded to satisfy human wants. An ecologically just society will not be one without minerals, but one in which metals are produced without compromising ecological integrity and are used in ways that foster equity among humans, with other species and into the future.

In an ecologically just society ...

- Minerals would be processed or extracted primarily for use in relation to (democratically determined) basic needs. Demand for minerals would be much reduced and driven by their use value.
- Minerals would be treated as commons, likely at the regional level.
- They would be obtained principally from existing stocks, in landfills, buildings, infrastructure, cars, etc., through reuse, repurposing and recycling. Metals required for basic needs that cannot be obtained from these sources could be mined, but
- their extraction from new deposits would be permitted only

¹⁰⁷⁷ Sbert, “*Re-imagining Mining*,” *supra* note 529 at 88-90.

- exceptionally, at human scales and with the strictest measures to prevent risks to health (of miners and neighbors) and the environment;
- from sites that do not have high degrees of ecological integrity, and are not important for agriculture or water provisioning; and
- with the FPIC of Indigenous peoples if extraction would affect their traditional territories, the consent of other potentially impacted people and active participation of the community in which extraction is carried out.

Mining without causing serious harm or diminishing the ecological integrity of the ecosystem in which minerals are located would most likely mean limiting extraction to small volumes over long periods of time and using low impact technologies. It would likely be a type of mining similar to artisanal mining, but much improved—safe for the miners, neighbors and environment. Perhaps it could be based on traditional practices that may be rescued and revitalized.

In a transition to an ecologically just society, the following proposals and existing laws could play a major role. Serious adoption of tools like the conservation matrix for development decision making in areas of high conservation value; regional sustainability and cumulative effects assessments; and sustainability assessments that require positive contributions to sustainability for individual projects would undoubtedly reduce the ecological impacts of mining and be a step in the direction of ecological law. Serious implementation of recognized rights of nature (such as those in the Bolivian *Rights of Mother Earth Law*) would, too. These could be part of an ecological law framework for

mining, but the fundamental elements of such a framework would be an ecological primacy standard (based on ecological integrity or another appropriate reference) and a needs-based approach. While all of the elements of mining in an ecologically just society require further research, these two are the main areas for further research identified based on the analysis in this thesis.

Further Research

A needs-based approach to mining. Building a needs-based approach requires research, but also democratic debate. It involves responding to questions like: What and whose needs? Who decides and how? Are basic needs for minerals generalized across the global population or are there variations based on culture or other factors? Do basic needs evolve? The ideas Max Koch, Hubert Buch-Hansenb and Martin Fritz put forth in their argument for a shift of focus in Degrowth from wellbeing to human needs are a very good place to start an examination of needs for minerals.¹⁰⁷⁸

Also, in the context of concern for peak minerals, there are some discussions about new models to assess sustainability in mining that could be relevant to addressing the question of needs from an ecological law perspective. For example, Carlia Cooper and Damien Giurco argue in their study of deep-sea mining off the coast of Australia, that analyses of sustainability in mining do not ask “the right questions.”¹⁰⁷⁹ Their research shows that the focus is on the availability of resources and the technologies to extract and process them, while ignoring the “level of service value of the minerals” as well as the rates and patterns of consumption of minerals. To help address this problem, Cooper and

¹⁰⁷⁸ Max Koch, Hubert Buch-Hansenb & Martin Fritz, “Shifting Priorities in Degrowth Research: An Argument for the Centrality of Human Needs,” (2017) 138 *Ecological Economics* 74.

¹⁰⁷⁹ Damien Giurco & Carlia Cooper, “Mining and Sustainability: Asking the Right Questions,” (2012) 29 *Minerals Engineering* 3.

Giurco propose the “Mineral Resources Landscape” as a framework that offers “an expanded conceptualisation of minerals sustainability to link minerals production and consumption in an integrated assessment across the entire minerals supply chain.”¹⁰⁸⁰

This kind of proposal could help define ways to align mineral extraction with needs and the role ecological law could play in doing so.

Planetary boundaries. In efforts to translate Planetary Boundaries into national and subnational limits mining is subsumed within broad categories of resource use.¹⁰⁸¹ Mechanisms to evaluate the specific contribution of mineral extraction to pressures on Planetary Boundaries at the level of individual mineral flows should be devised and would aid in establishing benchmarks and limits for the sector.¹⁰⁸² Questions could presumably be asked to measure the contribution of specific mines or mineral supply chains, including: What are the GHG emissions generated directly from extraction, refining, etc.? Are species at risk affected directly or by habitat destruction? How much water is consumed? Is what is being mined a contributor to disrupting biogeochemical flows (i.e., phosphorous) or climate stability (i.e. coal, bitumen)? What is the direct or indirect effect of a specific mine or mineral supply chain on land use change that affects important biomes like tropical forests, grasslands, the boreal forest, or the oceans?¹⁰⁸³

¹⁰⁸⁰ Carlia Cooper & Damien Giurco, “Mineral Resources Landscape: Reconciling Complexity, Sustainability and Technology,” (2011) 7:1 Int J of Technology Intelligence & Planning 1.

¹⁰⁸¹ E.g. Andrew L Fanning & Daniel W O’Neill, “Tracking Resource Use Relative to Planetary Boundaries in a Steady-state Framework: A Case Study of Canada and Spain,” (2016) 69 Ecological Indicators 836.

¹⁰⁸² See e.g. Morten W Ryberg et al, “How to Bring Absolute Sustainability into Decision-making: An Industry Case Study Using a Planetary Boundary-based Methodology,” (2018) 634 Science of the Total Environment 1406 (exploring the potential use of the Planetary Boundaries concept as part of life cycle assessment (LCA) for gauging absolute environmental sustainability, with a hypothetical laundry washing case study at the EU level).

¹⁰⁸³ E.g. Hideki Kobayashi, Hiroko Watando & Mitsuru Kakimoto, “A Global Extent Site-level Analysis of Land Cover and Protected Area Overlap with Mining Activities as an Indicator of Biodiversity Pressure,” (2014) 84 Journal of Cleaner Production 459; Laura J Sonter et al, “Processes of Land Use Change in Mining Regions,” (2014) 84 Journal of Cleaner Production 494.

Nonrenewable and renewable ‘resources.’ As noted in the introduction, the nonrenewable nature of minerals was one reason to focus on mining in this thesis. The expectation was that while a transition to ecological law in any sector (forestry, agriculture, etc.) raises questions of limits and intergenerational equity, these issues would come into greater focus in the context of the extraction of non-renewable resources from the Earth’s crust than from the perspective of renewable resources. The analysis resulted in greater emphasis on the destructive impacts of mineral extraction than on the nonrenewable character of minerals, including in terms of intergenerational equity. Further research is needed regarding an ecological law approach for avoiding depletion of nonrenewable ‘resources’ and for ensuring intergenerational equity in the use of both nonrenewable and renewable ‘resources.’ There is growing concern about scarce minerals approaching depletion and the availability of minerals to meet growing demand.¹⁰⁸⁴ Developing an ecological law approach to these questions would be an important contribution to the debate. At the grassroots end of the debate, it would be worth examining from the *lens of ecological law* campaigns like the one led by the Goa Foundation for intergenerational equity with respect to minerals in the State of Goa, India.¹⁰⁸⁵ Through public interest litigation, the foundation has achieved a cap on mining in Goa, and a Goa Iron Ore Permanent Fund.¹⁰⁸⁶

Restoration. In particular in the case of mining, determining the role of restoration in the maintenance and reestablishment of ecological integrity is critical. To recall, the

¹⁰⁸⁴ E.g. Saleem Ali et al, “Mineral Supply for Sustainable Development Requires Resource Governance,” (15 March 2017) 543:7645 *Nature* 367; and MLCM Henckens, PPJ Driessen, C Ryngaert & E Worrell, “The Set-up of an International Agreement on the Conservation and Sustainable Use of Geologically Scarce Mineral Resources,” (2016) 49 *Resources Policy* 92.

¹⁰⁸⁵ Goenchi Mati Manifesto, online: The Goenchi Mati Movement <<http://goenchimati.org/manifesto/>> (accessed 30 January 2019).

¹⁰⁸⁶ The State of Mining in Goa, online: Goa Foundation <<http://www.goafoundation.org/mining/>> (accessed 30 January 2019).

conclusion in this thesis is that mining would not be admissible under ecological law if it will compromise ecological integrity and in areas where ecological integrity is high.

What are appropriate restoration standards in the Anthropocene? Can they aim at maintaining or restoring ecological integrity? Or is this objective of ecological law proclaimed in this thesis (based on the ecological law literature) only of rhetorical value?

Minerals as commons. As Gustavo Esteva explains, “[c]ommons is a generic term for a variety of social forms existing in Europe, particularly in England, before capitalist or socialist industrialization transmogrified them into resources.”¹⁰⁸⁷ Can minerals be re-conceptualized as part of the commons rather than resources/commodities? How does the growing commons movement approach mining and the use of minerals?¹⁰⁸⁸

Convivial minerals? Ivan Illich’s idea of conviviality—which is being revived and adapted in the degrowth literature¹⁰⁸⁹—would be worth exploring with regard to its implications for a re-formation of mining, especially on the question of a use-value approach to minerals. “‘Conviviality,’” as Kerschner et al describe it, “was, for Illich, the ‘opposite of industrial productivity’ and focused on autonomous individuals satisfying human needs, social solidarity, friendship and mutual giving.”¹⁰⁹⁰ Illich used the expression “convivial tool” to refer to “use-value oriented engineered artifacts”¹⁰⁹¹ and

¹⁰⁸⁷ Gustavo Esteva, “Commoning in the New Society,” (2014) 49:S1 Community Development Journal 144 at 146.

¹⁰⁸⁸ B Weston & D Bollier, *Green Governance: Ecological Survival, Human Rights, and the Law of the Commons*, (Cambridge University Press, 2013); “On the Commons,” online: Commons Network <<http://www.onthecommons.org/about-commons#sthash.FNyMwWr5.KHVhTXIO.dpbs>> (accessed 31 Oct 2018).

¹⁰⁸⁹ Silja Samerski, “Tools for Degrowth? Ivan Illich’s Critique of Technology Revisited,” (2018) 197 Journal of Cleaner Production 1635.

¹⁰⁹⁰ C Kerschner et al, “Degrowth and Technology: Towards Feasible, Viable, Appropriate and Convivial Imaginaries,” (2018) 197 Journal of Cleaner Production 1619 at 1628 [references omitted].

¹⁰⁹¹ Ivan Illich, *Toward a History of Needs*, (New York: Pantheon Books, c1978) at 52.

there is an emerging debate within degrowth regarding “convivial technologies.”¹⁰⁹²

Could mining ever be driven by the use value of the minerals and these be exchanged for their use value?¹⁰⁹³ Further research on the role of minerals and mining in the production of “convivial tools” would be worth pursuing.

Mining under Indigenous laws. Another area of research that may contribute to a re-formation of mining concerns how mining would be carried out under Indigenous laws and how Indigenous approaches compare to an ecological law approach.

Ecofeminism, ecological law and mining. An important topic that this thesis did not examine is the relationship between ecofeminism and ecological law. Limited attention to the role of “feminisms” in degrowth has also been cause for debate and action within the movement.¹⁰⁹⁴ These are both critical areas for further research. For purposes of beginning to map the contributions of ecofeminism to the theory of ecological law, and of further delineating a re-formation of mining, Elaine L. Hughes’ critique of Canadian environmental law and “re-visioning” of the Canadian *Fisheries Act*, would be an ideal place to start.¹⁰⁹⁵ Likewise, ideas on how minerals might be de-commoditized could draw

¹⁰⁹² See the special issue on Degrowth and technology, (2018) 197 Journal of Cleaner Production; in particular Andrea Vetter, “The Matrix of Convivial Technology: Assessing Technologies for Degrowth,” (2018) 197 Journal of Cleaner Production 1778, and Barbara Muraca & Frederike Neuber, “Viable and Convivial Technologies: Considerations on Climate Engineering from a Degrowth Perspective,” (2018) 197 Journal of Cleaner Production 1810.

¹⁰⁹³ Noah Quastel, “Pashukanis at Mount Polley: Law, Eco-social Relations and Commodity Forms,” (2017) 81 Geoforum 45.

¹⁰⁹⁴ “First International Meeting of the Feminisms and Degrowth Alliance (FaDA),” (4 August 2018), online: Research & Degrowth <<https://degrowth.org/2018/08/04/first-international-meeting-of-the-feminisms-and-degrowth-alliance-fada/>> (accessed 31 October 2018).

¹⁰⁹⁵ Elaine L Hughes, “Fishwives and Other Tails: Ecofeminism and Environmental Law,” (1995) 8 CJWL 502.

inspiration from Heather McLeod-Kilmurray's recommendations for a path toward the liberation of industrial livestock.¹⁰⁹⁶

Ecological law and the capitalist state. Finally, this thesis argues that a shift to ecological law is a paradigm shift from environmental law, as it deeply challenges the capitalist growth paradigm by putting nature at the center of law. However, the examination of Bolivia's framework of rights of Mother Earth and *vivir bien* reveals a profound difficulty in achieving change through legislated adoption of ecological law. As professor M'Gonigle has pointed out in response to this thesis, the role and transformative potential of law itself in a capitalist state are critical questions that need to be fully addressed by ecological law theory. This is an important area of further research, ideally to be pursued with the assistance of Green Legal Theory.

Humanity has the responsibility to address the ecological degradation and threats to Earth Systems' stability caused by the development pathways taken so far by mostly rich Western societies. We also have the opportunity to build a new relationship with the Earth community. A shift to ecological law is a promising contribution to both urgent actions, so work towards this shift should be expanded and relentlessly pursued. Mining will likely remain at the core of the satisfaction of many basic human needs but, as this thesis shows, an ecological law re-formation can help define mining's purpose and limits in an ecologically just society. Transformative change in mining may have transformative repercussions in other areas of industry and society.

¹⁰⁹⁶ Heather McLeod-Kilmurray, "Commoditizing Nonhuman Animals and their Consumers: Industrial Livestock Production, Animal Welfare, and Ecological Justice," (2012) 32:1 Bulletin of Science, Technology & Society 71.

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