Volume XX, Issue 2 Spring 2020

Sustainable Development Law & Policy

Exploring How Today's Development Affects Future Generations Around the Globe

In This Issue:

The 20th Anniversary Issue

https://www.wcl.american.edu/impact/initiatives-programs/environment/student-activities

American University Washington College of Law

Program on Environmental and Energy Law

Editors' Note

Dear Readers,

This issue is a celebration of *Sustainable Development Law & Policy Brief*'s (*SDLP*'s) twentieth anniversary. It has been a privilege to oversee *SDLP* during this tumultuous time. Now more than ever, we need to focus on global ramifications of the human environment. Over the past twenty years, *SDLP* has discussed developing theories in international environmental law. While we are living in strange times, *SDLP* continues to be a place to discuss how humans interact with the environment.

For this issue, we are celebrating twenty years by publishing articles and features that look at where the law of sustainable development is and where it is going. Professor David Hunter, who has been with *SDLP* since its inception, writes a look-back at the past twenty years of developments in international environmental law. By reviewing how the law has changed over the course of two decades, we can predict where the law needs to go to meet the challenges of decades to come.

Our other articles provide insights into how modern environmental challenges will stretch North American federalism. The view from Canada shows how Arctic governance is changing with the melting of the northern polar ice cap and how indigenous populations are playing a key role in the new Arctic policies. The view from the United States explores the intersection between federalism, copyright law, and enforcement of the Clean Air Act. Both views illustrate how the federalist models of Canada and the United States are being confronted by new realities and technologies.

We would like to thank all the article and feature authors for their insights and thoughtful analysis of legal issues. We would also like to thank the professors, e-board, staff, and publisher of *SDLP* for making this publication possible. Finally, we would like to thank our readers, whose involvement and investment in *SDLP* is the reason that we have been able to create this publication for twenty years.

Cheers to twenty more great years!

Sincerely,

Brianna DelDuca and Hannah Gardenswartz

Features:

To subscribe to the Sustainable Development Law & Policy Brief, email our Managing Editor at sdlp.wcl@gmail.com

About SDLP

The Sustainable Development Law & Policy Brief (ISSN 1552-3721) is a student-run initiative at American University Washington College of Law that is published twice each academic year. The *Brief* embraces an interdisciplinary focus to provide a broad view of current legal, political, and social developments. It was founded to provide a forum for those interested in promoting sustainable economic development, conservation, environmental justice, and biodiversity throughout the world.

Because our publication focuses on reconciling the tensions found within our ecosystem, it spans a broad range of environmental issues such as sustainable development; trade; renewable energy; environmental justice; air, water, and noise regulation; climate change; land use, conservation, and property rights; resource use and regulation; and animal protection.

The Sustainable Development Law & Policy Brief prints in accordance with the standards established by the Forest Stewardship Council ("FSC") that are designed to eliminate habitat destruction, water pollution, displacement of indigenous peoples, and violence against people and wildlife that often accompanies logging. Achieving FSC Certification requires that every step of the printing process, from lumber gathering to transportation to printing to paper sorting, must comply with the chain of custody established by the FSC which runs a strict auditing system to maintain the integrity of their certification process.

Currently, FSC certification is one of four methods a publisher can employ to ensure its publications are being produced using the best sustainable practices. It is the method practiced by our printer, HBP, Inc. (FSC Chain-of-Custody Certification: SWCOC-002553).

To purchase back issues please contact William S. Hein & Co. at hol@wshein.com. To view current and past issues of the publication please visit our website at http://www.sdlp.strikingly.com. Current and past issues are also available online through HeinOnline, LexisNexis, Westlaw, vLex, and the H.W. Wilson Company. Please note that Volume I and Volume II, Issue 1 are published as *International and Comparative Environmental Law*.

Printed by HBP, Inc., Hagerstown, MD.

SDLP after 20:
Sustainable Development in the Anthropocene

by David Hunter*

This volume marks the 20th anniversary of *Sustainable Development Law and Policy* (*SDLP*) published by the students of American University's Washington College of Law. *SDLP* was founded to explore the legal and policy dimensions of sustainable development (i.e. the simultaneous pursuit, or integration, of economic development, environmental protection, and social welfare). During its twenty years, *SDLP* has provided a forum for scholars, practitioners, and students to analyze the complex challenges to achieving economic and social justice within the constraints of our planet's natural environment. From its first volume addressing liability for carbon trading, the regulation of genetically modified organisms, and the internationalization of the Amazon,[1] to its most recent symposium exploring the link between air quality and environmental justice, *SDLP* has addressed contemporary, complex, and critical issues at the intersection of environment and the economy.

Understanding that intersection remains vital, particularly given that the past twenty years has seen a profound increase in the speed and scale of environmental change caused by economic activity. Processes associated with industrialization have increased the earth's global average surface temperature by approximately 1.1 °C (or 2ºF),[2] and the warming trend is accelerating. 2019 was the second hottest year on record, trailing only 2016; the previous five years were each among the hottest five years ever; the decade ending in 2019 was the hottest decade in recorded history; and nineteen of the hottest twenty years occurred in the past two decades.[3] Major disasters that at least partly reflect the impacts of climate change are almost weekly events, including: fires in California, Brazil and Australia; unprecedented flooding in the United States, Europe and Asia; hurricanes in Texas and Puerto Rico; typhoons in Myanmar and the Philippines; and deadly heatwaves and droughts on every continent. All of these disasters can be linked to climate change.

Climate change is also contributing to what is now recognized as the planet's sixth wave of mass extinction. On average, approximately twenty-five percent of all species, across all ecosystems and all plant and animal groups for which data exists, are threatened with extinction.[4] That includes more than forty percent of amphibian species, almost a third of reef-forming corals, sharks and rays, and over a third of marine mammals.[5] Insect populations are plummeting with an estimated ten percent of species threatened with extinction.[6] Terrestrial habitat has been reduced by thirty percent, suggesting that more than 500,000 species have insufficient habitat for long-term survival—destined for extinction unless their habitats are restored.[7]

To these massive changes in climate and biodiversity can be added other significant changes in the global environment, including, for example, increased ocean acidity, the pervasiveness of hazardous chemicals and plastics, and scarcity of fresh water. Overall, these environmental changes will cause enormous economic losses through a significant decline in ecosystem services such as pollination, clean air, storm protection, water filtration, and fish production.

In short, humanity is changing our natural planetary systems in ways that have fundamental implications on a geologic scale. This has led many to harken in a new geologic era, the Anthropocene, denoting the dominant role humanity now has in shaping the planet.[8] Until now, we have taken the Earth's relatively stable largesse mostly for granted, but in the Anthropocene we will be required to manage the planet's global environmental systems proactively, as well as address the socio-economic impacts that will surely come from declines in vital environmental services.

Over the past several decades, the international community has tried to keep pace with environmental change by adopting different institutional and policy approaches to achieve "sustainable development," which remains the primary organizing concept for squaring ecological limits with economic growth. This essay surveys the international community's shifting approach to promoting sustainable development in light of the challenges posed by the Anthropocene. Part I discusses the emerging legal dimension of sustainable development as the organizing framework for the global pursuit of balancing environmental protection with economic activity.[9] Part II addresses the utility of convening regular Sustainable Development Summits in light of the upcoming 50th anniversary of the Stockholm Convention.[10] Part III traces the transition from the UN Commission on Sustainable Development to the High Level Policy Forum.[11] Part IV analyzes the shift from Agenda 21's policy prescriptions to the Sustainable Development Goals,[12] and Part V describes the effort to include private sector initiatives through recognition of Sustainable Development Partnerships.[13]

* David B. Hunter is Professor of Law at American University Washington College of Law and a Founder and Faculty Advisor of *Sustainable Development Law & Policy*.

I. Toward a Binding Commitment to Sustainable Development

The 1992 Rio Earth Summit positioned sustainable development as the shared goal of international environmental and economic policy, requiring attention to its "three pillars" of environmental protection, economic development, and social welfare. The term has proven to be sufficiently elastic to embrace a wide range of approaches to environment and development. In fact, the primary value of "sustainable development" is that it provides a rhetorical framework for multiple stakeholders to discuss how the economy relates to environmental limits and social welfare. Its inherent ambiguity creates a valuable, albeit contested, space for dialogue; a wide range of actors can embrace the concept and then fight over its meaning. We may not know precisely what the term means, but it does invite an enriched dialogue over the interface between environment and development, allowing no one to be completely comfortable focusing on just one of the three pillars. Integrating the environmental, economic, and social dimensions into decisionmaking also adds needed complexity to the discussion, inviting compromise and attention to long-term trade-offs and consequences.

Sustainable development has also emerged as a legal principle that requires the integration of environment and development, at least in the transboundary context. As Judge Weeramantry concluded in the *Gabčíkovo-Nagymaros Project* case, "the principle of sustainable development is … a part of modern international law … It reaffirms in the arena of international law that there must be both development and environmental protection, and that neither of these rights can be neglected."[14] The focus on integration as a core part of sustainable development was explored further in a case involving Belgium's request to reactivate a railway that traverses the Netherlands. Belgium's right of transit was codified in two treaties; the latest concluded in 1973. Neither mentioned environmental protection. The railway had been in disuse for several decades, and the parties disagreed whether Belgium could legally reactivate the railway and, if so, whether the Netherlands could impose binding environmental regulations on Belgium. In its decision, the Permanent Court of Arbitration Tribunal held that international law requires:

> the integration of appropriate environmental measures in the design and implementation of economic development activities … Environmental law and the law on development stand not as alternatives but as mutually reinforcing, integral concepts, which require that where development may cause significant harm to the environment there is a duty to prevent, or at least mitigate, such harm.[15]

The Tribunal upheld both Belgium's right of passage and the Netherlands' right to impose reasonable environmental regulations. Moreover, Belgium had to share in the costs of environmental protection resulting from reactivation of the railway.

Sustainable development's emergence as a legal principle is significant, but it remains constrained by the principle of state sovereignty. As reflected in Principle 2 of the *Rio Declaration,* States "have the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies."[16] Two exceptions limit state sovereignty in the environmental context: (1) where a State voluntarily consents to join an environmental agreement; or (2) where the country's activities harm the environment outside their territory (i.e. in a neighboring state or the global commons). Otherwise, countries are free to pursue *unsustainable* development policies within their borders—so long as they do not run afoul of the prohibition against transboundary harm. Moreover, the legal approach to transboundary harm has not kept pace with the science of environmental change. Today we can verify what ecologists have known for decades—that in the environment, everything is connected to everything else. Most significant economic activity can now be linked to transboundary or global environmental change. Thus, a better understanding of transboundary harm could serve as the basis for enhanced international cooperation, as would a stronger conceptual foundation for the international pursuit of sustainable development.

The conceptual foundation for strengthening sustainable development as an obligation on States' internal economy can be further rooted in the principle that sustainable development is a "common concern" or a "common responsibility" of humanity.[17] This principle reflects that, because the planet is ecologically interdependent, humanity has a collective interest in certain activities that take place, or resources that are located, within State boundaries. Until now, the recognition that nations have a common concern in the global environment has provided a critical conceptual framework for specific treaties addressing such issues as climate change and biological diversity. As we enter the Anthropocene, humanity's common concern in managing the planet needs to be extended to support a general obligation that a state must pursue *sustainable* development even inside its borders. In an era when the environment/development balance must be proactively and continually managed, meeting sustainable development challenges must be viewed less as a narrow exception to state sovereignty and more as the default position favoring international cooperation.[18]

Curbing the fidelity to state sovereignty in this way will require a significant advance from the current state of international environmental law. The *Rio Declaration* is the closest the field has to a set of principles, but it is not binding law. More to the point, the *Rio Declaration* secures the rights of States to follow their own development path, conditioned only by the prohibition against transboundary harm.[19] In recent years, some global leaders led by President Macron of France have sought to cure both deficiencies, proposing governments adopt a binding *Global Pact on the Environment.* The proposed draft would require Parties to "pursue sustainable development" and to "integrate the requirements of environmental protection into the planning and implementation of their policies and national … activities."[20] Advocates of the Global Pact hope to have the

treaty concluded and signed at the summit being planned for 2022.[21]

What difference would such an instrument make? The recent international criticism of Brazil's response to extensive fires in the Amazon—and President Bolsonaro's sharp counterattack defending Brazil's sovereignty—provides an illustrative example.[22] Sovereignty prevailed for now, but would it in a future marked by greater climate change? Would an instrument like the *Global Pact* that makes sustainable development binding make any difference? Would, for example, Brazil be required to accept international aid to stop the fires? Would Brazil be required to change the land-use policies that contributed to the fires? In other words, would States be obligated to pursue environmentally sustainable development within their borders? These are critical questions, but the trajectory of recent Sustainable Development Summits suggests a movement away from the negotiation of legal texts and toward partnerships, goals and other strategies aimed at implementation of sustainable development.

II. UN Sustainable Development Summitry: What to Do at Stockholm +50

The 1972 UN Conference on the Human Environment held in Stockholm launched the modern field of international environmental law by confirming that environmental protection was a legitimate subject of international cooperation, but development issues were decidedly not on the agenda. That would change by the 1992 UN Rio Conference on Environment and Development (known as the Earth Summit) where the parallel global discussions of environmental protection and economic development merged into a unified discussion of sustainable development. Since the Earth Summit, the United Nations has held regular, high profile summits to address the pursuit of sustainable development. The latest was the 2012 Rio+20 Summit on Sustainable Development, which followed the 2000 Millennium Summit and the 2002 World Summit on Sustainable Development (WSSD) held in Johannesburg.[23]

These sustainable development summits are frequently criticized, but they remain important events for regularly forcing governments to reflect on the state of the global environment and our progress (or lack of it) in responding to global environmental change. [24] Although the past two Summits (2002 and 2012) have not resulted in significant new legal instruments, they did provide a high profile venue to focus world leaders on the challenges for achieving sustainable development as well as to showcase promising public and private initiatives.[25] The 2012 Rio+20 Summit, in particular, became the venue for significant positive changes in the institutions that address sustainable development, strengthening UNEP and replacing the Commission on Sustainable Development with the High Level Policy Forum.[26] The summits also catalyze the global sustainability community to form around each conference, sharing ideas and knowledge. Some 40,000 activists, journalists, and business leaders attended Rio+20, and many more followed the conference or participated online.

There is thus ample reason to believe sustainable development forums will continue to be important venues for coordinating the global response to the challenges of the Anthropocene. Bringing the global sustainability community together in high profile events remains critical for building political will at all levels—the global, national and local—and among all sectors—government, business and civil society. If nothing else, at least the scope and scale of the UN sustainability summits match the scope and scale of the forthcoming challenges—even if the actual outcomes have not always responded to the urgency of the problems.

By all accounts, the next sustainable development summit will occur in 2022, marking the 50th anniversary of the Stockholm Conference and the establishment of the UN Environment Programme (UNEP) (as well as the 30th anniversary of the Earth Summit).[27] Given the current state of the environment and the environmental focus of the original Stockholm Conference, some observers are arguing for a UN Environment Summit focusing primarily on the environmental dimension of sustainable development.[28] As noted above, among the proposals for Stockholm+50 is the adoption of a binding *Global Pact on the Environment* championed by President Macron of France.[29] Although the *Global Pact* has met with mixed enthusiasm, such bold initiatives are needed for the Anthropocene. At the very least, a Summit focused on environmental change could reposition protection of fundamental ecological systems as the foundation (not just a pillar) of the sustainable development edifice.

III. Sustainable Development's Global Policy and Institutional Challenge

Sustainable development is an expansive concept and it sprawls across the mission of many international organizations. UNEP is the principal international environmental organization, but dozens of institutions have some responsibility for one or more environmental issue. The development side may be even more crowded. The UN Development Programme (UNDP) and the World Bank could compete for the premier development institution, but some regional or bilateral development agencies rival them in size and influence. This panoply of diverse agencies, each with distinct mandates, presents a significant coordination issue. Since the 1992 Earth Summit, the governments have tried different institutional and policy approaches to coordinate and align the missions, policies and activities of these various institutions.

A. The Shift from Prescribing Policies to Setting Goals

The most ambitious effort to align the international community's actions toward a common understanding of how to implement sustainable development was arguably *Agenda 21* adopted at the 1992 Earth Summit.[30] *Agenda 21* prescribed comprehensive and detailed policies for the future implementation of sustainable development at all levels.

With 40 chapters and over 300 pages, *Agenda 21* covered the environmental, social, and economic dimensions of sustainable development, as well as policies for strengthening the participation of all groups in the implementation of sustainable development.[31] Every chapter of *Agenda 21* originally included the estimated cost of implementation. At the last minute, donor countries prevailed in excising the cost estimates from the final version. Removal of the financial numbers meant the adequacy of financial assistance could not be monitored, and international support would prove to be insufficient for the implementation of *Agenda 21*.

Ultimately, *Agenda 21's* influence in moving governments toward sustainable development mostly disappointed, or, at least, it was difficult to isolate any impact of *Agenda 21* in catalyzing behavioral change.[32] Without the promised levels of financial support, few incentives existed for adhering to *Agenda 21's* policy blueprint.[33] Responsibility for monitoring implementation of *Agenda 21* was vested in the Commission on Sustainable Development, which had few tools to persuade governments toward further implementation.[34] As a result, most countries, including the United States, never seriously implemented *Agenda 21* at least in any comprehensive way.[35]

As the turn of the millennium approached, an international consensus emerged that the development agenda should take center stage. The governments were skeptical that further detailed policy prescriptions would fare any better than *Agenda 21*. The governments sought a different approach for the September 2000 Millennium Summit. Rather than develop a long list of policy prescriptions (like *Agenda 21*) or a set of principles (like the *Rio Declaration*), the Millennium Summit used the political moment to gain broad government commitment for achieving eight discrete but ambitious Millennium Development Goals (MDGs).[36]

For the United Nations and indeed the entire international community, the MDGs quickly became the core priorities for the sustainable development agenda. As Kofi Annan, Secretary-General to the United Nations, stated in presenting the MDGs:

> The adoption of the Millennium Development Goals … constituted an unprecedented promise by world leaders to address, as a single package, peace, security, development, human rights and fundamental freedoms.
>
> * * *
>
> The eight Millennium Development Goals range from halving extreme poverty to halting the spread of HIV/AIDS and providing universal primary education—all by the target date of 2015. They form a blueprint agreed by all the world's countries and all the world's leading development institutions—a set of simple but powerful objectives that every man and woman in the street, from New York to Nairobi to New Delhi, can easily support and understand.[37]

In describing the MDG approach, Secretary-General Annan further emphasized that the goals were "time-bound," "measurable," and "achievable."[38] In this way, the MDGs represented a strategic plan for the United Nations—one with clear priority goals.

Although progress was mixed on meeting the MDGs, the general approach—to identify and monitor progress toward clear, measurable goals with specified timeframes—was considered effective.[39] The approach allowed agencies to coordinate their actions toward a common goal without being told precisely how to do it. Consistent with the adage of "that which gets measured gets done," the identification of clear priorities with matching indicators for measuring progress incentivized institutions to align their actions toward those goals or at least to re-define their activities as furthering those goals.

As the MDG's 2015 deadline neared, governments and others called for a new set of "Sustainable Development Goals" (SDGs). At the 2012 Rio+20 conference, the governments established a process for setting the SDGs to replace the MDGs when the latter expired. The governments agreed that the SDGs would be "action-oriented, concise and easy to communicate, limited in number, aspirational, global in nature and universally applicable to all countries while taking into account different national realities, capacities and levels of development and respecting national policies and priorities."[40]

The SDGs were adopted in 2015 as part of the 2030 Agenda for Sustainable Development.[41] The seventeen SDGs are generally written in vague and aspirational language, but they are accompanied by 169 detailed targets. The SDGs and their targets together are much more extensive in their coverage than their predecessor MDGs. They also apply to all countries.

> The Sustainable Development Goals and targets are integrated and indivisible, global in nature and universally applicable, taking into account different national realities, capacities and levels of development and respecting national policies and priorities. Targets are defined as aspirational and global, with each Government setting its own national targets guided by the global level of ambition but taking into account national circumstances. Each Government will also decide how these aspirational and global targets should be incorporated into national planning processes, policies and strategies.[42]

Progress toward each of the SDG Targets is evaluated according to one or more specified indicators. On the next page, for example, are several of the targets and indicators for SDG 6, relating to access to water and sanitation.[43]

TARGET	INDICATOR
6.1. By 2030, achieve universal and equitable access to safe and affordable drinking water for all	6.1.1. Proportion of population using safely managed drinking water services
6.2. By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	6.2.1. Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water
6.3. By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	6.3.1. Proportion of wastewater safely treated 6.3.2. Proportion of bodies of water with good ambient water quality
6.4. By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	6.4.1. Change in water-use efficiency over time 6.4.2. Level of water stress: freshwater withdrawal as a proportion of available freshwater resources

A brief look at these examples shows the potential value of the SDGs' clear deadlines and benchmarks. There are also clear challenges. To measure progress, countries must have baseline data for each indicator. This is likely not the case. Also, the indicators may not be adequate to measure progress with the target as for example the emphasis on handwashing as the primary indicator (6.2.1.) to measure progress for a target (6.2) that clearly includes access to feminine hygiene products.[44]

Notwithstanding any flaws, the SDGs quickly became the planning priorities for much of the international community. Institutions of all sizes and all sectors have announced initiatives in furtherance of one SDG or another. Since 2015, the United Nations has registered over 5000 partnerships or commitments aiming toward implementation of the SDGs.[45] The influence of the SDGs in the international community's discourse is undeniable; less clear is whether activities are simply being repackaged—a sort of SDG-washing—or whether new resources are being coordinated in a more effective way. Answering that question is partly the role of the High Level Political Forum.[46]

B. From "Commission" to "High Level Policy Forum": Much Ado About Nothing?

The UN Commission on Sustainable Development (CSD) was established at the 1992 Earth Summit and tasked with the responsibility for monitoring implementation of *Agenda 21*.[47] The CSD was comprised of fifty-three member states elected for threeyear terms operating under the auspices of the United Nations Economic and Social Council (ECOSOC).

The CSD had a staggering scope but an equally staggering lack of authority. In short, the CSD was tasked with monitoring the world's progress toward sustainable development, particularly as embodied in *Agenda 21's* 300 pages of commitments. The CSD organized annual discussions of three cross-cutting themes each year. Although the CSD's substantive scope was broad, it had little authority to recommend, let alone compel, actions. Thus, in monitoring the implementation of sustainable development around the world, it relied solely on voluntary selfreporting by States. Both the decision whether to report and the contents of any report submitted were left to the discretion of the States. Moreover, Agenda 21's policy prescriptions were not easily measured or monitored.

Amidst continuing critiques that the CSD was long on general discussions but short on specifics and action, a consensus emerged in the run-up to Rio+20 that the CSD did not contribute sufficiently to the global pursuit of sustainable development. The governments believed greater political prominence could improve the effective integration of the three pillars of sustainable development within the UN system.

At Rio+20, the governments "decided to establish a universal intergovernmental high level political forum, building on the strengths, experiences, resources and inclusive participation modalities of the Commission on Sustainable Development, and subsequently replacing the Commission."[48] The governments provided a list of possible functions for the new forum topped by providing "political leadership, guidance, and recommendations for sustainable development," enhancing the "integration of the three dimensions of sustainable development in a holistic and cross-sectoral manner at all levels," and providing "a dynamic platform for regular dialogue, and stocktaking and agenda setting to advance sustainable development."[49]

The resulting UN High Level Political Forum on Sustainable Development meets annually under the auspices of ECOSOC for eight days, including a three-day ministerial segment. Every four years the High Level Forum includes a two-day meeting of Heads of State under the auspices of the General Assembly.[50] By commanding the attention of ministers and heads of state, the High Level Forum is intended to give a higher profile, and thus build greater political will, toward achieving sustainable development, particularly as reflected in the SDGs. Like the CSD, the High Level Forum conducts its global review largely based on voluntary national reports contemplated as part of the 2030 Agenda.[51] The High Level Forum's reviews are also voluntary as well as State-led, although the Forum is to operate transparently with input from civil society. [52]

Ultimately, the High Level Forum does not appear to be a significant improvement over the CSD. Both involve general reviews of progress based primarily on voluntary reporting by countries. Indeed, any greater success attributed to the Forum will likely reflect that the SDGs present a better substantive framework for incentivizing, measuring and reporting changes than did *Agenda 21*. But the system's success depends not only on the willingness of countries to report honestly and timely, but also on how well the indicators measure real progress toward the goal. For example, the sole indicator for measuring progress in improving "sanitation and feminine hygiene" is accessibility of hands-washing facilities. [53] At best, that indicator will provide no data on progress toward providing feminine hygiene products.[54]

IV. Building Contextual Accountability For Sustainable Development Partnerships

The state-centered, consensus-based nature of the international law system has hindered efforts to achieve sustainable development and effectively respond to our global environmental crisis. Moreover, private actors are only indirectly the subject of treaties or other forms of international environmental law and thus escape direct accountability under traditional state-centered approaches. Recognition of these inherent limitations of a state-centered architecture has led to more flexible models of "new governance."

In the run-up to the 2002 World Summit on Sustainable Development (WSSD), it was clear that governments had no interest in negotiating additional treaties; they wanted the focus on implementation. Realizing that much of the energy for implementing sustainable development rested in the private sector, civil society, and international organizations, the United Nations sought a new way to engage non-state actors in its own efforts. This was against the backdrop of a broader recognition that the state-centered, consensus-based architecture of international law had inherent limitations, particularly in fields like the environment where the primary behavioral changes needed are those of corporations, consumers, and other private actors—not necessarily governments. These "new governance" approaches are inclusive, frequently relying on multi-stakeholder processes that may include not only governments, but also international organizations, private sector companies, civil society organizations, and community groups sitting down at the same table.[55]

Whether knowingly or not, the United Nations embraced this new governance model at WSSD through the adoption of Partnerships for Sustainable Development. The UN approach to these Partnerships evolved further at Rio+20, where the governments:

> welcome[d] the commitments voluntarily entered into … by all stakeholders and their networks to implement concrete policies, plans, programs, projects and actions to promote sustainable development and poverty eradication. [The governments invited] … the Secretary-General to compile these commitments and facilitate access to other registries that have compiled commitments, in an internet-based registry. The registry should make information about the commitments fully transparent and accessible to the public, and it should be periodically updated."[56]

These Partnerships run the range from single companies announcing that they will agree, for example, to go carbon neutral or eliminate the use of toxic chemicals, to complex public-private partnerships that span multiple countries, intergovernmental organizations, civil society organizations, and private businesses and entail commitments of billions of dollars. The common denominator in these initiatives and partnerships is that they are supposed to be action-oriented, ideally with specific targets and timetables. More than 700 voluntary commitments and partnerships were made by the stakeholders present at Rio+20.[57]

The UN endorsement of these partnerships prompted questions at Rio+20 about what conditions should attach to the endorsement to increase accountability around these voluntary initiatives. The governments agreed that the UN Partnerships had to be transparent and would be listed on a public registry. Since 2015 that registry, which now includes over 5000 Partnerships, has been organized according to the SDGs.[58] The *Partnerships for SDGs online platform* is now the "United Nations' global registry of voluntary commitments and multi-stakeholder partnerships made in support of sustainable development and the seventeen Sustainable Development Goals."[59] The platform tracks whether annual progress reports have been submitted, but otherwise the United Nations takes few steps to compel reporting, let alone to sanction failure to meet the promised commitments. In the future, increased accountability in this context is unlikely to include formal enforcement, but it could include clearer targets and timetables, transparent reporting, independent verification, and in some cases "enforcement" through, for example, removing any Partnership from the registry that does not file an annual progress report. Civil society could also monitor implementation of the Partnerships, publicly 'naming-and-shaming' or taking other actions to ensure promises made are promises kept.

V. Conclusion

As we enter the Anthropocene, the scale and speed of environmental change presents unprecedented challenges for the global community that will require continually strengthening our global governance system for sustainable development. Criticisms of large UN conferences notwithstanding, the Stockholm-to-Rio+20 Conferences improved our governance through continual dialogue on the aspirations and realities of achieving sustainable development. In general, these conferences have provided forums for the interaction of governments, industry, academia, and civil society to measure, recalibrate, and test new global responses to promoting sustainable development, including treaties, action plans, goals, and partnerships. We will

need these strategies and more to meet the future challenge of sustainable development.

If history is our guide, however, strategies for achieving sustainable development will not be enough for answering the existential threats posed by the Anthropocene. Indeed, our efforts to date have not prevented us from entering the Anthropocene—a period that will be marked by unpredictable and potentially calamitous environmental change. This raises significant questions going forward about our efforts to achieve sustainable development, including whether sustainable development is still the most appropriate global framework for reconciling ecological limits with economic aspirations? Should it be environmental justice or environmental security? Does the central tenet of sustainable development – to integrate environmental concerns into economic decisionmaking —leave environmental protection too vulnerable to compromise and complexity at a time when environmental change poses such an existential threat?

Sustainable development's focus on integration (and compromise) among the three pillars of economic development, environmental protection, and social welfare arguably obscures the critical role that the natural environment serves as the basis for all other human activity. The stability of the climate and other basic environmental services is less an equal pillar than a foundation for economic and social progress. As we enter the Anthropocene, a definition of sustainable development that subjugates the fundamental role of basic environmental systems may be ill-equipped to address the profound challenges engendered by future global environmental change.

Our planet's environmental decline risks fundamental challenges to humanity achieving economic security for everyone. Redefining "development" through green accounting and mitigation of some environmental externalities may present opportunities within the frame of sustainable development, but such incremental changes may not reflect the urgency and seriousness of environmental change in the Anthropocene. In short, we may need to replace sustainable development with a conceptual framework that recognizes the threats to economic security, equity, and survivability that are presented by environmental change. Such a new conceptual framework might prioritize "security", "survivability", "right to life", resilience," "restoration," or equity more than "development", "sustainability" or "integration".

For sustainable development to maintain its predominant role in future governance, its framework for integration must prioritize ecological stability as much as it has prioritized economic growth and development in the past. This suggests, in matters of global environmental change, that a state's sovereignty over development decisions may need to yield to strengthened concepts of common concern and international cooperation. A system that presumed most transboundary environmental impacts from national-level development would be discrete and manageable through specific negotiations or dispute resolution processes is not fit for an Anthropocene where the collective scale of our domestic economies has global impacts that raise concerns of humanity's survival as well as economic justice.

The repositioning of state sovereignty may present less of an obstacle than appears at first blush, because the pursuit of sustainable development is less dependent on state action than on the collective actions of non-state actors. The promise of the SDGs and the Sustainable Development Partnerships is that they can harness the global reach of multi-national companies and civil society movements in the pursuit of sustainable development. Leadership is still required from governments but not necessarily in the form of laboriously negotiated texts of binding commitments between States. Successful response to global environmental challenges may rely less on policing state-to-state relations and more on ensuring contextual accountability for the promises of multiple stakeholders in multiple contexts.[60] Norms may be set through the "registry of commitments" now maintained by the UN and reflecting promises found in Partnerships, SDGs, and other venues.[61] This bottom-up approach has promise for building a dynamic governance system that not only promises initiative and action from a wide range of actors, but holds them accountable to commitments that in the aggregate constrain our development within planetary ecological limits.

The upcoming 50th anniversaries of the UN Stockholm Conference and the founding of UNEP create a political moment to strengthen our collective approach to sustainable development. Finding new ways to hold a variety of stakeholders accountable for stronger environmental commitments made in a variety of forms and contexts is the Anthropocene's challenge to sustainable development governance. And by implication, sorting this mix of commitments out, making sense of it, monitoring progress—indeed holding the stakeholders to account for their promises—is the Anthropocene's challenge to *Sustainable Development Law and Policy's* next twenty years.

Endnotes

1 Sustainable Development Law and Policy, Fall/Winter 2000, 1-32, https://digitalcommons.wcl.american.edu/sdlp/vol1/iss1/1/.

2 Intergovernmental Panel on Climate Change, Global Warming of 1.5ºC, at 31 (2018), https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_High_Res.pdf.

3 *See* Brady Dennis et al., *2019 Capped World's Hottest Decade in Recorded History,* Wash. Post (Jan. 15, 2020), https://www.washingtonpost.com/climate-environment/2020/01/15/2010s-hottest-decade-world/?arc404=true.

4 Intergovernmental Sci.-Pol'y Platform on Biodiversity and Ecosystem Services, Report of the Plenary of the intergovernmental Sci.-Pol'y Platform on Biodiversity and Ecosystem Services on the Work of Its Seventh Session, 14-15 (2019), https://ipbes.net/sites/default/files/ipbes_7_10_add.1_en_1.pdf.

5 *Id.* at 15.

continued on page 33

Transboundary Air Pollution in Northeast Asia: Two Pathways Forward for China and South Korea

By Yeeun Uhm[*] and Creighton Barry[†]

Simply put, air pollution kills. Each year, more than 5.5 million people die from illnesses caused by breathing polluted air worldwide.[1] In 2013 alone, one in ten deaths globally were associated with air pollution.[2] Such alarming statistics ought to provide governments a strong incentive to combat air pollution,[3] but toxic air unrelentingly blankets places like New Delhi, Seoul, and Bangkok.[4] Fundamentally, this may be because humans take the atmosphere for granted as a place to dump industrial waste.[5] This article will discuss two alternative pathways to addressing transboundary air pollution between China and South Korea. One involves binding international dispute resolution based on the principles of *Trail Smelter*,[6] and the other promotes deeper bilateral cooperation through consensus-building, transboundary environmental impact assessment, and private standard-setting.

I. Transboundary Air Pollution Informs International Legal Norms

Air pollution ignores political borders. Pollution sourced in one place can lead to illness or death in another.[7] Accordingly, transboundary air pollution is increasingly important in international law. Customary international law norms grew from international legal disputes over transboundary air pollution.[8] In *Trail Smelter*, a smelter in British Columbia, Canada emitted sulfur dioxide that crossed into the U.S. and damaged nearby Washington State in the mid-1920s.[9] The arbitration took thirteen years, and the Tribunal ultimately found the smelter liable for emitting transboundary air pollution.[10] Customary international law now imposes a duty to prevent transboundary environmental harm.[11]

Transboundary air pollution between China and South Korea starts with desertification in China and southeasterly "yellow dust" storms act as vectors for various kinds of pollutants, including fine particulate matter, nitrogen oxide, sulfur dioxide, aerosols, ozone, and heavy metals.[12] These pollutants are carried by wind towards South Korea and can cause numerous health problems, including respiratory and eye diseases.[13] While air pollution within China is well understood, attributing causation for this pollution becomes complicated once it reaches South Korea. Studies have estimated as much as 49% of South Korea's air pollution can be attributed to China.[14] Meanwhile, the National Aeronautics and Space Administration (NASA) led a 2016 international effort which determined that only 15% of South Korea's particulate matter is attributable to South Korean anthropogenic sources while most of the remainder comes from China.[15] Despite its complexity, the China-South Korea transboundary air pollution problem is not unsolvable.

II. Scientific Cooperation Coupled with Dispute Resolution

Scientific cooperation with binding dispute resolution is a sound legal approach to transboundary air pollution because effective domestic legal avenues in China and South Korea are currently unavailable. Theoretically, Korean domestic law provides a remedy for Koreans who have been harmed by transboundary air pollution. Under Article 750 of the Korean Civil Code, Koreans can file tort claims against individuals or corporations for damages from air pollution if they can prove causation.[16] This remedial process is very similar to the approach taken by the *Trail Smelter* Tribunal.[17] However, unlike the *Trail Smelter* Tribunal, Korean courts do not yet have sufficient scientific data to find that a certain source of air pollution caused specific damage domestically. In 2010, the Seoul Central District Court held the plaintiffs who sued the city and several automobile manufacturers under Article 750 inadequately proved causation.[18] In its determination, the District Court accepted the car manufacturers' argument that the plaintiffs failed to demonstrate that car emissions were the only cause of the plaintiffs' asthma, without taking into account other contributing factors to pollution in Seoul, like pollution from China.[19] Accordingly, the District Court concluded the plaintiffs could not prove causation and were precluded from seeking damages under Article 750.[20] Due to the complexity of the pollution, demonstrating a causal link between any one source of pollution, domestic or international, might be impossible. Therefore, a successful air pollution tort claim under Article 750 is unlikely.

Another obstacle that plaintiffs may run into is reciprocity. Because both Korea and China require reciprocity before recognizing foreign judgments,[21] plaintiffs will have difficulty finding reciprocal justice for environmental claims in either country.[22] Reciprocity usually requires the plaintiff's country to have previously upheld a defendant's country's domestic judgments.[23] No bilateral enforceability mechanism between China and South Korea currently exists, so establishing reciprocity is unlikely.[24] Even if a Korean plaintiff obtained a domestic tort judgment against a Chinese polluter, a Chinese court would need to determine if that judgment is upholdable under Chinese law.[25]

A viable, long-term solution might involve China and South Korea replicating the success of *Trail Smelter* and the United States' and Canada's bilateral enforceability mechanism

* S.J.D. Candidate, American University Washington College of Law
† J.D. Candidate, American University Washington College of Law 2020

agreement.[26] Korean environmental organizations could begin lobbying their government to start discussions with Beijing about negotiating a bilateral agreement with an enforcement mechanism (i.e., the Tribunal to the Convention of Ottawa). Because in both the 2010 Korean motor vehicle emissions case and *Trail Smelter* causation hinged on conclusive scientific evidence, scientific monitoring and data collection are clearly key to transboundary air pollution litigation.[27] Ministerial talks are necessary for international relations; however, a bilateral air quality governance mechanism supported by scientific cooperation coupled with a legally binding dispute resolution mechanism that reflects the principles of *Trail Smelter* will likely best serve both nations in the long term.[28]

III. Promoting Bilateral Cooperation

While *Trail Smelter* provides a valuable legal framework to analyze the transboundary air pollution in Northeast Asia, it is very difficult to move directly into the discussion of a binding dispute resolution mechanism under existing circumstances. Many scholars think that such an international legal measure is difficult to achieve due to the current diplomatic realities between South Korea and China.[29] As recently as December 7, 2018, the Korean National Assembly refused to characterize the transboundary air pollution problem with China as a "dispute" and sought to pursue further inter-ministerial and scientific cooperation with Beijing.[30] Given today's political climate, we should also seek other measures to address the China-Korea transboundary air pollution issue in a timely manner.

The first step to promoting bilateral cooperation is reaching a regional consensus on the causes of fine dust and the necessity to adopt a long-term integrated strategy.[31] To do this successfully, China and South Korea should conduct joint study regularly and continuously until a sufficient amount of scientific information is accumulated and use that information as a basis of discussions in diplomatic settings. In November 2019, South Korea, China, and Japan publicly released a first-of-its-kind joint study on air pollution.[32] The recent report is important because researchers in South Korea, China, and Japan acknowledged for the first time together that ultrafine dust is not a domestic concern but a regional one.[33] This can be a good starting point to build political consensus.

Once China and South Korea start to share a common understanding of the issue and have strengthened their diplomatic channels, the Espoo Convention[34] may serve as a basis for South Korea to reach an agreement with China on transboundary environmental impact assessment (EIA) procedures. If China is obligated to notify and consult with South Korea about transboundary environmental effects of certain activities within its jurisdiction, both countries will be better equipped to respond to the increasing level of ultrafine dust. This will also create opportunities where industrial pollutants can be reduced through the application of best available technology.[35] Although effectively implementing a transboundary EIA is difficult in practice,[36] the process of discussing the details of such agreement and creating a Convention Secretariat can provide a forum for exchange of information and capacity building.[37]

In addition to cooperation at the state level, both governments should encourage industries to adopt more stringent environmental standards for emissions of ultrafine dust. These private and quasi-private standard-setting efforts can have lasting impacts across borders even faster than traditional legal measures.[38] Also, given that the level of ultrafine dust increases when the consumption of coal and other fossil fuels increases, regulations and incentive mechanisms should be implemented to support smoother transition to renewable energy.[39]

Transboundary air pollution from China to South Korea can be addressed gradually based on long-term cooperation between the two countries including the above-mentioned strategies for consensus-building, transboundary EIA, and private standard-setting. These strategies require not only stronger political commitments but also active participation from non-state actors who have the capacity to inspire action on better air quality among businesses, cities, subnational governments, and citizens.[40]

IV. Conclusion

This article presents two alternative pathways to addressing transboundary air pollution between China and South Korea: international dispute resolution and promoting cooperative actions. Presently, the Korean government views this problem more as an opportunity for discussion and cooperation than a potential dispute.[41] However, as pollution levels continue to rise, it may need to rethink its approach.

Both pathways have shortcomings. Although international legal action seems to be a more binding and enforceable solution, such legal action largely depends on diplomatic and economic relations between countries and requires significant amounts of scientific information to prove causation. On the other hand, to produce tangible results by furthering bilateral cooperation through small steps would take a long time. Therefore, any future agreement between China and South Korea should take into consideration the unique values of each approach put forward in this feature when devising a long-term solution to their transboundary air pollution problem.

Endnotes

1 The World Bank & Inst. for Health Metrics and Evaluation, The Cost of Air Pollution: Strengthening the Economic Case for Action 1 (2016), http://documents.worldbank.org/curated/en/781521473177013155/pdf/108141-REVISED-Cost-of-PollutionWebCORRECTEDfile.pdf (explaining such illnesses include lung cancer, heart disease, stroke acute respiratory infections, and chronic obstructive pulmonary diseases like bronchitis and emphysema).

2 *Id.* at 22.

continued on page 34

Splitting Canada's Northern Strategy:
Is it Polar Policy Mania?

*By C. Mark Macneill**

On July 15, 2019, Prime Minister Justin Trudeau's legislation splitting Indigenous and Northern Affairs Canada (INAC) into two new departments and dissolving INAC came into effect.[1] The same legislation also formally established the mandates of the two new departments, Crown-Indigenous Relations and Northern Affairs (CIRNAC)[2] and Indigenous Services Canada (ISC).[3] The Government of Canada passed the legislation to develop deeper relations and higher levels of collaboration with Canada's Indigenous people to build stronger and healthier northern communities.[4] Dovetailing with the splitting of INC, Prime Minister Justin Trudeau announce the Arctic Policy Framework (APF). The APF was co-developed with indigenous, territorial, and provincial partners.[5] This new framework effectively replaced Canada's Northern Strategy (2009) and the Statement on Canada's Arctic Foreign Policy (2010).[6]

The APF was developed through a series of consultations and forums in 2017 and 2018 and applies to the Yukon, Northwest Territory, Nunavut, and Canada's other Inuit Nunangut communities[7] representing the Inuit and Indigenous homelands of the Nunatsiavut region in Labrador, Nunavik (QC) and Northern Manitoba (including Churchill).[8] The consultation process flowed from commitments made in the U.S./Canada Joint Arctic Leaders Statement,[9] under which Canada committed to work collaboratively with its Indigenous Northern Communities to "build a long term vision to 2030 for the Canadian and Circumpolar Arctic."[10]

CIRNAC and ISC were partitioned from INAC to develop deeper relations and higher levels of collaboration with indigenous people. However, many core challenges remain largely unresolved. For instance, critical health care[11] and housing issues[12] continue to prevail in the Arctic. Furthermore, demographic data shows that while Canada's North is experiencing a rapidly growing population, it is plagued with a plethora of social-economic issues not being adequately funded and administered by the federal government. For instance, with close to half the Nunavut population under the age of twenty-five[13] with a stretched capacity need and accompanying shortage for employment,[14] education, training, housing, and health care.[15] Furthermore, facilitation for easier entry into the growing economic sectors in the north to meet Inuit employment quota goals per Article 23 of the Nunavut Land Claims Agreement[16] (e.g. resource extraction based industries) and a growing government and service support base are alternatively filling employment voids for expertise and skilled labor from southern communities in Canada. However, the Nunavut Land Claims Agreement 1999, Article 23 expressly calls for a preference to be given to Inuit people for federal and territorial government positions[17] and per Article 24 with government contracts.[18] Thus, an employment policy priority exists within both the public and private sectors to get indigenous people trained across all occupations and into ever increasing higher levels of leadership, management, and skilled technical and trade positions.[19] In many instances, skilled positions are not being filled or left vacant while Inuit are being trained and/or recruited, leading to government departments and agencies with staffing deficiencies and productivity lapses.[20]

Furthermore under the APF, the Canadian government maintains that it is improving governance structures and capacity building for its northern communities and people.[21] Yet those who believe in less government and or in a devolution of power to the local and regional levels are bound to disagree with the APF's effectiveness and efficiency. Arguably, the APF's co-development and implementation adds additional layers of bureaucratic process. While consultation is used to gather community input by Ottawa, power is still centrally retained by the federal government in a vertical chain of decision making. Under devolution, the power and decision making are decentralized via self-governance agreements to local and regional governments on specific sets of identified areas of responsibility.

Furthermore, the Nunavut Land Claims Agreement and many other land claims agreements across Canada's north have placed resource stewardship responsibility in the hands of indigenous people directly for the lands to which they hold title. The Nunavut Land Claims Agreement uses a collaboration mechanism for all the remaining lands in the north.[22] The process of devolution and its many variate forms has provided much of the requisite transfer of power and control from the federal government to territorial and self-governing entities and is aimed at furthering self-fulfillment and self-determination for

* C. Mark Macneill is the Executive Director of the Kivalliq Business Development Centre, Rankin Inlet, Nunavut Territory, Canada. He is also a part-time law student with the University of Ottawa, Faculty of Civil Law, National Program (LL.L. degree). His prior degrees include: an LL.M., University of Denver (Envir & Nat. Res. Law & Policy); LL.M., University of Miami (Foreign Lawyers Program – US & Comparative Legal Systems); LL.B., University of Edinburgh, Scotland, UK.; M.P.A., Carleton University, Ottawa, CA; and M.B.A., St. Mary's University.

He was one of five winners selected in 2007 for the annual national law student writing competition hosted by the American Bar Association's Section on Energy, Environment & Resources for his paper entitled "Gaining Command & Control of the Northwest Passage: Strait Talk on Sovereignty." Macneill is a dual US and Canadian citizen and hails from Cape Breton Island, Nova Scotia, Canada. He wishes to thank Adam Fraser L.L.B./B.C.L., Kim Dalgleish, J.D. and Kristof Karcza, M.B.A., for their encouragement to research and write.

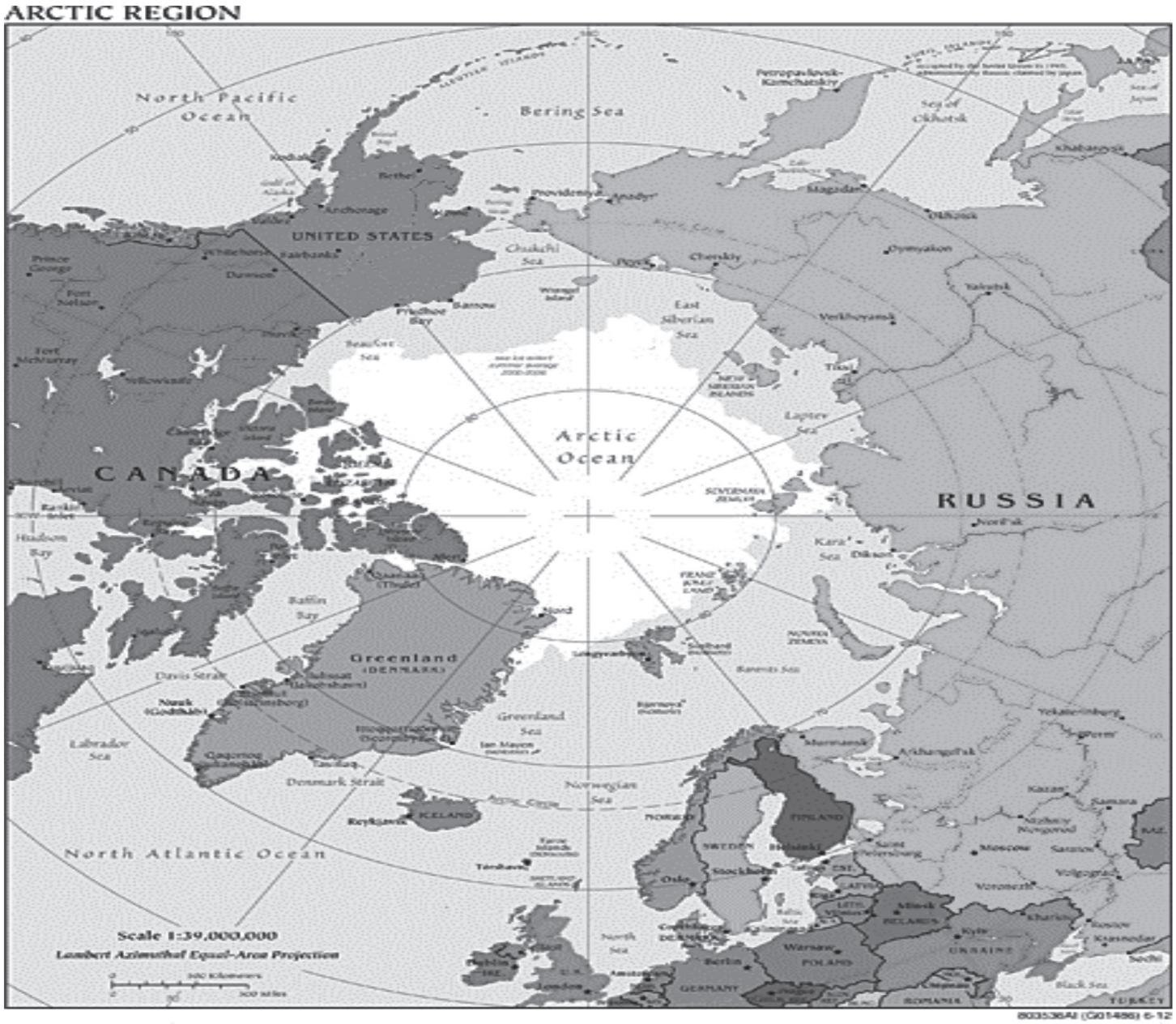
our indigenous people.[23] Yet, the Canadian government has been advised that these communities are ready for further devolution, which includes the acquisition of greater levels of responsibility, corroboration, and management of Canada's northern and Arctic region.[24]

A challenge for Canada's indigenous governance structures is to implement current and future devolution measures in an effective manner. This can be accomplished by further development of indigenous management capacity to implement devolved powers and within structures suited to the uniqueness and diversity of indigenous cultures of the North. For the federal government, it is a matter of balancing and managing the myriad and plethora of multi-agreements, stakeholders, and associated regulations and legislation.

The Arctic represents one of the last frontiers of contemporary global economic expansion. This has been accelerated by climate change,[25] resulting in new ice-free arctic shipping routes. Technological advances in communications and resource extraction have spurred increasing exploration and resource extraction, in response to a global consumptive demand from a burgeoning world population.[26] As a result, a race for the untapped resources of the Arctic and Antarctic has emerged.

The Arctic, along with the Antarctic, are part of our planet's circumpolar world. The term also generally includes the subarctic and the neighboring northern lands of the world's 8 northernmost nations; Canada, Finland, Denmark (including Greenland and Faroe Islands), Iceland, Norway, Russia, Sweden, and the United States.[27] *See* Exhibit 1. The critical issues facing the circumpolar regions are sustainability, subsistence living, community health and wellbeing, and self-government, all of which must be balanced with a diverse array of dominating variables such as climate change, economics, political, and social development.[28]

Exhibit 1: Map of Arctic Region[29]



At an international level, the circumpolar region is closely monitored and corroboratively guided to a large extend by the Arctic Council,[30] which is referred to as a supranational governance structure.[31] It is a multilateral organization created and comprised of the eight Arctic circumpolar states previously identified and six indigenous organizations that are designated as permanent participants.[32]

Other supranational entities which have emerged in response to ever growing interest in the Arctic are: the Barents-Euro Arctic Council (regional cooperation among Norway, Sweden, Finland & Russia); The Northern Forum (circumpolar forum of regions with Alaska as the headquarters); Nordic Council (five Nordic States plus Greenland & Faroe Islands).[33] The EU is also interested in cultivating an active role in the Arctic and is developing Arctic policy on the preservation of Arctic resources,[34] which is branding the Arctic as the 'Global Arctic'.[35]

The race for the Arctic goes beyond the supranational organizations and riparian states. Other nations, such as China, are interested in becoming involved[36] and will likely push for an international model of Arctic global management more similar to that of the Antarctic model. First, it is interest to distinguish that the Antarctic is not owned in by any nation. Second, the Antarctic features several conflicting national claims of sovereignty without any nation having any prior history of settlement, occupation and/or use of the continent. This led to collaboration between claimant states with vested interests. Rather than disputing and developing conflict, they resolved to alternatively work collectively together.[37] In contrast, the eight Arctic nations have long established sovereignty and history of governance in the Arctic circumpolar region, and these riparian nations have much at stake. *See* Exhibit 2.

Exhibit 2: Arctic Sea Ice Extent in September 2008, Compared with Prospective Shipping Routes and Oil and Gas Resources[38]

The governance structure in the circumpolar north is shaped and directed by the Law of The Sea (United Nations Convention on the Law of the Sea).[39] It is also shaped by general international laws and precedence recognized by the International Court of Justice.[40] Also influencing the circumpolar north governance structure are a myriad of domestic state tools for power and controls, along with their respective economic, environmental, and national security policies.

The Arctic is also a prized laboratory of a sort for scientific and technological innovations and developments. The scientific community is relying closely on the Arctic as akin to a climate barometer and is able, for instance, to take ice, permafrost, air, and land core samples for chronological scientific comparative analysis.[41] Global warming is also leading to new exploration and drilling techniques developed as nations and corporations race toward the vast quantities of energy, metals and minerals in the north.[42] Energy and resource extraction has to be balanced with an ever increasingly fragile global ecological system, unique indigenous cultures, and socio-economic considerations for the region.

CIRNAC and ISC were partitioned from INAC to develop deeper relations and higher levels of collaboration with

indigenous people, to build stronger and healthier northern communities, and to fulfill their aspirations. However, these challenges remain largely unsolved. Critical health care[43] and housing issues[44] continue to prevail in the Arctic.[45] The new Arctic Policy Framework is intrinsically myopic because its focus is primarily inward (intra-Canadian relations), and it does not focus nor adequately address the rapidly manifesting geo-political pressures on Canadian arctic sovereignty from external foreign sources.[46]

Endnotes

1 *See* Naiomi W. Metallic, *Making The Most Out Of Canada's New Department Of Indigenous Services Act*, Yellowhead Inst. (Aug. 12, 2019), https://yellowheadinstitute.org/2019/08/12/making-the-most-out-of-canadas-new-department-of-indigenous-services-act/.

2 *See* Crown-indigenous Relations and N. Affairs Can., https://www.canada.ca/en/crown-indigenous-relations-northern-affairs.html (last visited Mar. 13, 2020) (displaying CIRNAC's official webpage).

3 *See* Indigenous Servs. Can., https://www.canada.ca/en/indigenous-services-canada.html (last visited Mar. 13, 2020) (displaying ISC's official webpage).

4 *See* Press Release, Prime Minister of Can., New Ministers to support the renewed relationship with Indigenous Peoples (Aug. 28, 2017), https://pm.gc.ca/en/news/backgrounders/2017/08/28/new-ministers-support-renewed-relationship-indigenous-peoples (announcing new governmental institutions because "the level of ambition of this government cannot be achieved through existing colonial structures").

5 *See generally Canada's Arctic and Northern Policy Framework*, Crown-indigenous Relations and N. Affairs Can. (2019), https://www.rcaanc-cirnac.gc.ca/eng/1560523306861/1560523330587 [hereinafter *Arctic and Northern Policy Framework*] (describing the vision and goals of the Arctic Policy Framework).

6 *See Toward a new Arctic Policy Framework*, Crown-indigenous Relations and N. Affairs Can. (2019), https://www.rcaanc-cirnac.gc.ca/eng/1499951681722/1537884604444.

7 *See* Karen Everett, *Canada's Arctic Policy Framework: A New Approach to Northern Governance*, The Polar Connection (May 18, 2018), http://polarconnection.org/canada-arctic-policy-framework/ (explaining how the Framework compares to the previous strategy).

8 *See Arctic and Northern Policy Framework: Inuit Nunangat*, Inuit Tapiriit Kanatami (2019) https://www.itk.ca/wp-content/uploads/2019/09/20190925-arctic-and-northern-policy-framework-inuit-nunangat-final-en.pdf (detailing that Inuit Nunangat makes fifty-one communities spread across northern Canada and "makes up nearly one third of Canada's landmass and fifty percent of its coastline").

9 *See* Press Release, United States-Canada Joint Arctic Leaders' Statement (Dec. 20, 2016), https://obamawhitehouse.archives.gov/the-press-office/2016/12/20/united-states-canada-joint-arctic-leaders-statement (announcing that Canada's new APF will include priorities identified by the Minister of Indigenous and Norther Affairs' Special Representative and will include an Inuit-specific component).

10 *See Toward a new Arctic Policy Framework*, *supra* note 6.

11 *See* Darrell Greer, *Health care staffing crisis*, Nunavut News (Jan. 25, 2019), https://nunavutnews.com/nunavut-news/health-care-staffing-crisis/ https://nunavutnews.com/nunavut-news/health-care-staffing-crisis/.

12 *See* Jim Bell, *Inuit housing shortage is a public health crisis, says Canadian Senate report*, Arctic Today (Mar. 3, 2017), https://www.arctictoday.com/inuit-housing-shortage-is-a-public-health-crisis-says-canadian-senate-report/https://www.arctictoday.com/inuit-housing-shortage-is-a-public-health-crisis-says-canadian-senate-report/.

13 *See Nunavut Inuit Labor Force Analysis Report: Executive Summary*: *August 2018*, Gov't of Can. (2018), https://www.canada.ca/en/employment-social-development/corporate/reports/research/nunavut-inuit-labour-force-analysis-summary.html (discussing demographics of the Nunavut population).

14 *See* Derek Neary, *Nunavut's 'ugly' double-digit unemployment rate must come down, says Main*, Nunavut News (Feb. 23, 2020), https://nunavutnews.com/nunavut-news/nunavuts-ugly-double-digit-unemployment-rate-must-come-down-says-main/ (illuminating Nunavut's high unemployment rate).

15 *See also Social Determinants of Inuit Health in Canada*, Inuit Taparit Kanatami,(Sep. 2014), https://www.itk.ca/wp-content/uploads/2016/07/ITK_Social_Determinants_Report.pdf (exploring factors of Inuit well-being).

16 *See Inuit Employment*, Gov't of Nunavut, Dep't of Human Res. (last visited Mar. 9, 2020), https://www.gov.nu.ca/human-resources/information/inuit-employment (explaining Article 23 in reference to Inuit Employment).

17 *See generally* Nunavut Land Claims Agreement art. 23, Tunngavik Fed'n of Nunavut-Can., May 25, 1993, https://gov.nu.ca/sites/default/files/files/013%20-%20Nunavut-Land-Claims-Agreement-English.pdf (incorporating Nunavut involvement in government).

18 *See generally* Nunavut Land Claims Agreement, art. 24, *supra* note 17 (discussing Nunavut involvement with government contracts).

19 Nunavut Land Claims Agreement, art. 23, *supra* note 17.

20 Beth Brown, *Inuit employment, staff retention a focus for Nunavut's new HR department*, Nunatsiaq News, (July 13, 2018), https://nunatsiaq.com/stories/article/65674inuit_employment_staff_retention_a_focus_for_nunavuts_new_hr_departmen/ (identifying staff retention as a concern); *see also Human Resource Capacity—Government of Nunavut*, Office of the Auditor Gen. of Can. (Mar. 2010), https://www.oag-bvg.gc.ca/internet/English/nun_201003_e_33568.html (noting that staffing shortages are an on-going problem, and that 800 positions (twenty-three percent) were vacant at the end of March 2009).

21 *See* Inuit Tapiriit Kanatami, *supra* note 8.

22 *See generally* Nunavut Land Claims Agreement art. 5, 7, 8, 21, 25, *supra* note 17.

23 *See Nunavut devolution*, Gov't of Can. (2019), https://www.rcaanc-cirnac.gc.ca/eng/1352471770723/1537900871295 (describing the policy objectives of transferring responsibilities to the territories).

24 *See generally* Masami Iwasaki-Goodman, *Resource Management for the Next Generation: Co-Management of Fishery Resources in the Western Canadian Arctic Region*, 67 Senri Ethnological Stud. 101 (2005) (illuminating the role of native peoples in Western Canadian resource management).

25 *See Canada's Arctic and Northern Policy Framework*, *supra* note 5 ("The Canadian North is warming at about 3 times the global average rate, which is affecting the land, biodiversity, cultures and traditions. At the same time, climate change and technology are making the Arctic more accessible.").

26 *See Exploitation of the Arctic must be reined in*, New Scientist (Oct. 3, 2012), https://www.newscientist.com/article/mg21628853-800-exploitation-of-the-arctic-must-be-reined-in/...https://www.newscientist.com/article/mg21628853-800-exploitation-of-the-arctic-must-be-reined-in/ (discussing the negative impacts of global consumption on the Arctic).

27 *See The Circumpolar North*, UArctic (last visited Jan. 23, 2020), https://education.uarctic.org/circumpolar-north/ (defining the Circumpolar World and the Circumpolar North).

28 *See generally Climate Change and Arctic Sustainable Development: scientific, social, cultural and educational challenges*, UNESCO (2009), https://unesdoc.unesco.org/ark:/48223/pf0000186364 (listing topic issues for climate change and the Arctic). .

29 *Arctic Political Region*, CIA World Factbook (last visited Mar. 14, 2020), https://www.cia.gov/library/publications/the-world-factbook/attachments/images/large/arctic_region-political.jpg?1547145647.

30 *See generally* Arctic Council https://arctic-council.org/index.php/en (last visited Jan. (listing participants of the Arctic Council). https://arctic-council.org/index.php/en.

31 *See* Bernard P. Herber, *Economic Change in the Arctic: Is the Antarctic Governance Model Needed?*, Udall Ctr. for Studies in Pub. Pol'y 1, 5 (2013), http://udallcenter.arizona.edu/eppubs/herber_economic_2013.pdf (discussing governance issues of the Arctic).

32 *See id.* at 11.

continued on page 35

Canada's Arctic Policy Framework:
Governance Transformation in Nunavut

By C. Mark Macneill

On August 28, 2017 Canada's Prime Minister, Justin Trudeau committed to a renewed relationship with Indigenous Peoples based on the recognition of rights, respect, co-operation and partnership.[1] To accomplish this mission, major structural changes in how the Government of Canada engages and relates with Indigenous peoples across the country were co-developed with indigenous, territorial and provincial partners to form a new Arctic Policy Framework (APF).[2] This has had major implications of departmental transformation, particularly for the former Department of Indigenous and Northern Affairs (INAC), Nunavut Regional Office (NRO), its staff, programs, and operations.[3]

The major implications of departmental transformation for the NRO begin with the dissolution of Canada's INAC and its replacement with two distinct departments Crown-Indigenous Relations and Northern Affairs (CIRNA), and Indigenous Services Canada (ISC). This includes the division of roles and responsibilities respectively for staff, programs, and operations. The division also requires co-operation and collaboration between the two departments.[4]

The partition of Nunavut on April 1, 1999 from the Northwest Territories was, politically, an event long in process for the Inuit.[5] Under the Nunavut Act[6] and Nunavut Land Claims Agreement[7] signed in 1993, the Nunavut Territory was created. It is one of the largest administrative and northerly districts in the world. The Nunavut Act and Land Claims Agreement also included recognition of indigenous rights to self-determination and self-governance.[8] It is now Canada's youngest territory. The Inuit represent eighty-five percent of the population[9] of approximately 39,000 residents in Nunavut,[10] and are spread over a huge resource rich and ecologically vulnerable land mass and archipelago, including twenty-five communities spread out in distant and limited-access locations.[11]

Exhibit 1: Maps of Nunavut[12] & its 25 Communities[13]

The Nunavut Government is ascribed by the Nunavut Act and Land Claims Agreement to create an Inuit owned territory and lands, managed through Inuit self-governance, under the support of the Federal government.[14] Section 35 of Canada's Constitution Act calls for the recognition of indigenous rights and supports the Federal Government's obligation to collaborate and consult with the Inuit on issues and challenges facing them as a people and self-governing territory.[15] NRO is a department emerging from the Government of Canada's transformative approach to enriching and more greatly fulfilling the implementation of Aboriginal rights and aspirations. Innately, it will need to be flexible and highly collaborative and consultative with the Government of Nunavut, its NGOs and the Inuit people.[16]

Nunavut is poised for continued expansion of its economy, particularly the service industry, mining, construction and transportation.[17] Investments in public infrastructure, such as schools, hospitals, broadband and transportation, are direly needed.[18] CIRNA is tasked with working in new creative ways to help the Nunavummiut take advantage of economic opportunities balanced with their culture.[19]

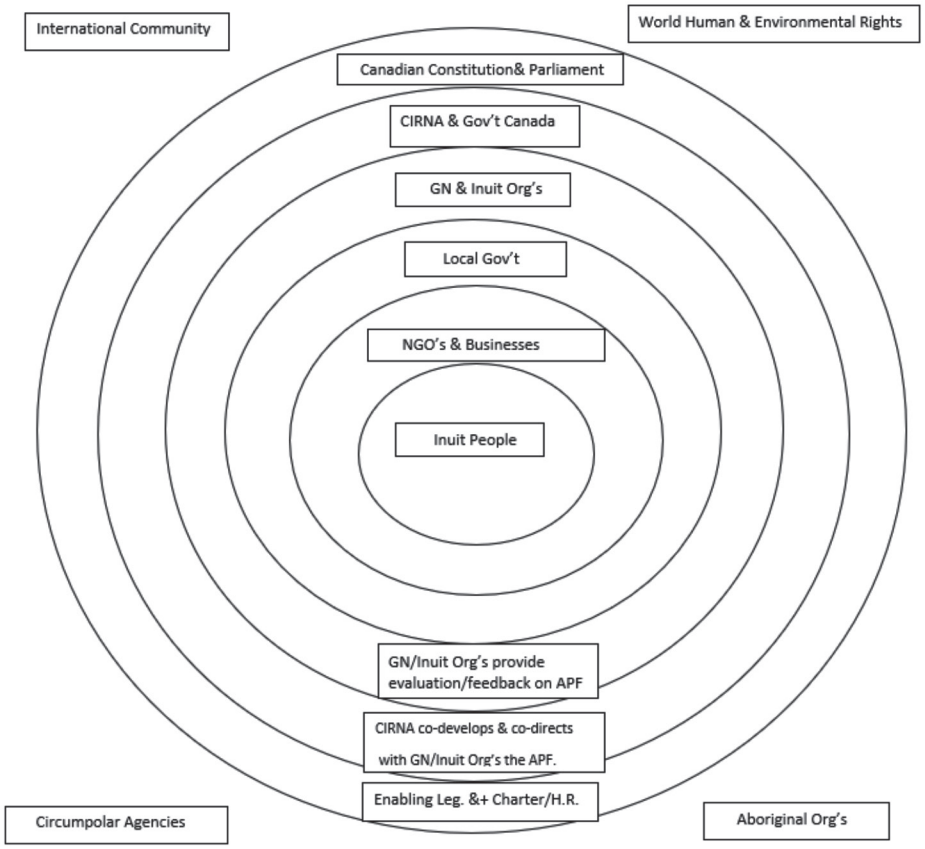
The implications of the bi-departmental transformation are different for NRO, compared to other regional offices. NRO is distinct in many aspects, including culturally as it is predominantly an Inuit land and territory, governed by the Inuit under agreement with Ottawa with rights protected under the Canadian Constitution. [20] Also the Nunavut Act and corresponding Nunavut Land Agreement were signed together. This was a strategically synced governance framework negotiated and insisted upon by the Inuit. They felt self-governance and their land were interdependent and self-governance could not be effective for their traditional lifestyle which is tied to the land and sea without security of a satisfactory land agreement as well.[21] In contrast in other non-Inuit regional offices transformation will include ongoing Aboriginal (Indian) land claims settlement and collaborative negotiation of devolution and self-governance frameworks. Whereas in Nunavut, this already exists since its creation.

Structural changes that will occur include new frameworks and mechanisms supporting cooperative federalism as part of an ongoing duty to consult and evolving process of enabling Inuit-Crown relations. This process will see further and deeper empowerment of Inuit self-government through greater emphasis on collaboration using Inuit advisory structures for NRO to consult with in developing programs and policies, and operations.[22]

Canada's new APF embraces a micro as well as macro perspective concerning the development of a Northern Strategy for Canada. This new approach led by CIRNA includes consultation and collaboration with Northerners,[23] territorial and provincial governments, and indigenous groups of people.[24] Working collaboratively with these groups, also includes CIRNA's continued role on behalf of the Government of Canada to co-develop and maintain a long-term vision for the Canadian and circumpolar Arctic. Externally, global arctic affairs and northern international relations, including matters such as climate change, are led by Global Affairs Canada and the Department of National Defence.[25] Compounding the implications of structural change at the federal level and inhibiting clarity of communications and channels of responsibility, are the further creation of additional federal departments. The Government of Canada list of federal departments now also includes: Department of Northern Affairs, Department of Infrastructure and Communities, Department of Economic Development and Official Languages, Department of Canadian Heritage, and other overlapping federal ministries.[26]

Essentially, under the new APF, Northerners now have more say with policy development, albeit now a more complex and inter-governmental and inter-departmental process, that affects them.[27] In essence, Canada's federal government maintains

Exhibit 2: Key Stakeholders in Nunavut and Canada's Arctic Policy Framework



that the Arctic region requires shared leadership and a need to work closely with Arctic residents and governments to make sure their views are reflected in future policy development affecting the Arctic and Canada's role in the circumpolar Arctic.[28] *See* Exhibit 2.

Through the new APF's co-development consultation process, the Government of Canada undertook to identify a new vision, priorities and strategy for the north and its people. This also identified opportunities for partnerships with Indigenous groups and governments to develop more informed decisions and policies in the Canadian and Circumpolar Arctic.[29] A good partnership example is the Inuit-Crown Partnership signed on February 9th, 2017 by Prime Minister Trudeau and Natan Obed, President of the Inuit Tapiriit Kanatami.[30]

Under Canada's Constitution 1982, Sections 91 and 92 are not included in the devolution of power to the Inuit per Nunavut Act 1999 and Nunavut Land Claims Agreement 1999, the Government of Canada retains jurisdiction and decision-making authority over Canadian defence, foreign policy and other issues of national interest.[31] Thus while the new APF will inform decisions in the Canadian and circumpolar Arctic on a consultative process, the Government of Canada reserves decision-making authority exclusively for matters related to Canadian defence, foreign policy and other issues of national interest.[32]

The Government of Nunavut (GN) is responsible and holds authority under the Nunavut Act for the territorial administration of Nunavut, and GN serves as the central conduit for fostering self-determination and self-governance for the Inuit people.[33] The GN is committed to supporting healthy Arctic communities and is focused on remedying the chronic need for improved housing, health care, education, broadband and other basic infrastructure it in 25 communities as a priority. They are hopeful this will be a priority area in the final federal APF.[34]

Nunavut is growing rapidly, and sustainable development is a top concern for the Inuit people to ensure that their land and ecology is protected and conserved in a balanced manner with resource and infrastructure project developments. The GN also needs to ensure that its economic growth is diversified to usurp greater economic stability for the territorial economy and its people, and that opportunities for full Inuit employment and education and training programs that are requisite are provided.[35]

The GN, through the Department of Executive and Intergovernmental Affairs,[36] provides assistance to Aboriginal and Circumpolar organizations for increased circumpolar cooperation, understanding and awareness. *See* Exhibit 2. The GN's role also is to engage its elected leaders, senior staff, land claims organizations, scientists, representatives of industry, and non-governmental organizations to provide advice on conservation goals for the Arctic and the social and economic priorities of Indigenous peoples living in remote Arctic communities.[37]

Canada's new APF has had major implications of departmental transformation, particularly accompanying the splitting of INAC into two new federal departments; CIRNA and ISC. For NRO this has included a division of roles and responsibilities respectively for staff, programs, and operations. It also requires co-operation and collaboration between the two new departments. For NRO, this provides extra corroboration interdepartmentally and adds complexity to external collaboration with the GN and Inuit organizations. Innately, NRO will need to be flexible in its collaboration and consultations with the GN, NGOs and the Inuit people.

Structural changes that will occur include new frameworks and mechanisms supporting cooperative federalism as part of an ongoing duty to consult and evolving process of enabling Inuit-Crown relations. Further and deeper empowerment of Inuit self-government through greater emphasis on collaboration through the use of Inuit advisory structures for NRO to consult with in developing programs and policies, and operations is required.

Essentially, under the new APF, Northerners now have more say with policy development, albeit now a more complex and inter-governmental and inter-departmental process, that affects them. Yet, social issues such as chronic housing and health care issues, excessive unemployment, child poverty and access to basic services for Nunavut's collectivity of 25 remotely disperses communities in harsh arctic environs remains an ongoing, daunting challenge for both the GN and NRO.

Endnotes

1 Justin Trudeau, Prime Minister of Can., *New Ministers to Support the Renewed Relationship with Indigenous Peoples*, Gov't of Can. (Aug. 28, 2017), https://pm.gc.ca/en/news/backgrounders/2017/08/28/new-ministers-support-renewed-relationship-indigenous-peoples (highlighting historical developments between Canadian government and Indigenous Peoples and outlining Canada's new relationship building strategy moving forward).

2 *See generally Canada's Arctic and Northern Policy Framework,* Crown-indigenous Relations and N. Affairs Can. (2019), https://www.rcaanc-cirnac.gc.ca/eng/1560523306861/1560523330587 [hereinafter *Arctic and Northern Policy Framework*] (describing the vision and goals of the Arctic Policy Framework).

3 *E.g.*, *id.* (detailing changes that took place in the Department of Indigenous and Northern Affairs); Gov't of Can., *Nunavut devolution* (2019), https://www.rcaanc-cirnac.gc.ca/eng/1352471770723/1537900871295 (detailing history and purpose of Nunavut devolution); Nunavut Act (S.C. 1993, c. 29) (Can.) (committing to increase the amount of Inuit participation in government employment in the Nunavut Settlement Area).

4 *Continuing our Transformation Journey*, Gov't of Can. (June 17, 2019), https://www.sac-isc.gc.ca/eng/1560792374691/1560792561077 (dissolving the Department of Indigenous and Northern Affairs Canada and proposing the formal creation of two new departments: Crown-Indigenous Relations and Northern Affairs Canada).

5 Legislative Assembly of the Nw. Territories, *Creation of a New Northwest Territories*, (2014), https://www.assembly.gov.nt.ca/visitors/creation-new-nwt (outlining the history of the establishment of Nunavut and the Northwest Territories).

6 *See generally* Nunavut Act, S.C. 1993, *supra* note 3 (creating the Nunavut Province and its governing structure under Canadian law).

continued on page 36

Climate Gentrification:
An Imminent Threat to Oceanfront Cities

*By Marcel Apple**

I. Overview

Traditionally, gentrification occurs when real estate prices appreciate, leading to significant cultural change in low-income communities and involuntary displacement of low-income residents.[1] In recent years, Miami, Florida is beginning to feel the impacts of "climate gentrification."[2] High-income buyers, who historically develop property close to the ocean, are affected by rising sea levels and increasingly look inland to develop areas on higher ground.[3] The influx of real estate investments in these is expected to lead to spiking home prices and property taxes, forcing many longtime community members to abandon their homes.[4]

Homeowners in these communities already report approaches from developers offering buyouts and relocation as renters are experiencing dramatic increases in rent.[5] While the thought of relocating may be appealing to some, due to home prices increasing up to 1,121% , these trends have decreased the overall amount of affordable housing left in the city.[6] As a result, victims of climate gentrification are increasingly forced to leave Miami due to the lack of affordable housing.[7] This article will outline various precautionary initiatives, policy implications, and litigation avenues that should arise as a means to protect these vulnerable communities.

II. Miami's Municipal Initiatives to Address Climate Gentrification Are a Good Start

In 2017, the City of Miami and Miami Beach passed a $400 million bond measure, half of which will fund flood mitigation projects and other measures to adapt to sea-level rise.[8] Subsequently, in 2018, Miami became the first city in the country to pass a climate gentrification resolution.[9] As part of this resolution, the city is studying how low-income communities on higher ground are affected by climate gentrification driven by sea-level rise.[10] Furthermore, the resolution focuses on how the city can stabilize property tax rates in these areas, with hopes of keeping affected individuals in their homes.[11]

Legal scholars and climate change experts nationwide have praised this unprecedented initiative, acknowledging the city's proactive approach in identifying and protecting a population that is already considered vulnerable for other, non-climate related reasons.[12] The city's initiatives are a refreshing approach, considering the United States' history of abusing the power of eminent domain to transform 'blighted' areas.[13]

III. Preventative Policies and Legislation are Needed

While Miami's climate gentrification resolution is an important first step, oceanfront cities like Miami will need to implement policies and legislation to protect vulnerable low-income communities from displacement. So far, Miami has passed legislation that mandates a greater workforce housing allowance—housing that is specifically allotted for middle-income families in Overtown, an inner-city neighborhood of Miami that is feeling the pressure of climate gentrification.[14] Additionally, developers have suggested zoning changes that would allow slightly larger buildings that make room for more residents but still fit with the character of the community.[15]

Another proposed solution is a property tax freeze for the residents of areas feeling targeted pressure to sell.[16] Cities like Boston and Philadelphia have implemented this approach to prevent displacement, "promote neighborhood stability, preserve character, and provide a dividend of sorts to those who have stayed through years of high crime, population loss, and declining property values."[17] However, under this approach, property taxes accrue and homeowners owe them in a lump sum when and if they sell. Furthermore, tax freezes would be irrelevant for renters, who are nearly twice as likely to be displaced by gentrification.[18]

Lawmakers have also suggested the use of community land trusts (CLTs).[19] Under this approach, a nonprofit buys a piece of land in an at-risk neighborhood and builds multiple houses to be leased to low-income residents.[20] This tactic intends to insulate communities from development pressure and create an island of affordability. Recent empirical studies have proven that CLTs in at-risk neighborhoods (1) significantly decrease the likelihood of gentrification, (2) stabilize income levels, (3) mediate the decrease of affordability, and (4) retain rental units.[21]

IV. Legal Implications

Climate gentrification's origins distinguish it from traditional, development-based gentrification. Experts have traced the source of traditional gentrification to the disproportionate movement of educated millennials to inner city neighborhoods in large municipalities.[22] This movement triggers redevelopment and leads to the displacement of the neighborhood's low-income residents.[23] As seen most recently in Washington, D.C., anti-gentrification lawsuits often attack discriminatory policies or zoning practices.[24]

*J.D. Candidate, American University Washington College of Law 2021

However, lawsuits seeking to protect classes of people threatened by climate gentrification could look more like the case of *Juliana v. United States*.[25] In that case, a group of twenty-one young people sued the federal government alleging a violation of their right to a safe climate on due process and equal protection grounds.[26] In their complaint, the plaintiffs accused the government of permitting, authorizing, and subsidizing fossil fuel use "despite long being aware of its risk, thereby causing various climate-change related injuries to the plaintiffs" leading to psychological harm, impairment to recreational interests, exacerbated medical conditions, and damage to property.[27] Despite acknowledging an undisputed need to protect the environment on behalf of the younger generation, the court reluctantly found itself powerless to grant the plaintiffs' request for a government plan that would phase out fossil fuel and pull greenhouse gasses out of the air.[28] Instead, the court held that the plaintiff's claims are more properly suited for the political branches or the electorate at large.[29]

If an individual were to mount a claim in hopes of impeding the advancing threat of climate gentrification, the allegations would likely be similar to those made in *Juliana*. Notwithstanding a negative outcome for the plaintiffs in *Juliana*, the court held the alleged injuries were "sufficiently concrete and particularized" to allow standing.[30] In a hypothetical climate gentrification case filed on similar grounds, a court would likely come to the same conclusion: displacement and moving costs are concrete injuries rather than simply "conjectural," which would give the claimant standing.[31] However, a court would likely defer to the political branch as the proper venue to seek relief, leaving potential plaintiffs without legal relief.

V. Conclusion

As climate gentrification threatens to displace residents of lower income areas in some oceanfront cities, it seems that it will fall on local governments and legislatures to protect those vulnerable communities. Cities will need to follow Miami's lead by funding studies, identifying threatened communities, and implementing legislation and policies such as tax freezes and CLTs. The holding in *Juliana* illustrates the Ninth Circuit's unwillingness to remediate a legitimate injury directly linked to climate change. However, given the federal government has not prioritized the environment, it will be interesting to see if other federal courts take a stand under similar circumstances.[32]

Endnotes

1 *See* Nat'l Ass'n for Latino Cmty. Asset Builders, NALCAB's Guide to Equitable Neighborhood Development 5–6 (Apr. 23, 2018), http://nalcab.org/wp-content/uploads/2018/02/NALCAB_GuideToEquitableNeighborhoodDevelopment_Final.pdf (defining gentrification as "a type of neighborhood change in which real estate price appreciation leads to involuntary displacement and significant cultural change.").

2 *See* Aparna Nathan, *Climate is the Newest Gentrifying Force, and its Effects are Already Re-Shaping Cities*, Sci. News (July 15, 2019), http://sitn.hms.harvard.edu/flash/2019/climate-newest-gentrifying-force-effects-already-re-shaping-cities/ (detailing how Miami is one of the first cities to confront climate gentrification).

3 *See id.* (detailing how the lower risk of weather damage in inland areas is making traditionally low-income neighborhoods more attractive to high-income buyers, who normally prefer beachfront property, particularly in Miami).

4 *See id.* (discussing how the increasing interest high-income buyers have in traditionally low-income neighborhoods in Miami has driven up home prices and threatens, in tandem with climate change itself, to result in higher taxes).

5 *See* Jeremy Deaton, *Climate Gentrification is Creating an Affordable Housing Crisis in Miami*, CleanTechnica (Sept. 7, 2018), https://cleantechnica.com/2018/09/07/climate-gentrification-is-creating-an-affordable-housing-crisis-in-miami/ (describing how developers are targeting homeowners who are struggling financially while landlords ratchet up the cost of housing for their tenants).

6 *See* Alex Harris, *Climate gentrification: Is sea rise turning Miami high ground into a hot commodity?*, Miami Herald (last updated Dec. 19, 2018, 11:54 AM), https://www.miamiherald.com/news/local/environment/article222547640.html (explaining how on-going and past gentrification in Miami have left very few areas with affordable housing).

7 *See id.* (detailing how the residents of gentrifying neighborhoods in Miami have few affordable housing options left in the city).

8 *See* Adam Aton, *Climate funding passes; vulnerable cities get new mayors*, ClimateWire (Nov. 8, 2017), https://www.eenews.net/climatewire/2017/11/08/stories/1060065971 (discussing how the outgoing mayors of Miami and Miami Beach, both of whom proposed projects to mitigate the effects of climate change, were succeeded by mayors who promised to continue working on those projects).

9 *See* Ines Kagubare, *Miami passes first-ever climate gentrification resolution*, ClimateWire (Dec. 5, 2018), https://www.eenews.net/climatewire/2018/12/05/stories/1060108749 (observing that city officials are exploring ways to stabilize property taxes to help residents remain in their neighborhoods).

10 *See id.* (directing "the City Manager to instruct appropriate City of Miami staff to research gentrification in areas that exhibit low area mean income rates and high topographic elevations").

11 *Kagubare*, *supra* note 9.

12 *See* Dana Drugmand, *Miami Aims to Protect Lower Income Residents from Climate Displacement*, Climate Liability News (Dec. 6, 2018), https://www.climateliabilitynews.org/2018/12/06/miami-climate-gentrification/ (citing Michael Burger, executive director of the Sabin Center for Climate Change Law at Columbia University, and other experts as commending the initiative).

13 *See* Martin E. Gold & Lynne B. Sagalyn, *The Use and Abuse of Blight in Eminent Domain*, 38 Fordham Urb. L.J. 1119, 1173 (2011) (explaining that the federal government has historically relied on the term "blighted" to justify excessively exercising its power of eminent domain on impoverished neighborhoods).

14 *See* Harris, *supra* note 6 (detailing the passage of this legislation, and efforts by climate gentrification activists to have the same allowance applied to other Miami neighborhoods).

15 *See* Harris, *supra* note 6 (observing that greater urban density could help mitigate gentrification, especially as the city loses land permanently to rising sea levels).

16 *See* Harris, *supra* note 6 (noting that, under such a freeze, property taxes would still add up, and would be owed by the homeowner as a lump sum if he or she sold the property).

17 Timothy Williams, *Cities Mobilize to Help Those Threatened by Gentrification*, N.Y. Times (Mar. 3, 2014), https://www.nytimes.com/2014/03/04/us/cities-helping-residents-resist-the-new-gentry.html.

18 Richard Florida, *Gentrification Has Virtually No Effect on Homeowners*, Citylab (Jan. 24, 2017), https://www.citylab.com/equity/2017/01/gentrification-hurts-renters-more-than-homeowners/510074/ (stating that renters face a 2.6 percent greater probability of being displaced in a gentrifying neighborhood, as opposed to a 1.3 percent probability overall).

19 *Harris*, *supra* note 6.

continued on page 36

A Silver Bullet:
Could Data Linking Urban Heat Islands to Housing Discrimination Curtail Environmental Racism?

Russell Armstrong*

"[A]ll things share the same breath— the beast, the tree, the man …the air shares its spirit with all the life it supports."[1]

Google "Chief Seattle" and you will likely find that quote. We now know it is a work of fiction after several misinterpretations and fabrications of Dr. Henry Smith's original translation.[2] We also know now that all people, particularly Black Americans, do not all breathe the same air. Instead, Black Americans and other underrepresented minorities are subjected to the toxic effects of climate change at increasingly disproportionate rates. Controlling for income, studies find racial identity is the most significant indicator of exposure to general pollutants and suspended particulates.[3] This harsh reality is highlighted by new evidence, finding that many urban heat islands (UHIs) coincide directly with redlined neighborhoods, which were designated as "hazardous" to justify denying home loans and other services to the people living there because of their race.[4] Some commentators believe this evidence could be used by environmental justice advocates to rectify the deleterious effects of racism in court through the Federal Housing Act (FHA).[5] However, advocates have rarely used the FHA successfully to remedy environmental harms related to housing policy because it is difficult to prove discriminatory treatment or disparate impact.[6] Therefore, while the FHA is not some silver bullet to bring about environmental reparations for past harms, data such as that from the Hoffman study showing how Black Americans and other underrepresented minorities are disproportionately impacted by environmental hazards can be used to advocate for more equitable conditions moving forward.[7]

Urban Heat Islands Are Abundant and Create Numerous Health Disparities

The study, published in *Climate*, demonstrates how Black communities are routinely exposed to the UHI effect at far greater rates than predominantly White communities.[8] The study also explains how U.S. housing policy that created segregated neighborhoods also left those same neighborhoods significantly hotter than adjacent areas.[9] In ninety-four percent of the 108 cities studied, redlined neighborhoods had higher surface temperatures than non-redlined areas.[10] In fact, temperatures vary as much as ten degrees Celsius amongst neighborhoods within a single urban area.[11] UHIs, shown to exist all across the country including Washington, D.C. where half of the city has an elevated heat vulnerability, can now be shown to clearly track with neighborhoods developed through discriminatory housing practices.[12] Additionally troubling is how the UHI effect also leads to serious adverse health risks such as premature births, asthma attacks, and chronic obstructive pulmonary disease (COPD).[13]

Can the FHA Solve Environmental Racism?

For over twenty years, law students and advocates have discussed ways to use data to connect environmental hazards to discriminatory housing practices.[14] For example, affected persons can file an administrative complaint with the Department of Housing and Urban Development (HUD) and wait for the agency to act, including through enforcement via the Department of Justice, or exercise their right to commence a civil action for the alleged discriminatory housing practice.[15] From a burden of proof standpoint, the FHA is preferable to other more common equitable justice tools such as Title VI of the Civil Rights Act because under the FHA the aggrieved party only needs to establish a discriminatory effect, also known as disparate impact, which is a lower evidentiary bar than having to show that a party discriminated intentionally.[16] In *Texas Department of Housing & Community Affairs v. Inclusive Communities Project,*[17] the Supreme Court held that the FHA can be interpreted to prohibit policies that adversely affect minority groups even when the discrimination is implicit and not the stated policy goal.[18] In *Inclusive Communities Project*, the Court found that Texas' Department of Housing and Community Affairs disproportionately denied tax credits for developers providing low-income family units to Black families within predominantly White neighborhoods, thus perpetuating segregated housing in violation of the FHA.[19]

There have been some notable cases of advocates using civil rights law for environmental justice, such as *Houston v. City of Cocoa*,[20] but those cases are usually settled and focus on stopping new development rather than rectifying past harms.[21] Settlements that are approved by the Secretary of HUD may not assign any fault and may not provide any monetary relief.[22] In *City of Cocoa*, Black residents organized and filed a federal class action suit as well as an administrative complaint with HUD to stop a local community redevelopment plan funded through a Community Development Block Grant (CDBG) that would have displaced generations of Black homeowners with high-density commercial and residential real estate.[23] After introducing evidence of a history of local policy changes designed to undermine the flourishment of this historically Black community, both HUD and the community's independent legal

* J.D. Candidate, American University Washington College of Law 2022

counsel, which included the NAACP LDF, agreed to settle for undisclosed damages as litigation fees began to mount.[24]

The FHA: No Silver Bullet but a Silver Lining for Environmental Justice

City of Cocoa may provide a blueprint for pursuing environmental justice under the current FHA legal regime, but that blueprint requires a good deal of patience, grassroots organizing, and persistence.[25] Additionally, the current administration is seeking to significantly raise the burden of proof on FHA disparate impact claims through a proposed rulemaking.[26] Despite these hurdles, the FHA at least provides claimants a path to realistically pursue private actions instead of having to rely on the agency determinations of this or any other administration.

Although both Title VI claims of discrimination and violations of other statutes, such as the Clean Air Act, are seen as far more proximate to environmental justice, without a private right of action, advocates are left to the discretion of an agency's bureaucracy.[27] A damning report conducted by Deloitte in 2011 found that the Environmental Protection Agency's Office of Civil Rights only accepted or dismissed six percent of Title VI cases within the agency's own time limit.[28] That dismal processing rate has left communities such as Orange County, North Carolina, to struggle for decades in pursuit of a cleaner environment to raise families.[29]

There are other remedies the U.S. government can use to curtail environmental racism. For example, Congress could pass legislation to remove barriers to pursuing a Title VI claim, such as by extending the class to low-income persons or by taking smaller steps such as requiring any environmental and climate-related regulations undergo additional executive branch agency review to determine any disproportionate negative impacts.[30] The current administration could also roll back it's weakening of the Affirmative Furthering Fair Housing regulations originally introduced in 2015.[31] But until any of these things happen, using the FHA as a tool for environmental justice is still worth a shot.

Endnotes

1 Rudolf Kaiser, *Chief Seattle's Speech(es): American Origins and European Reception*, *in* Recovering the Word: Essays on Native American Literature, 525, 525-30 (Univ. of Cal. Press 1987).

2 Paul S. Wilson, *What Chief Seattle Said*, 22 Envtl. L. 1451, 1451-52 (1992); Walt Crowley, *Chief Seattle's Speech*, HistoryLink, https://www.historylink.org/File/1427.

3 Michel Gelobter, *Toward a Model of Environmental Discrimination*, *in* Race and the Incidence of Environmental Hazards, 64, 64-81 (Bunyan Bryant & Paul Mohai eds., 1992).

4 Jeremy S. Hoffman et al., *The Effects of Historical Housing Policies on Resident Exposure to Intra-Urban Heat: A Study of 108 US Urban Areas*, 8 Climate 1, Jan. 13 2020 at 12 (describing how HOLC maps distinguished neighborhoods that were considered "best" and "hazardous" for real estate investments (largely based on racial makeup), the latter of which was outlined in red, leading to the term "redlining").

5 42 U.S.C. §§ 3601–3619 (2018) (prohibiting discrimination against individuals based on race, color, national origin, religion, sex, familial status, and disability when they are renting or buying a home, getting a mortgage, seeking housing assistance, or engaging in other housing-related activities); Meg Anderson, *Racist Housing Practices from the 1930s Linked to Hotter Neighborhoods Today*, NPR (Jan. 14, 2020), https://www.npr.org/2020/01/14/795961381/racist-housing-practices-from-the-1930s-linked-to-hotter-neighborhoods-today.

6 David Carpenter, *The Fair Housing Act (FHA): A Legal Overview*, Cong. Res. Serv. 5 (Feb. 2, 2016).

7 Hoffman, *supra* note 4, at 1 (revealing that historical housing policies may, in fact, be directly responsible for disproportionate exposure to current heat events).

8 Hoffman, *supra* note 4, at 2 (exacerbating urban heat island effect with an overabundance of low-rise, man-made surfaces in contrast to a lack of natural, non-manufactured landscapes).

9 Hoffman, *supra* note 4, at 2, 4.

10 Hoffman, *supra* note 4, at 6, 9.

11 Hoffman, *supra* note 4, at 2.

12 Hoffman, *supra* note 4, at 2, 3; Randy Smith, *D.C.'s Heat Islands*, D.C. Pol'y Ctr. (Aug. 8, 2017), https://www.dcpolicycenter.org/publications/urban-heat-islands/.

13 Rebecca Lindsey, *Extreme Heat Increases Pregnant Women's Risk of Pre-term Delivery*, ClimateWatch (Sept. 30, 2019), https://www.climate.gov/news-features/featured-images/extreme-heat-increases-pregnant-women%E2%80%99s-risk-pre-term-delivery; Alyson Kenward, et al., *"Heat Islands" Cook U.S. Cities Faster Than Ever*, Climate Cent. reprinted in Sci. American, Aug. 22, 2014), https://www.scientificamerican.com/article/heat-islands-cook-u-s-cities-faster-than-ever.

14 Robert D. Bullard, et al., *Toxic Wastes and Race at Twenty 1987—2007*, United Church Christ Just. & Witness Ministries 1, 1 (2007); Terenia Urban Guill, *Environmental Justice Suits Under the Fair Housing Act*, 12 Tul Env't L.J. 189, 190–93 (1998); *see also* Rachael Moshman & John Hardenbergh, *The Color of Katrina: A Proposal to Allow Disparate Impact Environmental Claims*, 7 Sustainable Dev. L. & Pol'y 15, 16 (2006).

15 Carpenter, *supra* note 6.

16 *See* 42 U.S.C. § 2000d (prohibiting discrimination on the basis of race, color, or national origin in any program or activity that receives Federal funds or other Federal financial assistance); *see also* Alexander v. Sandoval, 532 U.S. 275, 294 (2001) (holding that there is no private right of action for a disparate impact claim under § 602 of Title VI of the Civil Rights Act of 1964); Regents of Univ. of California v. Bakke, 438 U.S. 265, 287 (1978) (finding that Title VI of the Civil Rights Act of 1964 only prohibits discriminatory intent).

17 135 S. Ct. 2507 (2015).

18 *Id.* at 2525.

19 *Id.*

20 No. 89-082-CIV-ORL-19 (M.D. Fla. Oct. 26, 1990).

21 *See* Steven Keeva, *A Breath Of Justice: Along With Equal Employment Opportunity and Voting, Living Free From Pollution Is Emerging As a New Civil Right,* A.B.A. J. 89, 91 (1994) (discussing the impact of *Houston v. City of Cocoa* on civil rights litigation targeted at protecting minority communities).

22 *See* 42 U.S.C. § 3610(b)(1)–(3) (awarding relief, including monetary relief may come from arbitration that results from a conciliation agreement).

23 *See* Judith E. Koons, *Locational Justice: Race, Class, and the Grassroots Protest of Property Takings*, 46 Santa Clara L. Rev. 811, 814–17 (2006).

24 *See id.* at 814; *see also* Keeva, *supra* note 21, at 91.

25 *See* Koons, *supra* note 23, at 814.

26 *See generally Comment in Opposition to Notice of Proposed Rulemaking re HUD's Implementation of the Fair Housing Act's Disparate Impact Standard*, U.S. Comm'n on Civil Rights (Oct. 18, 2019), https://www.usccr.gov/press/2019/10-18-HUD-Disparate-Impact-Proposed-Rule.pdf (proposing a rule that eliminates the three-step burden-shifting approach between the plaintiff and defendant and replaces it with a five-step preponderance of the

continued on page 37

Manufacturers Beware of Right to Repair:
An Analysis of the Resurgence of Right to Repair & the Legal Consequences of Third-Party Access to Embedded Software in the 'Internet of Things' Era

*By Lindsey Barrington**

I. Introduction

On March 18, 2019 California became the twentieth state to introduce Right to Repair legislation in one year.[1] The policy objectives for Right to Repair are straightforward: advocate for federal and state laws that make it easier for owners of consumer goods to fix a device when it breaks rather than relying on the Apple store.[2] However, since 2014, small farmers have joined the Right to Repair movement because major manufacturers, such as John Deere, have consolidated dealer networks in response to the consolidation of farming in the past decade.[3]

While proponents for Right to Repair legislation argue that consumers should be able to repair the electronics that they own, the introduction of farming equipment has complicated the landscape by comparing apples to oranges.[4] Right to Repair bills have classified consumer goods and equipment broadly as digital electronic equipment containing "embedded software."[5] Accordingly, heavy and complex machinery that contain microprocessors, such as off-highway engines, marine vessels, construction, and farm equipment, are subject to Right to Repair legislation rooted in concerns about access to service information for mass-produced consumer electronics.[6]

The 'slippery slope' of grouping mass-produced consumer electronics with agricultural and construction equipment began in the Copyright Office.[7] In October 2015, the Register of Copyrights was confronted for the first time during its Sixth Triennial Proceeding with the challenging task of simplifying the diversified universe of embedded software into one category or definition.[8]

During the 2015 Section 1201 rulemaking session, the Librarian of Congress evaluated Right to Repair proposals for Section 1201 of the Digital Millennium Copyright Act ("DMCA") exemptions to anticircumvention for modern automobiles, agricultural equipment, and machinery grouped as the 'vehicle software' class.[9] Ultimately, exemptions were granted to third-party users, such as independent repair shops and owners.[10] These exemptions were granted based on legal defenses in the Copyright Act, which limit exclusivity rights for copyrighted works under 'fair use' justifications for copying or modifying 'functional' software.[11]

Proponents of Right to Repair have made significant strides in gaining access to software from manufacturing companies by utilizing the exemptions provided in Section 1201 of the DMCA.[12] Through this process, the exemptions on technological protection measures ("TPMs") for motorized land vehicles set a precedent for circumvention of proprietary software at the federal level, while also undermining emissions regulatory protections promulgated by the Environmental Protection Agency ("EPA") under the Clean Air Act.[13]

This article argues that the circumvention precedent for proprietary software, set forth during the 2015 Section 1201 rulemaking session, affirmed the legal justification for third-party users to effectuate broad Right to Repair legislation at the state level. Part II provides background on the origins of Right to Repair legislation. It discusses both Congress' reasoning for the creation of the DMCA anticircumvention statute and the litigation in response to the Clean Air Act during the 1990s. It then compares common law development of the tampering provision within the Clean Air Act and evaluates how the Clean Air Act factored into the Section 1201 rulemaking sessions, which led to current Right to Repair initiatives. Part III analyzes the extensive legal conflicts and consequences of providing third-party access to embedded software for diagnostic repairs and modifications per the Right to Repair provisions. Part IV recommends that Right to Repair legislation exempt equipment manufacturers from being classified as manufacturers that produce 'digital electronic equipment.' It recommends that the evolving digital era requires for the Copyright Office to sever ties with the Library of Congress in its rulemaking process. Part V concludes by highlighting the legal consequences of Right to Repair bills that would result if enacted in state.

II. The Clean Air Act & Origins of Right to Repair Legislation

President Nixon enacted the Clean Air Act on December 2, 1970 in order to decrease air pollution caused by a dramatic increase of cars on the road from urbanization and to quell the

* Lindsey Barrington is an evening 2L student at American University Washington College of Law. Although she hails from Boston originally, she considers herself a DC "native" having lived here for the past 8 years after graduating from Georgetown University. While her career began on political campaigns, she decided to go corporate in 2016 and joined Caterpillar's Global Government & Corporate Affairs department as the lead division communications professional where she works today.

Lindsey writes for the *Business Law Review* and is a Note & Comment Editor for *BLR* Volume 10. She is pursuing her J.D. in corporate law, specifically M&A transactions.

growing manufacturer concern of inconsistent state standards that would require manufacturers to develop vehicles differently for sale in different states.[14] After a series of Congressional proposals in the 1980s, the 1990 Clean Air Act Amendment was established to reduce toxic air emissions and to improve the enforcement program for compliance purposes.[15]

In order to better monitor emissions in cars, the 1990 Amendments required auto manufacturers to develop new technologies and computer systems.[16] Although the statute included provisions that protected independent repair shops from potential threats of monopolization by manufacturers and their authorized dealerships, the third-party repair community became weary of their ability to effectively repair vehicles after the Clean Air Act mandated that vehicles made after 1996 must include on-board diagnostic systems ("OBD").

A. Tampering Prohibition & the "Knowingly" Factor

While Right to Repair efforts gained advocates in the automotive industry, the EPA navigated litigation away from liability enforcement under the 1990 Clean Air Act Amendment's tampering provision.[17] Although the Clean Air Act includes statutory language defining the act of tampering, the Sixth Circuit court in *United States vs. Haney Chevrolet, Inc.*[18] developed the "knowingly" element when a manufacturer or dealer, either by removing or replacing a car part, renders a vehicle noncompliant with emissions standards and releases that vehicle from his or her custody.[19]

Shortly after the 1990 Clean Air Act became law, the court in *United States v. Economy Muffler & Tire Center, Inc.*[20] reaffirmed the Sixth Circuit's definition of "knowingly" in the tampering statute.[21] The defendant in *Economy Muffler* replaced a three-way converter with a two-way converter in violation of the Clean Air Act's regulations.[22] The court reasoned that, similar to the employee who removed a "device" or "element of design" in *Haney Chevrolet*, the Economy Muffler employee "knowingly" replaced a three-way converter with a two-way converter because Economy Muffler regularly received EPA-issued compliance notices for converter installations that were subject to Clean Air Act emissions standards.[23]

Economy Muffler argued that the employee was ignorant of the compliance notice and made an honest mistake in replacing the compliant converter with a noncompliant one.[24] However, the court rejected this argument and expounded on *Haney's* "knowingly" definition, which does not create an exception to liability based on ignorance of the environmental statute when proper notice of the prohibited replacement was provided to the employer in advance.[25]

As software became more prevalent in equipment operating systems during the late 1990s, the Department of Justice ("DOJ"), on behalf of the EPA, exercised its enforcement power through a relatively new and controversial rulemaking process termed "regulation by litigation."[26] Original equipment manufacturers were held accountable for violations of the tampering statute and paid millions of dollars in settlement.[27] These lawsuits garnered public attention because the EPA's claims alleged that Fortune 100 manufacturing companies deceitfully installed defeat devices before selling noncompliant vehicles to unassuming customers.[28] As a result, the EPA issued more stringent emissions standards and compliance with these standards became part of a manufacturing company's reputational strength in the market, while the "greening effect" took deeper roots in American socio-economic values.[29]

Conversely, lawsuits brought by plaintiffs alleging product liability or fraudulent advertising claims related to emissions control defects in vehicles are generally preempted by the Clean Air Act.[30] However, in 2017, the United States District Court for the Eastern District of Michigan denied a motion to dismiss per the Clean Air Act's statutory preemption section in favor of the "knowingly" concept established in Michigan's duty to disclose doctrine.[31]

In *Counts v. General Motors, LLC,*[32] General Motors ("GM"), argued that the plaintiffs' claims of a defeat device in a vehicle that it manufactured and sold should be dismissed because the claims related to emissions control regulations and were preempted by Section 209 of the Clean Air Act.[33] However, the plaintiffs argued that fraud and consumer protection claims are not preempted because they are not attempts to enforce emissions standards.[34]

B. Setting the Stage: Section 1201 Rulemaking

While the EPA continued to mandate a highly regulated emissions environment, the courts grappled with the advent of embedded software in everyday consumer products.[35] In 1998, Congress added Section 1201 to Title 17, which protects copyright owners from infringement in the new digital landscape.[36] By adopting this provision, Congress made a decision to provide a remedy for the copyright owner that is distinct from the traditional rights of the copyright owner under Section 106 of the Copyright Act.[37]

The statute supported copyright owners' use of TPMs as many copyrighted works, such as video games and other software, were beginning to be offered to the public in digital form.[38] However, Congress recognized that, in certain scenarios, circumvention could have a lawful purpose and spur innovation.[39]

The original drafters of Section 1201 did not provide an option to adopt additional exemptions; however, the House Commerce Committee became concerned that not having the option to waive the prohibition would undermine the concept of fair use for consumers and innovators.[40] Originally, the Commerce Committee, in consultation with the Assistant Secretary of Commerce for Communications and Information, issued DMCA rulemaking with the consultation of the Commissioner of Patents and Trademarks and the Register of Copyrights.[41] After a Senate and House conference, Congress modified these provisions by shifting the responsibility to the Librarian of Congress based upon a recommendation from the Register of Copyrights.[42]

C. Common Law Copyright Test: Idea v. Expression

In 1879, the Supreme Court decided *Baker v. Selden*[43] and established the scope of copyright protections afforded to original works.[44] The Court found that Selden's book illustrated only his unique system of book-keeping and reasoned that Baker read about Selden's unique system and decided to carry it out in a different way.[45] Therefore, the copyright protection extended only to the expression of an idea and not to the underlying idea itself.[46]

This dichotomy is codified in Section 102(b) of the Copyright Act that protects the original work of authorship, but draws a line on non-expressive intellectual concepts, such as procedures and processes.[47] Courts still rely on the *Baker* doctrine that copyright protections extend only to expression and not to ideas, systems, or processes.[48] The advent of embedded software in mass-produced consumer products and other forms of machinery posed significant challenges for the Librarian's interpretations of Section 102(b) when applied to complex software code during the Sixth Triennial Proceeding.[49]

The proposals from Right to Repair advocates seeking exemption from circumvention outlined arguments for the application of traditional copyright limitations, such as merger and fair use, that stem from the underlying concept of what is functional software versus what is expressive software.[50] However, the circuit court holdings were split on the idea versus expression dichotomy.[51] More importantly, the tests that circuit courts endorsed to delineate between what is functional and what is expressive software caused more confusion amongst lawmakers and the Copyright Office, instead of offering a clear solution.[52]

During both the 2015 and 2018 rulemaking sessions, manufacturers and trade associations warned the Librarian of the potential consequences that the new nature of software posed in granting exemptions to circumvention for repair purposes.[53] In *Oracle America, Inc. v. Google, Inc.*,[54] Oracle filed suit against Google alleging that Android's operating system infringed Oracle's copyright protections.[55] The jury ultimately found that Google infringed on Oracle's copyrights in thirty-seven Java software packages, but the jury returned a noninfringement verdict for eight decompiled security files.[56]

Although the circuit courts remain split on determining what is expressive versus functional software, the most recent Ninth Circuit opinion adopted the Second Circuit's "abstraction-filtration-comparison" test.[57] In doing so, the Ninth Circuit rejected the bright line approach that an expressive software component, which is part of a larger, functional component, is uncopyrightable because it is predominately functional in controlling processes or systems.[58]

During the Sixth Triennial Proceeding, the Librarian granted an exemption to permit circumvention of TPMs that protected electronic control units ("ECUs") from circumvention for the diagnosis, repair, or modification of vehicle software.[59] However, the Librarian disagreed with the Register's recommendation to include language that permitted circumvention of TPMs "on behalf of" vehicle and agricultural equipment owners.[60] This decision was in response to letters from the EPA, the California Air Resources Board ("CARB"), and the Department of Transportation ("DOT") urging the Librarian to prevent exemptions on the circumvention of TPMs.[61] In addition, the Librarian refused to enact the exemptions until twelve months after the conclusion of the rulemaking session in order for regulatory bodies to prepare for the lifting of the DMCA prohibition.[62]

The renewal of circumvention measures for vehicle and equipment software granted in the Seventh Triennial Proceeding added a new element of potential circumvention "on behalf of" third-parties.[63] By permitting this language, the Librarian significantly increased the likelihood of third-party tampering and modifications, while reducing the likelihood of traceability to the original actor.[64]

D. The Scope of Right to Repair Provisions

State legislative efforts were the next step in enabling third-party access to software for Right to Repair advocates.[65] In 2019, Right to Repair have revamped calls for action across the United States and have garnered national attention from the left-wing of the Democratic party, such as Elizabeth Warren.[66] This national momentum continues as states are proposing new legislation into 2020 and supporters are seeking a favorable ruling from the Federal Trade Commission's first Right to Repair hearing on the federal level.[67] However, if one state were to enact a Right to Repair bill, the legal conflicts arising from federally mandated Clean Air Act regulations and copyright law are innumerable.[68]

Right to Repair defines digital electronic equipment as equipment that is run, in part or in whole, by software embedded within the equipment.[69] This language groups mass-produced consumer products, such as iPhones and tablets, with large and complex machinery, inclusive of marine vessels, off-highway engines, construction and farm equipment, and stationary generators.[70] If a state enacts a Right to Repair bill, original equipment manufacturers who sell or manufacture in that state would face liability for third-party emissions violations. The provisions force manufacturing companies to hand over proprietary software to third-party users, but the regulatory environment remains intact.[71] Moreover, the state would be responsible for regulating emissions based on EPA standards that differ by machine type.[72]

Although firmware is normally encrypted and not proprietary, the definition of firmware pursuant to Right to Repair legislation includes several types of code that courts have protected from circumvention under Section 102(b).[73] Moreover, most bills require that manufacturers make available to independent repair shops or equipment owners the same diagnostic, and repair information that they make available to authorized repair dealers and at no cost to the third-party.[74]

Notably, some states, such as Minnesota, Illinois, and Massachusetts, require that manufacturers of digital electronic devices sold or used in the state must make all diagnostic repair tools available to third-party users that are provided to a

manufacturer's engineering staff.[75] In addition, most Right to Repair bills include a provision that would force manufacturers of digital electronic equipment for sale or use in-state to allow third-parties the ability to unlock security-related software modules for repair purposes.[76]

III. Blurred Lines: An Analysis of the Legal Implications of Active State Right to Repair Legislation

Right to Repair advocacy groups, such as iFixit and Repair.org, set the legal precedent for classifying mass-produced digital electronic devices with agricultural equipment in the Section 1201 rulemaking sessions.[77] However, lawmakers in several states have drafted Right to Repair bills with extremely broad provisions that would effectuate burdensome liability and litigation costs on manufacturing companies if enacted in one state.[78]

A. Impact #1: Enforcing Emissions Standards

Courts apply the *Haney* "knowingly" element of the tampering statute to establish liability when the manufacturer or dealer knew or should have known that by removing, bypassing, or modifying an emissions control device, he or she would violate the Clean Air Act.[79] However, if a state enacted Right to Repair legislation, the manufacturer or dealer could be held liable for third-party violations because the "knowingly" provision assumes a heightened standard for the manufacturer or authorized dealer in relation to the customer or owner.[80]

While Right to Repair legislation is silent on third-party liability, the provisions requiring access to proprietary code and firmware effectuates an equal relationship between the authorized dealer and third-party user in terms of the ability to modify software and render equipment noncompliant with the Clean Air Act.[81] In some states, the extent of this unauthorized access is the same as highly trained engineers responsible for writing complex source code for the repair of operating systems within agricultural and industrial equipment.[82]

Right to Repair legislation creates a liability structure that requires the manufacturer to remain compliant with federal regulations throughout the manufacture and sale of equipment in a state that lawfully provides repair shops and owners the right to access software, which could modify or bypass emissions control devices.[83]

The regulatory world that equipment manufacturers live in requires significant compliance costs in order to develop equipment parts and software pursuant to Clean Air Act regulations.[84] In addition, these regulations differ for marine vessels, nonroad construction, farm equipment, and off-highway engines.[85] Under Right to Repair legislation, the third-party responsibility to remain compliant with stringent emissions standards for complex machinery categorized as digital electronic equipment is extremely ambiguous.[86] If a third-party intentionally or unintentionally modified an emissions device, the third-party, in certain states, could sue the manufacturer for failure to provide appropriate diagnostic tools.[87]

As equipment technology continues to develop, repairs require modifications to sophisticated software embedded in the machine's operating systems that are rarely tangible and increasingly more difficult to trace, if modified, for reporting purposes.[88] Accordingly, in a Right to Repair state, a court's ability to objectively apply the "knowingly" standard in Section 203(a)(3) of the Clean Air Act becomes almost impossible for two primary reasons.[89] First, unlike the court in *Economy Muffler*, courts in jurisdictions with Right to Repair legislation would evaluate complex code or modifications to software instead of tangible parts that modified emissions in the vehicle or engine.[90] Second, the court would apply the "knowingly" indicator on a standard of review that would no longer exist due to third-party access to code and firmware.[91] The DOJ would bring claims against the state or manufacturer for unlawful modifications that would not be easily traced back to the original modifier.[92] Moreover, the "knowingly" standard would take on a different meaning because third-parties are provided access to software in the same manner as dealers and, in some cases, engineers, but without the reasonable training required to make sophisticated diagnostic repairs.[93]

Although courts have held major manufacturing companies, such as Volkswagen, liable under the tampering statute for "knowingly" developing software algorithms or defeat devices that bypass emissions standards in vehicles, the application of the "knowingly" standard was unambiguous. Federal reporting and testing requirements sufficiently proved knowledge prior to distribution and sale.[94] The primary legal issue that Right to Repair legislation would pose to both federal and state courts is the ability to apply the "knowingly" standard on a third-party populace, which is relatively unregulated and not properly trained, but legally allowed access to highly sophisticated code and firmware.[95]

Section 203(a) of the Clean Air Act requires that any modifications on engines or equipment must be reported to the original manufacturer and recertified.[96] If a Right to Repair bill were enacted in state, the court's holding in *Economy Muffler* indicates that the EPA could succeed in a defeat device claim against an independent shop owner for an employee violation if someone reported the violation.[97] However, the individual equipment owner's access to firmware and proprietary codes would create significant hurdles to both EPA compliance efforts for reporting and testing emissions regulations.[98]

Moreover, Right to Repair legislation affords third-party equipment owners access to software that controls emissions regulation, but without requiring the supervision of an employer or trained engineer.[99] The problems with enforcement of the Clean Air Act stem from the lack of compliance with the federal regulatory structure that Right to Repair legislation endorses through untrained third-party access to complex equipment software.[100]

Although Right to Repair provisions would, in practice, require companies to change how they operate prior to the sale of new engines and vehicles in order to avoid noncompliance, it is not clear how different jurisdictions would interpret the extent

of third-party access to software that could modify emissions.[101] Further, if a state enacted Right to Repair legislation, the EPA would have to expend resources on monitoring violations of emissions regulations in order for the DOJ to justify bringing a preemption claim in federal court.[102]

The EPA's regulation by litigation enforcement tactic would require constant surveillance of reporting and testing in states with Right to Repair legislation.[103] In essence, this state-by-state repair requirement unduly burdens manufacturers and dealers by forcing significant resource allocation towards outfitting equipment differently for sale in each state.[104] Although Section 209(a) of the Clean Air Act bars states from adopting or attempting to enforce emissions standards, the Right to Repair legislation has the ability to unravel the Clean Air Act's purpose without legally falling in scope of preemption.[105]

B. Impact #2: A Patchwork of States

Even if Right to Repair legislation could be preempted by Section 209(a), the court in *General Motors*, applied the consumer law duty to disclose doctrine in analyzing claims that GM "knowingly" sold a vehicle with a defeat device that created the appearance of low emissions.[106] Similar to the tampering provision, the duty to disclose doctrine placed GM in a distinguished class of superior industry knowledge, which required greater adherence to consumer protections in distributing the sale of complex machinery into the stream of commerce.[107]

If the court applied the duty to disclose doctrine in a Right to Repair state, the plaintiff would strategically benefit from alleging a consumer protection claim that would fail to apply to Section 209 of the Clean Air Act.[108] Under the state court standard of review, the plaintiff could bring claims that put him or her in an implied inferior position of being in a position to know of the defeat device prior to purchasing or selling the vehicle or engine.[109]

Accordingly, states with a consumer protection duty to disclose requirement that enact Right to Repair legislation would expose manufacturing companies to a damaging liability structure both pre-and-post sale.[110] For example, if manufacturers are required to provide third-party owners and repair shops the same access to proprietary software as its engineering staff, then the manufacturing company loses its 'exclusive' or 'superior' knowledge status in relation to the consumer.[111] However, the manufacturer is not afforded any protection against third-party modifications while being forced to provide the proprietary software in active Right to Repair legislation.[112] Plaintiffs could bring consumer protection suits similar to those in the *General Motors* case that would not be preempted by the Clean Air Act; however, courts would be completely devoid of clear traceability to the exclusive knowledge of the deceitful modification prior to the sale or purchase that would fix liability.[113]

Under the duty to disclose doctrine, the threshold to constitute "active concealment of material fact" is met when the defendant installs a defeat device prior to distribution.[114] Therefore, the manufacturer's ability to monitor third-party modifications in each state becomes nearly impossible and unduly burdensome.[115] This concrete example is one of several that could dismantle Congress' literal purpose in enacting the Clean Air Act, which prevents claims that have no effect on the applicable emissions standards and, if accepted, would lead to a chaotic patchwork of state standards.[116]

C. Preemption Potential

During both the 2015 and 2018 public hearings for the Section 1201 rulemaking sessions, manufacturers and industry experts expressed concerns about granting exemptions to anticircumvention because of the sophistication of software in electronic equipment.[117] The idea-expression dichotomy became less discernible and manufacturers feared that allowing unauthorized third-party access to diagnostic software would lead to violations against tampering prohibitions, intellectual property protections, and liability protections.[118]

The Right to Repair provisions requiring manufacturing companies to provide firmware, security-locks, and other diagnostic services that are provided to authorized dealers and, in some cases, engineers, could face potential federal preemption by Section 106 of the Copyright Act and/or could fail the licensee versus ownership test.[119] However, unlike the environment in 2015, the rapid development of embedded software in nearly all products and machinery suggest that copyright law is in need of significant alteration to afford the protections necessary for the rapid advancements in technology.[120]

Congress stated in Section 301(a) of the Copyright Act that no person may claim entitlement to a grant of rights under the common law or any State which are equivalent to the exclusive rights within Section 106 or within subject matter of Sections 102 and 103.[121] As explained earlier, the Right to Repair provisional language that would most likely be preempted by the Copyright Act under Section 106 is the requirement for a manufacturer to provide software including, but not limited to, proprietary software, such as microcode or root code.[122]

The broad scope of this language would likely interfere with the exclusive right and protection of source code that the Copyright Act affords its owners.[123] The idea-expressive dichotomy in Section 102(b) makes clear that originality of software makes the software eligible for copyright protection but does not necessarily mean that every aspect is protected if there are predominately functional components.[124]

Understanding what is and what is not protected from preemption under the Copyright Act took on a new and ambiguous meaning with electronic equipment.[125] Moreover, the different idea-expressive tests employed by the Second and Tenth circuit courts concerning software infringement adds to this developing "swiss cheese" impact in analyzing how Right to Repair state law could be preempted by the Copyright Act.[126] For example, the exclusive right protection in Section 106 would traditionally preempt Right to Repair state legislation and prevent third-party access to the manufacturer's exclusive right to proprietary software.[127]

However, the Section 1201 anticircumvention exemption process that "unlocked" proprietary software for third-party repair purposes has already conflicted with the manufacturers' exclusive right protections in Section 106.[128] Now that exemptions have been granted to circumvent proprietary software for repairs on electronic equipment and circuit courts are split on copyright infringement tests for software in general, who is to stop the states from demanding access to source code?[129]

The current circuit split on interpretations of Section 102(b) could allow for circumvention of source and/or access code to third-party repair shops and owners under Right to Repair legislation.[130] Copyright protection extends to computer programs as "literary works" pursuant to 17 U.S.C. § 102(a)(1).[131] However, the functionality of a software program has been interpreted by the courts to serve as a defense against the copyright protections afforded to expressive works.[132]

Under the *Oracle* abstraction-filtration-comparison test, the courts would have to interpret software in complex machinery that functions on many operating systems instead of one computer software program.[133] The court would then have to extract the uncopyrightable code including expressive source code that is incidental to the predominately functional code under review.[134] The problematic aspect of this common law test is that it has only been applied to basic software programs versus sophisticated operating systems in heavy equipment.[135]

Moreover, other circuit courts have interpreted Section 102(b) of the Copyright Act to deny copyright protection to software systems that contain expressive components, but are used in a functional manner or definition.[136] This bright line approach would be the most damaging if applied to Right to Repair legislation for manufacturers of heavy and complex equipment because most all operating systems include firmware or software embedded within the machinery that has a functional purpose.[137]

Courts utilize a four factor test in deciding whether a work affords copyright protections.[138] In applying *Oracle's* opinion to Right to Repair legislation, the fair use affirmative defense to copyright protection could be very detrimental to manufacturing companies.[139] Although the other three factors could be framed against protections for proprietary software in the context of Right to Repair bills, the first factor requires that the court must inquire into the commercial nature of the use.[140] If the court finds that the use of the copyrighted work is commercial, then the fair use defense is generally dismissed.[141] In the context of self-repair, the fair use analysis would generally be supported by a non-commercial use standard of repair and, thus, proprietary software would be subject to a ruling that would allow for circumvention under Section 1201.[142]

Moreover, there are exceptions to preemption by the Copyright Act that would allow states to grant additional rights that are different from those in a copyright.[143] One such exception is if the violation of a right is not equivalent to any of the exclusive rights under copyright law, then the state common law or statute will be protected from preemption.[144] For example, if Right to Repair legislation required distribution of firmware that was not technically proprietary because it did not contain unencrypted source code to third-party repair shops and owners, the distribution of this material to unauthorized repair shops and owners could be outside of the copyright law entirely.[145] However, the practice of putting this type of information into the hands of untrained personnel becomes magnified due to the complexities of the machinery.[146]

IV. With Great Power Comes Great Responsibility: Proactive Solutions for Lawmakers in the 'Internet of Things' Era

The 2019 Right to Repair bills include provisions for overly broad classifications that would force manufacturing companies and authorized dealers to provide third-party repair shops and owners with proprietary software.[147] This access would expose manufacturers to unnecessary risk in compliance with the Clean Air Act.[148]

The ideal proposal for a solution to this legal conflict would be to alter the provisional language in the Right to Repair bills that enact overly broad manufacturer classifications.[149] This would exempt complex and heavy machinery from being subject to the same standards as mass-produced consumer products.[150]

There are several reasons for eliminating broad classifications on software-enabled equipment. The first is related to compliance with regulations under the Clean Air Act.[151] The second is the liability schema that Right to Repair legislation would impose on the manufacturer.[152] Heavy equipment manufacturers are subject to regulatory mandates provided in EPA and DOT regulations.[153] Without sufficient language exempting manufacturers from liability after the sale of vehicles or engines, the manufacturing company would be subject to immense compliance costs for servicing products in state, which would take away from research and development.[154]

Third and finally, Right to Repair legislation hurts the third-party repair campaign's continuance by grouping electronic devices with equipment that is federally regulated.[155] The unfortunate fact for Do-It-Yourself proponents is that 'The Internet of Things' era will continue to transform consumers of everyday products into computer users and new industries will be brought into the scope of regulatory requirements for cybersecurity and product liability protections.[156] With that in mind, right to repair organizations should exclude industry sectors subject to regulations that currently exist.[157]

In rapid time, the ubiquity of software has fundamentally changed how major companies, hospitals, and agencies operate in order to prevent cyber-hacking into control systems that threaten autonomous mining trucks to basic coffee machines.[158] Some states have realized this new reality and revised their Right to Repair bills to include a particular class of vehicles or products.[159] This significantly reduces the potential for burdensome liability on equipment manufacturers while affording protections for productive consumer innovations

and enabling a streamlined process for future section 1201 rulemaking sessions.

A proposed solution for concerns surrounding the Register's Section 1201 rulemaking process should include a re-evaluation of the role of the Librarian of Congress in granting exemptions to anticircumvention.[160] Given the fast-paced technological environment, the Librarian of Congress is likely not equipped for prospective determinations on copyright infringement for software embedded devices.[161]

The Sixth and Seventh Triennial reviews indicate that technology continues to outpace copyright law.[162] Although the statutory law itself may serve the purpose that Congress intended, the content has changed significantly since codification.[163] In order to account for the introduction of autonomous vehicles and other 'smart' devices, copyright law and its rulemaking process should fall under the supervision of a federal agency that utilizes the resources and expertise required to address rulemaking with a practical understanding of how circumvention exemptions would impact cybersecurity, regulatory compliance, and intellectual property law.[164]

This change would likely not negatively affect the dynamic between the public and the federal agency officials in the rulemaking process for public hearings. However, it would likely result in a less taxing process on resources spent towards identifying future legal inconsistences in granting exemptions within the ever-changing software embedded universe of which copyright law has recently become involved.[165]

Finally, as the world becomes increasingly digital and connected in the 'Internet of Things' era, federal agencies that are affected by software-enabled devices, machinery, and other smart technologies should continue to weigh protections for companies and users prospectively.[166] The most damaging factors for circumvention of software in every day consumer products, automobiles, agricultural equipment, and construction equipment include the potential for cyber-hacking by bad agents in foreign countries and other intellectual property concerns that software embedded devices will continue to create in this globally interactive setting.[167]

Therefore, lawmakers should assume a more proactive role in federal agency regulatory rulemaking processes.[168] In doing so, Congress and the judiciary will better mitigate conflicts caused by introductions of advanced technologies that both circumvent and conflate the relationship between the law and the protections it bestows on the marketplace of goods, producers, and consumers in the digital age.[169]

V. Conclusion

The concept of Right to Repair is rooted in American culture. However, the advent of the 'Internet of Things' has required a different approach to circumventing diagnostic software and access codes that were considered tangible hardware only a decade ago. Maintaining the appropriate balance in federal and state law for software-enabled device protections and consumer ownership rights is not an easy task, but one that is exceedingly necessary to regulate highly intelligent and intangible technologies. The current Right to Repair legislation seeks to put an imbalanced, faulty scale in place by subjecting the manufacturing company and its dealer network, the third-party user, and the safety and health of society as a whole to unnecessary risk.

Endnotes

1 Elise Barsch, *California Becomes 20th State to Introduce Right to Repair this Year*, iFixit (Mar. 18, 2019), https://www.ifixit.com/News/california-right-to-repair-in-2019.

2 Ben Gotschall, *Support Fair Repair in Nebraska*, BOLD Neb. (Feb. 24, 2016), *http://boldnebraska.org/support-fair-repair-in-nebraska/.*

3 *See* Kyle Wiens, *New High-Tech Farm Equipment is a Nightmare for Farmers*, Wired (Feb. 5, 2015 7:00 AM), (https://www.wired.com/2015/02/new-high-tech-farm-equipment-nightmare-farmers/) (explaining that "[r]egulations are stricter, agribusiness is more consolidated, resources are more scarce, and equipment is infinitely more complicated and proprietary").

4 *Learn About "Right to Repair,"* R2R Solutions, https://r2rsolutions.org/right-to-repair-legislation/ (last visited Apr. 9, 2020).

5 *See* S. 107, 191st Leg., Reg. Sess. (Mass. 2019).

6 *Learn About "Right to Repair,"* R2R Solutions, https://r2rsolutions.org/right-to-repair-legislation/ (last visited Apr. 9, 2020).

7 *See* Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 80 Fed. Reg. 65,944, 65,954 (Oct. 28, 2015) (to be codified at 37 C.F.R. pt. 201) (exempting "computer programs that are contained in and control the functioning of motorized land vehicle").

8 *See* Karyn Temple Claggett, U.S. Copyright Office, Software-Enabled Consumer Products, at i-ii (2016) (noting that public comments and roundtable testimony suggest that drawing distinctions between types of software-enabled devices is complicated by the evolving nature of technology).

9 *See* Maria A. Pallante, U.S. Copyright Office, Recommendation to Determine Exemptions to the Prohibition on Circumvention, at 218 (2015) (stating that modern vehicles require access to and alternation of computer programs in order to operate and repair malfunctions).

10 *See* Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 80 Fed. Reg. at 65,953 (permitting the circumvention of electronic control units for the purposes of diagnosis, repair, and modification of modern automobiles and agricultural machinery).

11 *See id.* at 65,954 (concluding that reproduction of ECUs for diagnosis, repair, and modification is non-infringing activity as a matter of fair use).

12 *See* Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 83 Fed. Reg. 54,010, 54,022 (Oct. 26, 2018) (to be codified at 37 C.F.R. pt. 201) (proposing the removal of the requirement that circumvention be "undertaken by the authorized owner").

13 *See* Geoff Cooper, U.S. EPA, Comment Letter on Proposed Exemption for Vehicle Software (July 17, 2015), https://www.copyright.gov/1201/2015/USCO-letters/ (stating "Under Section 203(a), the Agency has taken enforcement action against third-party vendors who sell or install equipment that can 'bypass, defeat, or render inoperative' software designed to enable vehicles to comply with CAA regulations").

14 Env'tl. Prot. Agency, Clean Air Act Requirements and History (*last updated* Jan. 10, 2017), https://www.epa.gov/clean-air-act-overview/clean-air-act-requirements-and-history.

15 Env'tl. Prot. Agency, 1990 Clean Air Act Amendment Summary, https://www.epa.gov/clean-air-act-overview/1990-clean-air-act-amendment-summary.

16 Customer Choice in Automotive Repair Shops: Hearing Before the S. Comm. on Consumer Aff., Foreign Com., and Tourism., 107th Cong. 16-17

continued on page 37

Nothing Shellfish About It:

Why the FDA Needs to Update *The Seafood List* to Require Geographic Origin and Species-Specific Shrimp Labeling

*By Bree Evans**

Imagine you are seated at a nice restaurant down by the wharf where you live. You are celebrating a job offer, out for a romantic night with your partner, or just craving some salt air and a great meal. You would expect the shrimp tacos brought to your table to be fresh and local—the fishing boats are docked just across the boardwalk. But the seafood brought to your table seems off somehow, not quite the same as you remembered it. Unfortunately, this experience is more common than you might think, and it's getting harder to know how fresh and local your seafood really is. The worldwide ubiquity of shrimp has made this kind of seafood particularly susceptible to consumer confusion as to the geographic origin and species of shrimp.

This article will first look at the problem of shrimp labeling in the United States, will address the primary legal regimes under which shrimp is regulated, and will recommend the Food and Drug Administration adopt regulations mandating the use of species and geographic-origin labeling of shrimp.

I. Background

In 2014, an *Oceana*_study genetically tested shrimp in producing and consuming cities in the United States and found that 30% of shrimp were mislabeled, misleading, or mixed/mystery.[1] Moreover, all shrimp labeled "Ruby Red" or "rock shrimp" was mislabeled.[2] In New York, 43% of shrimp were misrepresented, and over 50% of the "wild shrimp" was actually farmed shrimp.[3] Seafood fraud is a growing global problem and includes mislabeling or other types of deceptive marketing with respect to quality, quantity, origin, and species.[4]

Not all sources of shrimp are susceptible to this type of fraud.[5] According to a recent Presidential Task Force Report, "[d]omestic fish and fishery products harvested under a federal fisheries management plan have low incidences of species substitution . . . [s]imilarly, state-managed fisheries have a high incidence of compliance . . . . "[6] This suggests domestically-harvested shrimp are accurately labeled. However, in 2017, the United States' imported shrimp industry was worth $6.5 billion,[7] and an estimated 92.5% of shrimp consumed in the United States is imported.[8] Therefore, it is likely that problems in the labeling of shrimp are predominantly traceable to imported products.

II. Analysis

The Food and Drug Administration (FDA) is responsible for ensuring that shrimp is properly labeled.[9] Additionally, under the Food Allergen Labeling and Consumer Protection Act of 2004, seafood retailers are required to declare the species of crustacean shellfish on food labels.[10]

To help producers properly market their food, the FDA has produced a *Guide to Acceptable Market Names for Seafood*, commonly known as *The Seafood List*.[11] There are fifty-eight listed shrimp species on *The Seafood List*.[12] Of the fifty-eight listed species on *The Seafood List*, there are only a handful of acceptable market names: most are "Shrimp," "Shrimp or Prawn," "Shrimp or Brown Shrimp," and "Shrimp or Pink Shrimp."[13] As a consumer, you are only likely to see one of those few labels while you could potentially be eating any number of hundreds of different species.

In fact, there are 470 shrimp and prawn species listed through the United States' Seafood Import Monitoring Program (SIMP), administered jointly by the National Marine Fisheries Service (NMFS) and Customs & Border Protection (CBP).[14] Through the SIMP program imported shrimp must be accompanied by harvest and landing data, and importers must maintain chain-of-custody records.[15] Unfortunately, however, SIMP is not oriented for consumers because the program does not require labeling, and the information collected is confidential under the program's authorizing statute, the Magnuson-Stevens Act.[16]

While perhaps useful as a marketing designation, the term "shrimp" tells a consumer absolutely nothing about the product's origin. "Shrimp" is a huge catch-all term that traditionally signaled to consumers the type of crustacean they were purchasing. But today's consumers operate in a far more sophisticated and global market, and want to know whether their shrimp was sustainably sourced,[17] whether it was likely produced using child and/or slave labor,[18] or whether it has a massive carbon footprint because it was cheaper to catch it in Mexico, then ship it to China, and then ship it back to the United States.[19] The Monterey Bay Aquarium's Seafood Watch analysis for shrimp includes eight best choice designations, fifty-nine good choice designations, and forty-four avoid designations; the rating system also assesses the industry for various sustainability factors including overfishing, impact on other species (i.e. endangered turtles caught in nets), use of pesticides and antibiotics, and includes purchase recommendations for types of seafood and where it should be coming from.[20] In all, there's a lot to research when buying shrimp, and this process could be made simpler through species and geographic-origin labeling. Moreover, the burden on industry in changing labeling requirements will be minimal because importers are already providing this information through the SIMP program.

* J.D. Candidate, American University Washington College of Law 2020

III. Recommendation

Critically, under the Federal Food Drug & Cosmetic Act, a food is deemed to be "misbranded" if its labeling is false or misleading, such as when "the name is the same as the name of another species or is confusingly similar to the name of another species and it is not reasonably encompassed within a group of species so named."[21] Because seafood markets globally sell hundreds of species of shrimp, it is unlikely generalized "shrimp" designations will satisfy this misbranding standard. Applying labels that contain species designation and country of origin information would be a critical step forward in informing consumers about their food, could make domestic shrimping more competitive in the market,[22] and could help reduce the global carbon footprint of the industry.[23] Since the species-reporting information of SIMP is part of data protected by the confidentiality provisions of the Magnuson-Stevens Act, the FDA would need to independently impose geographic-origin and species-specific labeling requirements under its own authorities.[24] The most basic mandate of the Federal Food, Drug, and Cosmetic Act is that the head of the FDA shall promulgate regulations setting reasonable standards of identity and quality, in the interest of promoting honesty and fair dealing for consumers.[25] Accordingly, the FDA appears to have the requisite statutory authority to implement regulations that would require geographic-origin and species-specific shrimp labeling.

Further, the FDA's adoption of species and geographic origin labeling of shrimp could help resolve a critiqued shortcoming of domestic seafood regulation. In 2009 a Government Accountability Office report condemned CBP, NMFS, and the FDA for not effectively collaborating with each other in fighting seafood fraud.[26] The FDA's adoption of species-specific labeling could be the start of the collaborative effort, would make detecting species substitution easier, could help flag repeat offenders faster, and will make eating shrimp a less stressful endeavor.

Endnotes

1 Larry Olmsted, *Seafood Deception: What's Wrong With Your Shrimp*, Forbes (Oct. 30, 2014), https://www.forbes.com/sites/larryolmsted/2014/10/30/foods-latest-scandal-whats-wrong-with-your-shrimp/#4673946e4a65.

2 *Id.*

3 *Id.*

4 Presidential Task Force on Combating IUU Fishing and Seafood Fraud, *Action Plan for Implementing the Task Force Recommendations* (2014) (distinguishing between illegal, unreported, and unregulated (IUU) fishing, and seafood fraud, as defined by the United States Government).

5 *See generally id.*

6 *Id.* at 7.

7 *Farmed shrimp output increased by about 6 percent in 2017*, Food & Agric. Org. U.N. (May 29, 2018), http://www.fao.org/in-action/globefish/market-reports/resource-detail/en/c/1136583/.

8 *See Fisheries of the United States, 2017 Report*, NOAA Fisheries (Dec. 12, 2018), https://www.fisheries.noaa.gov/resource/document/fisheries-united-states-2017-report; *see also* M. Shahbandeh, *Distribution Share of the U.S. Shrimp Import Volume in 2017 by Major Exporter*, Statista, https://www.statista.com/statistics/197268/us-shrimp-imports-from-major-exporters-by-volume/.https://www.fisheries.noaa.gov/resource/document/fisheries-united-states-2017-report (noting that the major shrimp exporting countries to the United States for 2017 were, in descending order: India, Indonesia, Ecuador, Thailand, Vietnam, and China).

9 *See, e.g.,* 21 U.S.C. §§ 301-399i (the Federal Food, Drug, and Cosmetic Act) (granting the Secretary the authority to promulgate regulations setting standards for definitions, quality, and standards of fill for food); 15 U.S.C. § 1451 *et seq.* (Fair Packaging and Labeling Act); 21 U.S.C. §§ 301, 321, 331-337 (as amended).

10 21 U.S.C. § 343(w)(1)-(2) (requiring products containing major allergens, including Crustacean shellfish, to be labeled to the level of species; a product that is not labeled this way is deemed mislabeled).

11 *The Seafood List*, U.S. Food & Drug Admin., https://www.accessdata.fda.gov/scripts/fdcc/?set=seafoodlist&sort=SCIENTIFIC_NAME&order=ASC&startrow=1&type=basic&search=shrimp.

12 *Id.* (distinguishing common names and scientific names from acceptable market names).

13 *Id.*

14 *See generally U.S. Seafood Import Monitoring Program to Include Shrimp and Abalone by December 31*, NOAA Fisheries, (Apr. 23, 2018), https://www.fisheries.noaa.gov/feature-story/us-seafood-import-monitoring-program-include-shrimp-and-abalone-december-31, (outlining harvest data requirements for shrimp imports effective as of December 31, 2018); *Shrimp and Abalone Compliance Provisions for the Seafood Monitoring Program Extended Through April 1, 2019*, Nat'l Ocean Council Comm. on IUU Fishing & Seafood Fraud, https://www.iuufishing.noaa.gov/RecommendationsandActions/RECOMMENDATION1415/Implementation.aspx (discussing the extension of "informed compliance" for shrimp from December, 2018 to April, 2019).

15 *See id.*

16 *See U.S. Seafood Import Monitoring Program*, NOAA, https://www.iuufishing.noaa.gov/RecommendationsandActions/RECOMMENDATION1415/FinalRuleTraceability.aspx (cautioning that the SIMP program is neither intended to be a labeling program nor consumer-facing) (last visited Apr. 13, 2020); *see also* 16 U.S.C. § 1885 (2020) (requiring information reported under the Seafood Import Monitoring Program to be confidential).

17 *See* Kim J. DeRidder & Santi Nindang, *Southeast Asia's Fisheries Near Collapse from Overfishing*, Asia Found. (Mar. 28, 2018), https://asiafoundation.org/2018/03/28/southeast-asias-fisheries-near-collapse-overfishing/ (reporting that IUU fishing is stressing local fish populations through overfishing, damaging coral reefs, and incidentally killing many other aquatic species such as dolphins, whales, and turtles).

18 *See, e.g.*, Human Rights Watch, Hidden Chains: Rights Abuses And Forced Labor in Thailand's Fishing Industry 4–6 (2018), https://www.hrw.org/report/2018/01/23/hidden-chains/rights-abuses-and-forced-labor-thailands-fishing-industry (detailing the human rights abuses, such as forced labor, prevalent in the Thai fishing industry).

19 *See* Maisie Ganzler, *Will Trade Tariffs Cause the American Fish Industry to Flop?*, Forbes (Aug. 16, 2018), https://www.forbes.com/sites/maisieganzler/2018/08/16/will-trade-tariffs-cause-the-american-fish-industry-to-flop/#7ff1ef6b1e8c (outlining the legal framework and economics, such as the cheap labor available in china, driving outsourcing of fish processing).

20 *See Shrimp Recommendations*, Monterey Bay Aquarium, https://www.seafoodwatch.org/seafood-recommendations/groups/shrimp?q=Shrimp&t=shrimp&o=906122601,1743823070,1681670080,1052796685,289868487,2031855841,1980655895 (denoting ten criterion analyzed in assigning designations) (last visited Apr. 13, 2020).

21 The Seafood List, *supra* note 11; *see also* 21 U.S.C. § 343(a).

22 *See* Oran B. Hesterman & Daniel Horan, *The Demand for 'local' food is growing—here's why investors should pay attention*, Bus. Insider, at 5-6, (Apr. 25, 2017) https://www.businessinsider.com/the-demand-for-local-food-is-growing-2017-4 (reporting on the increase in local food sales over the last decade).

continued on page 41

[6] *Id.*
[7] *Id.*
[8] Will Steffen et al., *Planetary Boundaries: Guiding Human Development on a Changing Planet*, SCIENCE, Feb. 13, 2015, at 1, https://science.sciencemag.org/content/347/6223/1259855?intcmp=trendmd-sci.
[9] *See infra* Part I.
[10] *See infra* Part II.
[11] *See infra* Part III.
[12] *See infra* Part IV.
[13] *See infra* Part V.
[14] Case Concerning the Gabčíkovo-Nagymaros Project (Hung. v. Slovk.), Judgment, 1997 I.C.J. Rep. 7, 88, 95 (Sept. 25) (separate opinion by Weeramantry, J.), https://www.icj-cij.org/files/case-related/92/092-19970925-JUD-01-03-EN.pdf.
[15] In the Arbitration Regarding the Iron Rhine Railway (Belg. v. Neth.), 27 R.I.A.A. 35, 66, ¶ 59 (Perm. Ct. Arb. 2005), https://legal.un.org/riaa/cases/vol_XXVII/35-125.pdf.
[16] U.N. Conference on Environment and Development, *Rio Declaration on Environment and* Development, U.N. Doc. A. CONF.151/26/Rev.1 (Vol. I), annex I, Principle 2 (Aug. 12, 1992), https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_CONF.151_26_Vol.I_Declaration.pdf [hereinafter *Rio Declaration*].
[17] *See, e.g.,* Rio Declaration, *supra* note 16, Principle 7 (describing states have "common but differentiated responsibilities"); Convention on Biological Diversity, preamble, June 5, 1992, 1760 U.N.T.S. 79, https://treaties.un.org/doc/Treaties/1992/06/19920605%2008-44%20PM/Ch_XXVII_08p.pdf (highlighting the "conservation of biological diversity is a common concern of humankind").
[18] *See generally* Andreas Føllesdal, *Sustainable Development, State Sovereignty and International Justice,* in TOWARDS SUSTAINABLE DEVELOPMENT 70-83 (1999); Stephen C. McCaffrey, *Keynote: Sustainability and Sovereignty in the 21st Century,* 41 DENV. J. INT'L L. & POL'Y 507 (2012); Stephen Stec, *Humanitarian Limits to Sovereignty: Common Concern and Common Heritage Approaches to Natural Resources and Environment*, 12 INT'L COMMUNITY L. REV. 361 (2010).
[19] *See* Rio Declaration, *supra* note 16, at Principle 2.
[20] Draft Global Pact for the Environment, art. 3, June 24, 2017, https://globalpactenvironment.org/uploads/White-paper-Global-pact-for-the-environment.pdf.
[21] *See infra* Part II.
[22] *See* Dom Phillips, *Bolsonaro Declares 'The Amazon is Ours' and Calls Deforestation Data 'Lies,* THE GUARDIAN (July 19, 2019, 5:00 PM), https://www.theguardian.com/world/2019/jul/19/jair-bolsonaro-brazil-amazon-rainforest-deforestation (last visited Mar. 21, 2020) ("We understand the importance of the Amazon for the world - but the Amazon is ours."); Adrianna Rodrigues, *Amazon Rainforest Fire a 'Crisis', Macron Says, But Brazil Pushes Back: What We Know,* USA TODAY (Aug. 25, 2019), https://www.usatoday.com/story/news/world/2019/08/23/amazon-rainforest-fire-international-crisis-emmanuel-macron-says/2093574001/ (last visited Mar. 21, 2020).
[23] *See* DAVID HUNTER, ET AL, INTERNATIONAL ENVIRONMENTAL LAW & POLICY 133-88 (5th ed. 2015) (summarizing the history of the three most recent summits addressing sustainable development).
[24] Antonio La Viña, et al, *The Outcomes of Johannesburg: Assessing the World Summit on Sustainable Development,* 23 SAIS REV. 53-70 (2003) (analyzing the positive and the negative results of the WSSD).
[25] *Id.* at 59–60 (including the Sustainable Agriculture and Rural Development Partnership Initiative, which brought together governments and civil organizations to support sustainable agriculture and rural development, and the Water Sanitation and Hygiene for All Initiative, a multilateral commitment between governments, NGOs and corporations to provide safe, affordable water and sanitation access to rural and urban areas).
[26] *See discussion infra* Part III B.
[27] U. N. ENV'T PROGRAMME, AGENDA ITEM 5: "STOCKHOLM + 50" – AN OPPORTUNITY TO CONSIDER A NEW LONG-TERM VISION FOR THE GLOBAL ENVIRONMENTAL AGENDA IN THE CONTEXT OF THE 2030 AGENDA (2018), https://papersmart.unon.org/resolution/uploads/5._discussion_paper_stockholm_50_and_vision.pdf.
[28] *Id.*
[29] Dominique Vidalon, "France's Macron to Back Push for Global Environment Rights Pact" REUTERS (June 24, 2017, 12:48 PM), https://www.reuters.com/article/us-world-climatechange-macron-idUSKBN19F0LG (last visited Apr. 12, 2020); President Emmanuel Macron, Address at the Summit for the Global Pact for the Environment (Sept. 19, 2017) (transcript available on France's Ministry for Europe and Foreign Affairs website); *see* Draft Global Pact for the Environment, *supra* note 20.
[30] U.N. CONFERENCE ON ENV'T AND DEV., *Agenda 21*, U.N. Doc. A/CONF.151/4 (1992), https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf.
[31] *Id.*
[32] Stakeholder Forum for a Sustainable Future, *Review of Implementation of Agenda 21 and the Rio Principles: Synthesis* (2012), https://sustainabledevelopment.un.org/content/documents/641Synthesis_report_Web.pdf.
[33] *Id.* at 13–14 (noting that funding arrangements were not delivered as promised and that developing nations are pursuing developed countries' unsustainable models of development, increasing pressure on the planet and its resources).
[34] *See discussion infra* Part III B.
[35] Writing in anticipation of Rio +5 in 1997, Professor John Dernbach concluded that "[d]espite all the promises and lofty rhetoric, the Earth Summit . . . had little discernible effect on U.S. law and policy." Although President Clinton appointed a Council on Sustainable Development, few of its recommendations would be implemented. John Dernbach, *U.S. Adherence to its Agenda 21 Commitments: A Five-Year Review*, 27 ENVTL. L. REP. 10504 (1997). Has the situation in the United States changed since the Dernbach analysis in 1997? *See also* JOHN DERNBACH, ED., STUMBLING TOWARD SUSTAINABILITY (2002) (analyzing U.S. implementation ten years after Rio and concluding that the U.S. has made some progress but has failed to respond to the seriousness of the problem or take advantage of the opportunities presented by sustainable development despite having the legal and policy tools to do so).
[36] G.A. Res. 55/2, Millennium Declaration (Sept. 18, 2000) [hereinafter *Millennium Declaration*].
[37] Kofi A. Annan, Secretary-General, *Foreword* to THE MILLENNIUM DEV. GOALS REP. (2005), https://unstats.un.org/unsd/mi/pdf/MDG%20Book.pdf.
[38] *Id.*
[39] The 2002 World Summit on Sustainable Development would identify additional sustainable goals, including to halve the number of people without access to sanitation and to achieve maximum sustainable yields of fisheries, both by 2015. Similarly, the Parties to the Biodiversity Convention adopted the so-called Aichi Targets on Biodiversity Conservation in 2010, many of which reflected the 2015 target date.
[40] The governments' commitment to setting new goals was set out in the outcome document of the U.N. Conference on Sustainable Development (Rio +20). G.A. Res. 66/288, ¶ 247, annex, The Future We Want, (Sept. 11, 2012) [hereinafter *The Future We Want*].
[41] G.A. Res. 70/1, Transforming our World: The 2030 Agenda for Sustainable Development (Sept. 25, 2015) [hereinafter *The 2030 Agenda*].
[42] *Id.* at ¶ 55.
[43] *See* Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development, A/Res/71/313, at 10-11 (July 10, 2017); *see also* United Nations, *E-Handbook for Sustainable Development Goal Indicators* (2019).
[44] Sharmila Murthy, *Translating Legal Norms into Quantitative Indicators: Lessons from the Global Water, Sanitation, and Hygiene Sector,* 42 WM & MARY ENVTL. L. & POL'Y REV. 385 (2012).
[45] *See infra* Part IV.
[46] *See infra* Part III B.
[47] *See* G.A. Res. 47/191, at 2 (Jan. 29, 1993); *see also* About the CSD, https://sustainabledevelopment.un.org/intergovernmental/csd/about (last visited March 21, 2020).
[48] *The Future We Want, supra* note 40, at ¶ 84.
[49] *Id.* at ¶ 84–85.
[50] *See* Format and Organizational Aspects of the High-Level Political Forum on Sustainable Development, A/Res/67/290 (Aug. 23, 2013); *see also*

High-Level Political Forum on Sustainable Development, U.N. Sustainable Dev. Goals: Knowledge Platform, https://sustainabledevelopment.un.org/hlpf (last visited March 24, 2020).

51 *The 2030 Agenda*, *supra* note 41, at ¶ 79 (encouraging member states to "conduct regular and inclusive reviews of progress at the national and sub-national levels, which are country-led and country-driven").

52 *Id.* at ¶ 84.

53 Sharmila Murthy, *supra* note 44.

54 *Id.*

55 *See generally* Walter Maatli & Ngaire Woods, The Politics of Global Regulation (2009).

56 *The Future We Want, supra* note 40, at ¶ 283.

57 *See generally* https://sustainabledevelopment.un.org/rio20 (last visited March 22, 2020).

58 *See* https://sustainabledevelopment.un.org/partnerships (last visited March 22, 2020).

59 *Id.*

60 For more on contextual accountability, see David B. Hunter, *Contextual Accountability, the World Bank Inspection Panel, and the Transformation of International Law in Edith Brown Weiss's Kaleidoscopic World,* forthcoming 32 Geo. Envtl. L. Rev. (Spring 2020).

61 *The Future We Want, supra* note 40, at ¶ 283.

Endnotes: Transboundary Air Pollution in Northeast Asia: Two Pathways Forward for China and South Korea *continued from page 12*

3 Social activism and public pressure can create strong incentives for governments to show that they are working to combat air pollution, but they might also have existing binding and nonbinding legal obligations to do so. Since the 1972 Stockholm Declaration, governments around the world have adopted international instruments that arguably reflect a human right to a clean environment although public international law has not yet recognized this right. *See* David Hunter et al., International Environmental Law and Policy 141, 434 (5th ed. 2015). The Stockholm Declaration emphasized "the importance of integrating environment and development, *reducing or eliminating pollution*, and controlling the use of renewable and non-renewable resources." (emphasis added). *Id.* at 141. Many countries have also written a human right to a clean environment into their own constitutions (e.g., South Africa, Portugal, Brazil, and Turkey). *Id.* at 1345.

4 *Ultrafine Dust Rising to 'Very Bad' Levels in Seoul*, Yonhap News (Dec.10, 2019), https://en.yna.co.kr/view/AEN20191210002100315; Kai Schultz & Suhasini Raj, *New Delhi, Choking on Toxic Air, Declares a Health Emergency*, N.Y. Times (Nov. 1, 2019), https://www.nytimes.com/2019/11/01/world/asia/delhi-pollution-health-emergency.html; Hannah Beech, *Bangkok Is Choking on Air Pollution. The Response? Water Cannons*, N.Y. Times (Jan. 31, 2019), https://www.nytimes.com/2019/01/30/world/asia/pollution-thailand-bangkok.html.

5 *See* Hunter, *supra* note 3, at 102 (describing how the current global economic system is biased against environmental protection).

6 3 R.I.A.A. 1905 (Apr. 15, 1935).

7 *See* Henry Fountain, *Calculating Air Pollution's Death Toll, Across State Lines*, N.Y. Times (Feb. 12, 2020), https://www.nytimes.com/2020/02/12/climate/air-pollution-health.html (demonstrating that nearly half of the premature deaths caused by air pollution between 2005 and 2018 were from pollutants from sources in other states).

8 Trail Smelter Case (United States v. Canada), 3 R.I.A.A. 1905, 1916, 1964 (Apr. 15, 1935), https://legal.un.org/riaa/cases/vol_III/1905-1982.pdf (highlighting the importance of preventing the mill from causing future environmental damage to Washington State).

9 *See id.* at 1917 (noting that the apple growers whose trees had been damaged asked the United States government to seek damages on their behalf); *see also* Hunter, *supra* note 3, at 511.

10 In 1927, the U.S. and Canada referred the transboundary pollution dispute to the International Joint Commission (IJC), which was created by the Boundary Waters Treaty of 1909. *See* Hunter, *supra* note 3, at 511; Treaty Between the United States and Great Britain Relating to the Boundary Waters and Questions Arising Along the Boundary between the United States and Canada, U.S.-U.K., Jan. 11, 1909, 36 Stat. 2448, https://legacyfiles.ijc.org/tinymce/uploaded/Boundary%20Waters%20Treaty%20of%201909_3.pdf.

11 *See* Hunter, *supra* note 3, at 473 (describing how the *Trail Smelter* Tribunal's decision eventually led to Principle 21 of the 1972 Stockholm Declaration, a principle widely viewed to reflect customary international law: "States have . . . the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.") (quoting U.N. Conference on the Human Environment, *Declaration of the United Nations Conference on the Human Environment*, U.N. Doc.A/CONF.48/14 (June 16, 1972)).

12 *See* S. Kor. Meteorological Admin., Korea Meteorological Administration, 21, (2018), http://www.kma.go.kr/download_01/2018english.pdf (increasing desertification in northern China creates "yellow dust," or dust and fine sand particles which are carried by the wind, and is affecting South Korea more frequently and at higher concentrations than ever before); *see also* Laura S. Henry et al., *From Smelter Fumes to Silk Road Winds: Exploring Responses to Transboundary Air Pollution over South Korea*, 11 Wash. U. Global Stud. L. Rev. 565, 567 (2012), https://openscholarship.wustl.edu/cgi/viewcontent.cgi?article=1413&context=law_globalstudies (discussing types of transboundary pollutants that affect South Korea).

13 S. Kor. Meteorological Admin., Korea Meteorological Administration, 21, 25, (2018), http://www.kma.go.kr/download_01/2018english.pdf (recommending carrying a mask when Asian Dust forecasts are high).

14 Henry, *supra* note 12, at 568.

15 Matthew A. Shapiro & Toby Bolsen, *Transboundary Air Pollution in South Korea: An Analysis of Media Frames and Public Attitudes and Behavior*, E. Asian Community Rev. 107, 110 (2018) (citing a 2016 study).

16 *See* Minbeob [Civil Act], Act. No. 471, Feb. 22, 1958, art. 750 (S. Kor.) (Definition of Torts); Henry, *supra* note 12, at 606 (showing a sufficient probability that the tort created the harm is enough to recover).

17 *See* Trail Smelter Case (United States v. Canada), 3 R.I.A.A. 1948, 1960 (1941), https://legal.un.org/riaa/cases/vol_III/1905-1982.pdf (ruling that damages should be held in a trust for affected persons to claim).

18 Seoul Central District Court [Dist. Ct.], 2007Ga-Hap16309, Feb. 3, 2010 (S. Kor.), http://www.law.go.kr/precSc.do?tabMenuId=tab67&section=&eventGubun=060101&query=16309#licPrec192339; *see also* Supreme Court, 2011Da7437, Sept. 4, 2014 (S. Kor.), http://library.scourt.go.kr/SCLIB_data/decision/2011Da7437.htm (affirmed).

19 Seoul Central District Court [Dist. Ct.], 2007Ga-Hap16309, Feb. 3, 2010 (S. Kor.); Henry, *supra* note 12, at 606; *see also*, Sinseob Kang et al., *Victory for local automakers in vehicle emissions lawsuit,* Shin&Kim (2010), http://www.shinkim.com/newsletter/201003/eng_214.html (outlining the automakers' litigation strategy and legal arguments).

20 Seoul Central District Court [Dist. Ct.], 2007Ga-Hap16309, Feb. 3, 2010 (1, 66) (S. Kor.).

21 *See* Henry, *supra* note 12, at 60 (requiring reciprocity discourages foreign plaintiffs from bringing suit). https://openscholarship.wustl.edu/cgi/viewcontent.cgi?article=1413&context=law_globalstudies.

22 Zhonghua Renmin Gongheguo Minshi Susong Fa (中华人民共和国行政诉讼**法**) [Civil Procedure Law] (promulgated by the Standing Comm. Nat'l People's Cong., March 8, 1982, effective Oct. 1, 1982), art. 282 (China) (providing that a Chinese court may refuse to execute a judgment when doing so would contradict Chinese law or violate state sovereignty, security, or public interest); Minsa sosong beob [Civil Procedure Act], Act No. 217, Feb. 22, 1958, *amended by* Act No. 14193, Mar. 29, 2016, art. 217, ¶ 1 (S. Kor.) (requiring recognition of the rendering court, proper service of process, consistency with Korean law, and reciprocity for the judgment of a foreign court to be executed by a Korean court).

23 *See* Hilton v. Guyot, 159 U.S. 113, 163–64, 210 (1895) (explaining a lack of reciprocity is a "distinct and independent ground" to not grant "comity," or "the recognition which one nation allows within its territory to the legislative, executive or judicial acts or another nation."); *see also* Antonio F. Perez, *The International Recognition of Judgments: The Debate Between Private and Public Law Solutions*, 19 Berkeley J. Int'l L. 44, 58–59 (2001) (explaining that a reciprocity agreement does not automatically give effect to either the rendering country or the enforcing country's judgments).

[24] Henry et al., *supra* note 12, at 607 (noting Korea and China's preference for diplomatic preference to address transboundary pollution issues and avoidance of utilizing each other's judicial systems because of the strict reciprocity requirements).

[25] Zhonghua Renmin Gongheguo Minshi Susong Fa (中华人民共和国行政诉讼法) [Civil Procedure Law] (promulgated by the Standing Comm. Nat'l People's Cong., March 8, 1982, effective Oct. 1, 1982), art. 282 (China).

[26] The *Trail Smelter* Tribunal was successful because both parties consented to the Convention of Ottawa and the Tribunal's ultimate findings and the U.S. was able to present the Tribunal with enough scientific evidence to conclusively prove causation. *See* Trail Smelter (United States v. Canada), 3 R.I.A.A. 1905, 1923–24 (Ottawa Con. 1941) (utilizing meteorological data on air currents to determine concentrations of Sulphur dioxide emitted from the smelter); Convention for Damages Resulting from Operation of Smelter at Trail, British Columbia, U.K.-U.S., art. 12, Apr. 15, 1935, T.S. No. 893.

[27] Seoul Central District Court [Dist. Ct.], 2007Ga-Hap16309, Feb. 3, 2010, 43–44 (S. Kor.), http://www.law.go.kr/%ED%8C%90%EB%A1%80/(2007%EA%B0%80%ED%95%A916309 (examining epidemiological studies to determine the extent to which external air pollution can lead to increased incidences of asthma and finding through these studies that such evidence is relatively weak, and that indoor air quality is a more accurate indicator of asthma risk); *Trail Smelter*, 3 R.I.A.A. at 1923–24 (relying on scientific data and monitoring of Sulphur dioxide emissions from the smelter in order to determine causation and damages).

[28] *See* Chung Min-Jung, *International Law-Related Resolutions of the 20th National Assembly with a Focus on Territorial Sovereignty and International Environmental Law*, 6 S. Kor. Y.B. Int'l L. 313, 317 (2018) (recommending the South Korean parliament shift its non-confrontational approach towards China and transboundary air pollution).

[29] *See, e.g.*, Henry et al., *supra* note 12, at 569 (finding that while China and South Korea participate in multilateral environmental frameworks, both are reluctant to adhere to binding emissions limits).

[30] *See* Chung, *supra* note 28.

[31] *See* Jonathan Iversen, *Transboundary Air Pollution: Moving Toward International Consensus*, 13 Colo. J. Int'l Envtl. L. & Pol'y 161, 169 (2002) (noting recognition by the United States that Canadian coal-fired plants are responsible for transboundary air pollution, and that these plants need to switch to natural gas in order to reduce emissions in a manner consistent with the Ozone Annex).

[32] *See* Joint Research Project for Long-Range Transboundary Air Pollutants in Northeast Asia, *Summary Report of the 4th stage (2013-2017) LTP Project* 8 (2019), http://www.craes.cn/xxgk/zhxw/201911/W020191120811776781324.pdf (concluding that China accounts for 32% of South Korea's ultrafine dust and 25% of Japan's ultrafine dust, whereas Japan and South Korea's contribution to pollution in China is 1% and 2% respectively).

[33] *See* Kim Yeon-Joo & Lee Eun-Joo, *More Than 30% of Ultra Fine Dust in S. Korea Came From China: Tripartite Study*, Pulse by Maeil Bus. News Korea (Nov. 20, 2019), at 1–2 https://pulsenews.co.kr/view.php?year=2019&no=965314 (explaining the research by the Joint Research Project for Long-range Transboundary Pollutants in Northeast Asia).

[34] The Convention on Environmental Impact Assessment in a Transboundary Context ("Espoo Convention"), Sept. 10, 1997, 1989 U.N.T.S. 309, 309-11 (noting EIA procedures of Espoo Convention apply to certain activities that are likely to cause a significant adverse transboundary impact).

[35] *See, e.g.*, Cormac Cullinan, Integrated Coastal Management Law: Establishing and Strengthening National Legal Frameworks for Integrated Coastal Management 50 (2006) (The duty to prevent, reduce, and control transboundary harm appears in various treaties and state parties may be required to fulfill this obligation by "employing best practical means at disposal, and in accordance with their capabilities, or best practicable means at their disposal or best environmental practice and best available technology.").

[36] John H. Knox, *The Myth and Reality of Transboundary Environmental Impact Assessment*, 96 Am. J. Int'l L. 291, 293 (2002) (highlighting the difficulties and drawbacks of Principle 21).

[37] Neil Craik & Timo Koivurova, *Subsidiary Decision Making under the Espoo Convention: Legal Status and Legitimacy*, 20 Rev. Eur. Comp. & Int'l Envtl. L. 258, 260 (2011) (explaining the Espoo Regime Structure).

[38] *See* Jason Morrison & Naomi Roht-Arriaza, *Private and Quasi-Private Standard Setting*, *in* The Oxford Handbook of International Environmental Law 1 (David Bodansky et al. eds., 2008) ("This article examines who creates private and quasi-private standards and why"); *see also* Michael P. Vandenbergh, *Private Environmental Governance*, 99 Cornell L. Rev. 129, 147–60 (2013) (explaining that examples of private standard-setting include green building standards, Marine Stewardship Council, equator principles, and forest certification schemes).

[39] *See Ultrafine Dust in Seoul, Beijing Has Similar Ingredients: Report*, Yonhap News (Jan. 22, 2020), at 1, https://en.yna.co.kr/view/AEN20200122003600315 ("Ultrafine dust in the capitals of South Korea and China is made up of similar components, most coming from automotive emissions and coal power plants.").

[40] Yulia Yamineva & Seita Romppanen, *Is Law Failing to Address Air Pollution? Reflections on International and EU Developments*, 26 Rev. Eur. Comp. & Int'l Envtl L. 189, 198 (2017) (citing the various alternatives to addressing air pollution).

[41] Min-Jung Chung, *International Law-Related Resolutions of the 20th National Assembly with a Focus on Territorial Sovereignty and International Environmental Law*, in 6 S. Kor. Y.B. of Int'l L. 313, 317 (2018).

Endnotes: Splitting Canada's Northern Strategy: Is it Polar Policy Mania? *continued from page 16*

[33] *See* Lloyd Axworthy, *Address at the Inauguration of the Arctic Council*, House of Commons (Sept. 19, 1996), https://www.ourcommons.ca/Content/archives/committee/352/fore/reports/07_1997-04/chap3-e.html (discussing various entities with a stake in the Arctic).

[34] *See, e.g.*, Adam Stępień & Timo Koivurova, *Arctic Europe: Bringing together the EU Arctic Policy and Nordic cooperation*, Arctic Ctr. of the U. of Lapland (2017), https://lauda.ulapland.fi/bitstream/handle/10024/62766/Koivurova.Timo.pdf?sequence=2&isAllowed=y (discussing the EU's interest in the Arctic).

35 *See* André Gattolin & Damien Degeorges, *High geopolitics in the High North: A call for a deeper EU engagement*, Euractiv (Dec. 17, 2019), https://www.euractiv.com/section/arctic-agenda/opinion/high-geopolitics-in-the-high-north-a-call-for-a-deeper-eu-engagement/ (demonstrating the EU referencing the Arctic).

[36] *See* Ronald O'Rourke et al., Cong. Research Serv., R41153, Changes in the Arctic: Background and Issues for Congress 55 (2018).

[37] *See* Secretariat of the Antarctic Treaty, https://www.ats.aq/e/antarctictreaty.html (last visited Feb. 28, 2020) (noting that there are now fifty-four parties to the Antarctic Treaty); Antarctic and Southern Arctic Coalition, https://www.asoc.org/advocacy/antarctic-governance/overview-of-antarctic-governance. (last visited Feb. 28, 2020).

[38] Thomas Omestad, *Global Warming Triggers an International Race for the Arctic*, U.S. News & World Reports (Oct. 9, 2008), http://www.usnews.com/articles/news/ world/2008/10/09/global-warming-triggers-an-international-race-for-the-artic/photos/#1.

[39] *See* Governments of Yukon, Northwest Territories and Nunavut, Developing a New Framework for Sovereignty and Security in the North, 8-9 (Apr. 2005), http://www.gov.yk.ca/news/pdf/sovereignty_and_security_in_the_north.pdf.

[40] *See id.*

[41] *See* University of Helsinki, *Research gaps in environmental science disciplines across the Arctic,* Science Daily (Jan. 2, 2020), https://www.sciencedaily.com/releases/2020/01/200102143437.htm ("To understand these changes, field measurements that adequately represent environmental variation across the Arctic as a whole are crucial.").

[42] *See* Elisabeth Rosenthal, *Race Is On as Ice Melt Reveals Arctic Treasures,* N.Y. Times (Sept. 18, 2012), https://www.nytimes.com/2012/09/19/science/earth/arctic-resources-exposed-by-warming-set-off-competition.html.

[43] *See* Greer, *supra* note 11.

[44] *See* Jim Bell, *supra* note 12.

[45] *See id.*; *see also* Greer, *supra* note 11.

[46] *See* Michael Levitt, *Nation-Building At Home, Vigilance Abroad: Preparing For The Coming Decades In The Arctic: Report of the Standing Committee on Foreign Affairs and International Development*, House of Commons, 42nd Parliament, 1st Session (Apr. 2019) at 21, https://www.ourcommons.ca/Content/Committee/421/FAAE/Reports/RP10411277/faaerp24/faaerp24-e.pdf.

Endnotes: Canada's Arctic Policy Framework: Governance Transformation in Nunavut *continued from page 19*

[7] *See generally* Nunavut Land Claims Agreement, Tunngavik Fed'n of Nunavut-Can., May 25, 1993, https://gov.nu.ca/sites/default/files/files/013%20-%20Nunavut-Land-Claims-Agreement-English.pdf (giving the Inuit control over the Nunavut territory).

[8] *See* Thomas R. Berger, *Conciliator's Final Report: Nunavut Land Claims Agreement Implementation Planning Contract Negotiations for the Second Planning Period*, Crown-Indigenous Relations and N. Affairs Can. (Mar. 1, 2016), https://www.rcaanc-cirnac.gc.ca/eng/1100100030982/1542915160660?wbdisable=true.

[9] Nick Murray, *As Nunavut turns 20, where is it on Inuit hiring goals?*, CBC (Apr. 9, 2019), https://www.cbc.ca/news/canada/north/article-23-nunavut-inuit-employment-1.5084889

[10] Department of Executive and Intergovernmental Affairs - Nunavut Bureau of Statistics: *Canada's Population Estimates, Third Quarter 2019 (Preliminary)* (Jan. 8, 2020), https://www.gov.nu.ca/sites/default/files/nunavut_and_canada_population_estimates_statsupdate_third_quarter_2019.pdf (showing the official population estimates for Nunavut).

[11] Nunavut Dep't of Exec. & Intergovernmental Affairs, Nunavut Infrastructure: Building our Infrastructure, https://gov.nu.ca/eia/documents/nunavut-infrastructure (last visited Jan. 24, 2020).

[12] Nunavut Wildlife Management Board, Nunavut Maps, https://www.nwmb.com/en/139-english/sidebars/environment/110-nunavut-maps.

[13] Wikipedia (last visited Jan. 24, 2020) https://upload.wikimedia.org/wikipedia/commons/a/aa/SSI_Micro_Nunavut.jpg.

[14] William B. Henderson, *Indigenous Self-Government in Canada* (Feb. 7, 2006), https://www.thecanadianencyclopedia.ca/en/article/aboriginal-self-government

[15] Constitution Act, 1982, *being* Schedule B to the Canada Act, 1982 (U.K.) at § 35; *see also Section 35 of the Constitution Act 1982*, Indigenous Corp. Training Inc. (Sept. 21, 2014), https://www.ictinc.ca/blog/section-35-of-the-constitution-act-1982.

[16] Hayden King & Shiri Pasternak, *Canada's Emerging Indigenous Rights Framework: A Critical Analysis*, Yellowhead Inst. (June 5, 2018), https://yellowheadinstitute.org/rightsframework/.

[17] *Nunavut Economic Development Strategy: Building a Foundation for the Future*, The Sivummut Econ. Dev. Strategy Grp. (June 2003), https://nni.gov.nu.ca/sites/nni.gov.nu.ca/files/09nedsE.pdf.

[18] *Study on Addressing the Infrastructure Needs of Northern Aboriginal Communities*, Ctr. for the N. at the Conference Bd. of Can. (2014), http://www.naedb-cndea.com/reports/northern-infrastructure-report.pdf.

[19] *See Departmental Plan 2019-20* Crown-Indigenous Rel. and N. Affairs Canada, https://www.rcaanc-cirnac.gc.ca/eng/1553021710453/1553021765428 (stating how CIRNA will support First Nations).

[20] *See generally*, *Nunavut Region*, Indigenous and N. Affairs, Gov't Can., https://www.aadnc-aandc.gc.ca/eng/1100100027774/1100100027775 (explaining the NRO).

[21] *See generally, Backgrounder – Nunavut Land Claims Agreement & Settlement Agreement*, Gov't Can. (May 4, 2015), https://www.canada.ca/en/news/archive/2015/05/backgrounder-nunavut-land-claims-agreement-settlement-agreement.html (describing the Nunavut Land Claims Agreement).

[22] John Higginbotham, *Nunavut and the New Arctic,* 27 CIGI Policy Brief, July 2013, at 1, https://www.cigionline.org/sites/default/files/no27.pdf (exploring the Nunavut's unique social and economic situation).

[23] *The North*, Nat. Res. Can., https://www.nrcan.gc.ca/earth-sciences/geography/atlas-canada/selected-thematic-maps/16886 ("Canada's north is a vast area, the three territories alone, Nunavut, Yukon and Northwest Territories, encompass approximately 40% of the total area of Canada. . . The presence of permafrost is just one of many ways of demarcating the northern region of Canada, as it provides a natural boundary between northern and southern Canada.")

[24] *See generally Departmental Plan 2019-20*, *supra* note 19 (expounding that the mission of the Crown-Indigenous Relations and Northern Affairs is to assist the government of Northern First Peoples).

[25] *See generally* Michael Levitt, *Nation-Building At Home, Vigilance Abroad: Preparing For The Coming Decades In The Arctic: Report of the Standing Committee on Foreign Affairs and International Development*, House of Commons, 42nd Parliament, 1st Session (Apr. 2019), https://www.ourcommons.ca/Content/Committee/421/FAAE/Reports/RP10411277/faaerp24/faaerp24-e.pdf.

[26] *See Departments and Agencies*, Gov't Can., https://www.canada.ca/en/government/dept.html (listing all of the Canadian agencies).

[27] *See Arctic and Northern Policy Framework, supra* note 2.

[28] *See Arctic and Northern Policy Framework, supra* note 2.

[29] *See Government of Canada Launches Co-Developed Arctic and Northern Policy Framework*, Crown-Indigenous Rel. and N. Affairs Canada (Sept. 10, 2019), https://www.canada.ca/en/crown-indigenous-relations-northern-affairs/news/2019/09/the-government-of-canada-launches-co-developed-arctic-and-northern-policy-framework.html.

[30] *See Inuit-Crown Partnership Committee Advances Agenda*, Inuit Tapiriit Kanatami (May 18, 2017), https://www.itk.ca/inuit-crown-partnership-committee-advances-agenda/ ("The Inuit Nunangat Declaration was signed by ministers of the Government of Canada and the leadership of Inuit Tapiriit Kanatami, the Inuvialuit Regional Corporation, Makivik Corporation, the Nunatsiavut Government, and Nunavut Tunngavik Incorporated as partners in the creation of prosperity for Inuit which benefits all Canadians.").

[31] *See* Constitution Act, 1982, *being* Schedule B to the Canada Act, 1982 (U.K.) at §§ 91, 92, 30, 31.

[32] *See* Levitt, *supra* note 25 at 34.

[33] *See Self-Government*, Crown-indigenous Relations and N. Affairs Can., https://www.rcaanc-cirnac.gc.ca/eng/1100100032275/1529354547314.

[34] *See 4 Economic Challenges Facing the Government of Nunavut*, OTUS Grp. (June 1, 2017), https://www.otusgroup.com/nunavut-economic-challenges/.

[35] *See* John Talberth, *Sustainable Development Opportunities in Nunavut*, sustainable Econ. (Feb. 20, 2018), https://sustainable-economy.org/sustainable-development-opportunities-nunavut/.

[36] *See Circumpolar Affairs*, Dep't of Executive and Intergovernmental Aff., https://www.gov.nu.ca/eia/information/circumpolar-affairs (last visited Jan. 24, 2020).

[37] *See* Mary Simon, *A New Shared Arctic Leadership Model*, Crown-indigenous Relations and N. Affairs Can. (Mar. 2017), https://www.rcaanc-cirnac.gc.ca/eng/1492708558500/1537886544718.

Endnotes: Climate Gentrification: An Imminent Threat to Oceanfront Cities *continued from page 21*

[20] Harris, *supra* note 6.

[21] Myungshik Choi et al., *Can Community Land Trusts Slow Gentrification?*, Hous. All. of Pa. (Sept. 27, 2017), https://www.tandfonline.com/doi/abs/10.1080/07352166.2017.1362318?journalCode=ujua20& (describing how CLT's build assets in neighborhoods and lead to increased diversity).

[22] Derek Hyra, *Commentary: Causes and Consequences of Gentrification and the Future of Equitable Development Policy*, 18 Cityscape: J. Pol'y Dev. & Res. 171, 171 (2016) (contemplating the reasons that millennials are moving into previously low-income areas).

[23] *Id.* at 173 (linking displacement of low-income residents to a lack of representation in their neighborhoods after gentrification).

[24] Natalie Delgadillo, *D.C. is Being Sued for Gentrifying. Here's What to Know about the Case*, DCist (Jun. 15, 2018, 10:18 AM), https://dcist.com/story/18/06/15/dc-is-being-sued-for-gentrifying-he/ (describing a 2018 class action lawsuit filed against Washington, D.C. alleging that the city implemented discriminatory policies favoring millennials and disadvantaging residents of the city's historically African American community).

[25] 947 F.3d 1159, 1175 (9th Cir. 2020) (holding that the political branches, rather than the courts, must be responsible for addressing climate change).

[26] *Id.* at 1165.

[27] *Id.* at 1166.

[28] *Id.* at 1172 (stating that the plaintiffs' requests require the judiciary to pass judgement on policymaking).

[29] *Id.* (reasoning that the complexity and long-lasting nature of climate change makes it more suitable for legislative branches to confront it).

[30] *Id.* at 1168.

[31] *See* Lujan v. Defenders of Wildlife, 504 U.S. 555, 560 (1992) (holding that an injury must be concrete, particularized, and actual for a court to address it).

[32] *See* Adja Popovich, Livia Albeck-Ripka & Kendra Pierre-Louis, *95 Environmental Rules Being Rolled Back Under Trump*, N.Y. Times (Dec. 21, 2019), https://www.nytimes.com/interactive/2019/climate/trump-environment-rollbacks.html (demonstrating the various ways that the government has been choosing policies that harm the environment).

Endnotes: A Silver Bullet: Could Data Linking Urban Heat Islands to Housing Discrimination Curtail Environmental Racism? *continued from page 23*

evidence test solely on the plaintiff in order to show possible disparate impact and proceed to discovery).

[27] Albert Huang, *Environmental Justice and Title VI of the Civil Rights Act: A Critical Crossroads*, A.B.A. (March 1, 2012), https://www.americanbar.org/groups/environment_energy_resources/publications/trends/2011_12/march_april/environmental_justice_title_vi_civil_rights_act/.

[28] *Evaluation of the EPA Office of Civil Rights*, Deloitte Consulting LLP 1, 19 (2011), https://www.documentcloud.org/documents/723416-epa-ocr-audit.html.

[29] *See* Vann R. Newkirk, II, *Fighting Environmental Racism in North Carolina*, New Yorker (Jan. 16, 2016), https://www.newyorker.com/news/news-desk/fighting-environmental-racism-in-north-carolina (discussing how a historically Black community outside of Chapel Hill, NC has struggled since the 1970's to limit pollution from a nearby landfill).

[30] *See* Moshman, *supra* note 14, at 16; *see also* Press Release, Senator Kamala Harris, Harris, Ocasio-Cortez Announce Landmark Legislation to Ensure Green New Deal Lifts Up Every Community (July 29, 2019), https://www.harris.senate.gov/news/press-releases/harris-ocasio-cortez-announce-landmark-legislation-to-ensure-green-new-deal-lifts-up-every-community.

[31] *See e.g.,* Affirmatively Furthering Fair Housing, 80 Fed. Reg. 42272 (2015) (to be codified at 24 C.F.R. pts. 5, 91, 92, 570, 574, 576, 903) (requiring grantees to conduct impact assessments that examine whether there are any housing patterns or practices that promote bias based on any protected class under the Fair Housing Act and to create a plan for rectifying fair housing barriers); Affirmatively Furthering Fair Housing, 85 Fed. Reg. 2041 (Jan. 14, 2020) (to be codified in 24 C.F.R. 5, 91, 92, 570, 574, 576, 903, and 905) (requiring grantees to continue to conduct an impact analysis but removing barriers considered burdensome to some grantees such as public housing agencies as well as HUD to measure segregation levels or to fully account for impact on FHA protected classes).

Endnotes: A Silver Bullet: Could Data Linking Urban Heat Islands to Housing Discrimination Curtail Environmental Racism? *continued from page 30*

(2002) [hereinafter Customer Choice Hearing] (statement of Dale Feste, President, Dale Feste Automotive).

[17] *See* 42 U.S.C. § 7522(a)(3) (1998).

[18] 371 F. Supp. 381 (M.D. Fla. 1974).

[19] *See id.* at 384–85 (holding that an act done knowingly is done both voluntarily and intentionally and not by "mistake or accident" pursuant to the statutory language).

[20] 762 F. Supp. 1242 (E.D. Va. 1991).

[21] *See id.* at 1245 (concluding that the House Committee on Interstate and Foreign Commerce endorsed the term "knowingly" given by the court in *Haney Chevrolet*).

[22] *See id.* at 1243 (stating that Economy Muffler employees installed two-way converters instead of three-way converters, which are not in compliance with EPA emission control standards).

[23] *See id.* (concluding that Economy Muffler regularly received Clean Air Act compliance notifications containing the details related to converter installation). *See generally Haney Chevrolet*, 371 F. Supp. at 384–85 (holding that the dealer was liable for "knowingly" rendering the vehicle noncompliant and then releasing it from his custody).

[24] *See Econ. Muffler & Tire Ctr. Inc.*, 762 F. Supp. at 1245.

[25] *Id.*

[26] *See* Andrew P. Morriss, Bruce Yandle & Andrew Dorchak, *Regulating by Litigation: The EPA's Regulation of Heavy-Duty Diesel Engines*, 56 Admin. L. Rev. 403, 407 (2004) (defining regulation by litigation as a "[m]eans of imposing substantive regulatory provisions on regulated entities without the public participation and the checks and balances of the rulemaking process").

[27] *See In re Volkswagen "Clean Diesel" Litigation*, 2017 WL 66281, at *3 (N.D. Cal. Jan. 4, 2017) (holding that Volkswagen is subject to $18 billion in penalty fines for emissions non-compliance violations).

[28] *See EPA Settle with Derive Systems Over Aftermarket Emissions Defeat Devices in Vehicles*, Dep't of Just. (Sept. 24, 2018) [hereinafter EPA Settlement], https://www.justice.gov/opa/pr/department-justice-epa-settle-derive-systems-over-aftermarket-emissions-defeat-devices (stating that the Court held Derive liable for $6.25 million after selling engine software and parts under the names "Bully Dog" and "SCT" to defeat emissions control systems in vehicles and trucks).

[29] *See generally* Costas Paris, *JPMorgan Says Shipping Loans Will Go Only to Clean Vessels*, Wall Street J. (Sept. 10, 2019 2:11 PM), https://www.wsj.com/articles/j-p-morgan-says-shipping-loans-will-go-only-to-clean-vessels-11568139086 (stating that shipping capital for marine vessels will be granted based on compliance with new U.N.-directed International Marine Organization global emissions regulations extending to 2050).

[30] *See* In re Jackson v. Gen. Motors Corp., 770 F. Supp. 2d 570, 576 (S.D.N.Y. 2011) (holding that plaintiff's state negligence and products liability claims regarding failure to warn of dangers associated with diesel exhaust fumes were dismissed because the Clean Air Act preempts claims related to the control of emissions).

[31] *See* Counts v. Gen. Motors, LLC, 237 F. Supp. 3d 572, 600–01 (E.D. Mich. 2017) (holding that GM actively concealed and was in a superior position to know of the defeat device).

[32] *Id.*

[33] *Id.* at 588.

[34] *See id.* (emphasizing that plaintiffs' suit does not attempt to enforce emissions standards and the court will not allow federal legislation to encroach on established state law).

[35] *See* Engine Mfrs. Ass'n v. EPA, 88 F.3d 1075, 1080 (D.C. Cir. 1996) (stating that Congress extended federal regulation under Title II to include nonroad pollution sources and changed the definition of manufacturer to include the assembling of nonroad engines and nonroad vehicles).

[36] *See* S. Rep. No. 105-190, at 8 (1998) (stating that "[c]opyright owners will hesitate to make their works readily available on the Internet without reasonable assurance that they will be protected against massive piracy").

[37] *See* Karyn Temple Claggett, U.S. Copyright Office, Report of the Register of Copyrights: Section 1201 of Title 17, at 45 (2017) (explaining that the point of the provision was to provide a federal prohibition against descrambling or decrypting which is not technically an infringement of a copyright owner's exclusive rights under § 106, but harms the value of the work).

[38] *See id.* at 8 ("[A] technological measure effectively controls access to a work. . . [i]n the ordinary course of operation."). *See generally* 17 U.S.C. § 1201(a)(3)(A) (1998) ("[T]o 'circumvent a technological measure' means to descramble a scrambled work, to decrypt an encrypted work, or otherwise to avoid, bypass, remove, deactivate, or impair . . . to gain access to the work.").

[39] *See* S. Rep. No. 105-190, at 1–2, 32–33 (1998) (defining the DMCA's purpose as facilitating the development of electronic commerce in the digital age).

[40] *See* Claggett, *supra* note 37, at 22 (explaining that the House Commerce Committee recognized that the public's ability to access and use copyrighted materials is crucial to economic, social, and educational vitality).

[41] Claggett, *supra* note 37, at 23.

[42] *See* Claggett, *supra* note 37, at 23 (providing that "The [House] Manager's Amendment, among other things, changed the biennial proceeding to a triennial one").

[43] 101 U.S. 99 (1879).

[44] *See id.* at 100–01 (the system of book-keeping cannot be within the scope of copyright protection because it is not Selden's exclusive right).

[45] *See id.* at 103 ("[T]he copyright of a book on perspective, no matter how many drawings and illustrations it may contain, gives no exclusive right to the modes of drawing described . . . [t]hose illustrations are mere language employed by the author to convey his ideas more clearly.").

[46] *See id.* at 105 (noting the use of an art is different from a book explaining it and cannot be secured by copyright).

[47] *See* 17 U.S.C. § 102(b) (2002) ("[i]n no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, or method of operation . . . ."). *See generally* H.R. Rep. No. 94-1476

at 57 reprinted in 1976 U.S.C.C.A.N 5659, 5670 (stating that the scope of copyright protections under § 102(b) as applied to software does not include the methodology or processes used by the programming in writing the code).

[48] *See* Oracle Am., Inc. v. Google Inc., 750 F.3d 1339, 1347 (Fed. Cir. 2014) (holding that the lower court erred in finding certain parts of code outside of copyright protection as a method of operation under § 102(b)); *see also* Comp. Assocs. Int'l, Inc. v. Altai, Inc., 982 F.2d 693, 704–05 (2nd Cir. 1992) (finding that elements of a computer program that are incidental to its function are not protected).

[49] *See* Claggett, *supra* note 8, at 3–4 (explaining that the scope of copyright protections for software has changed radically in a short period of time and the reach is indeterminate); *see also* Transcript of Public Hearing at 249:4-7, Exemptions to the Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies (May 19, 2015) (Kyle Wiens, iFixit and Repair.org), https://www.copyright.gov/1201/2015/hearing-transcripts/ (describing how the § 1201 rulemaking process is more difficult because of the movement into "the realm where the distinction between physical and digital product is blurred").

[50] *See* Claggett, *supra* note 8, at 15 (providing that in the context of computer software merger principles apply when there is only one way to write a particular code, then the expression merges with the method of the code and is not afforded copyright protection).

[51] *See* Lotus Dev. Corp. v. Borland Int'l, Inc., 49 F.3d 807, 815 (1st Cir. 1995) (methods of operation are means by which a user operates something and are unprotected expression). *But see* Mitel, Inc. v. Iqtel, Inc., 124 F.3d 1366, 1372 (10th Cir. 1997) (rejecting the *Lotus* test and holding that an expressive work could be located within a functional component).

[52] *See* Claggett, *supra* note 8, at 3–4 (explaining that the spread of software in recent years has led lawmakers to question the current state of copyright law and whether it is sufficient to handle the complex copyright issues that arise).

[53] Cooper, *supra* note 13.

[54] 750 F.3d 1339 (Fed. Cir. 2014).

[55] *Id.* at 1347.

[56] *Id.*

[57] *See id.* at 1357–58 (explaining that the Second Circuit defined the test in three steps: the abstraction step which "breaks down the allegedly infringed program into its constituent structural parts;" the filtration step, which "sifts out all non-protectable material," including ideas and "expression that is necessarily incidental to those ideas, and the final step, which requires the court to "compare the remaining creative expression with the allegedly infringing program"). *But see* Sony Comput. Entm't, Inc. v. Connectix Corp., 203 F.3d 596, 602–03 (9th Cir. 1999) (holding that the fair use doctrine protected the intermediate copies made and used by Connectix during the course of its reverse engineering of Sony's system, even if those copies were infringing).

[58] *See Oracle*, 750 F.3d at 1367 (explaining that if the Ninth Circuit were "to accept the district court's suggestion that a computer program is uncopyrightable simply because it carries out pre-assigned functions, [then] no computer program is protectable").

[59] 37 C.F.R. § 201.40.

[60] *Id.*; Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 80 Fed. Reg. 65,944, 65,954 (proposed Oct. 28, 2015) (to be codified at 37 C.F.R. pt. 201).

[61] *See* Air Resources Board, Opinion Letter on Proposed Exemptions for Vehicle Software (July 21, 2015) (arguing that proposed exemptions would allow modifications to be made that would undermine the ARB's emission regulatory system); *see also* U.S. Dep't of Transp., Opinion Letter on Proposed Exemptions for Vehicle Software (Sept. 9, 2015) (arguing that proposed exemptions would allow modifications to be made that would create safety and cybersecurity risks). *See generally* EPA, Opinion Letter on Proposed Exemptions for Vehicle Software (July 17, 2015) (arguing that proposed exemptions would enable actions that could slow or reverse gains made under the Clean Air Act), *available at* https://www.copyright.gov/1201/2015/.

[62] 80 Fed. Reg. at 65,944.

[63] 83 Fed. Reg. at 54,014; *see* Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 83 Fed. Reg. 54,010, 54,021–54,022 (proposed Oct. 26, 2018) (to be codified at 37 C.F.R. pt. 201) (allowing third-party assistance to assist owners in carrying out the authorized services, which were also expanded to include vehicle telematics and entertainment systems, and to allow acquisition, use and dissemination of circumvention tools).

[64] *See* Tr. at 1041:15-22 (Apr. 10, 2018) (J. Matthew Williams, Association of American Publishers) (disputing that third-party servicers, who would be authorized under the proposed exemptions, could be distinguished by 'good faith' in order to prevent trafficking); *see also* Interview with Tom Lorenzen & Scott Winkelman, Partner, Crowell & Moring, in Washington, D.C. (June 27, 2019) (explaining that expanding the scope of third-party access to diagnostic software allows for more untrained individuals to either unintentionally or intentionally modify or tamper with machines and rendering them noncompliant with the Clean Air Act).

[65] *See Tracking and Reporting on Legal Issues in Various Courts*, Repair.org (July 9, 2019), *available at* https://repair.org/legal-corner (explaining that states need Right to Repair laws because copyright law cannot require a manufacturer to sell parts and tools).

[66] Cody Ellis, *Is Right to Repair Finally Having a National Moment?*, Wastedive (Apr. 1, 2019), *available at* https://www.wastedive.com/news/is-right-to-repair-finally having-a-national-moment/551706/.

[67] Lauren Good, *Could Feds Force Companies to Support Your Right to Repair?*, Wired (July 23, 2019, 7:00 AM), https://www.wired.com/story/right-to-repair-ftc-workshop/.

[68] *See* Lorenzen & Winkelman, *supra* note 64 (explaining that third-parties are not required to report modifications to the DOT); *see also* Letter from Kathryn B. Thompson, Gen. Counsel, U.S. Dep't Transp., to Jacqueline C. Charlesworth, Gen. Counsel & Assoc. Register Copyrights, U.S. Copyright Office, Lib. Cong., DOT, Comment Letter on Proposed Exemptions for Vehicle Software (Sept. 9, 2015) (stating that the Motor Vehicle Safety Act was enacted 50 years ago and does not regulate third-party users or software that control several functions in vehicles that could be tampered with or modified by such users).

[69] *See* S. 107, 191st Commw. Ct. Leg., Reg. Sess. (Mass. 2019) (stating that a "[A] digital electronic product is a part or machine containing a microprocessor . . . ."); *see also* H.B. 2688, 80th Legis. Assemb., Reg. Sess. (Or. 2019) (stating that "[d]igital electronic equipment" means is a "product that functions on the basis of digital electronics that are embedded in . . . the product").

[70] *See* R2R Solutions *supra* note 4.

[71] *See* Natalie Higgins, Vice President, Equipment Dealers Assoc., *Right to Repair Legislation: What Dealers Need to Know, Equip. Dealers Assoc.* (Dec. 6, 2018, 12:00 PM), https://static1.squarespace.com/static/53821f30e4b07bcdae103594/t/581ca9c8be6594d1fe224494/1478273482364/EDA+R2R+Webinar+October+2016.pdf (explaining that industrial equipment contains several controls, and operating systems that require trained professionals to make complicated repairs to meet both safety, and emissions standards).

[72] *Id.*

[73] *See* S. 315, 2019 Gen. Assemb., Reg. Comm. Substitute Sess. (N.C. 2019) (defining embedded software on firmware to include "a basic internal operating system, an internal opportunity system, a machine code, an assembly code, a root code and a microcode, and other similar components"). *See generally* Comp. Assoc. Int'l, Inc. v. Altai, Inc., 982 F.2d 683, 698, 702 (2d Cir. 1992) (finding that object code and source code contain binary language from which the computer receives its instructions and are protected from copyright under § 102(b)).

[74] *See, e.g.*, H.R. 1138, 91st Leg., Reg. Sess. (Minn. 2020) (requiring manufacturing companies to "make available, on fair and reasonable terms, documentation, parts, and tools, inclusive of any updates to information or embedded software, to any independent repair provider or to the owner of digital electronic equipment manufactured by or on behalf of, or sold by, the original equipment manufacturer for purposes of diagnosis, maintenance, or repair").

[75] *See id.* (requiring manufacturers of products to provide all diagnostic repair capabilities to third-party users that it makes available to its own repair or engineering staff).

[76] *See* H.R. 1413, 121st Gen. Assemb., Reg. Sess. (Ind. 2019) (stating that service documentation includes information to unlock a security related function).

[77] *See* Mark Schaffer, *Electronic Standards Are In Need of Repair*, Repair.org (Aug. 3, 2017), https://repair.org/standards (arguing that technology has outpaced outdated copyright laws, and third-party access for repairs on electronic equipment is necessary); *see also* Wiens, *supra* note 3 (describing

how the DMCA protects manufacturing companies, but does not allow owners the legal right to break digital locks required to repair modern farming equipment).

[78] *See* Interview with Congressman Bill Shuster, Senior Policy Advisor, Squire Patton Boggs, in Washington, D.C. (June 25, 2019) (explaining that third-party access to the type of software code that Right to Repair bills are demanding would allow for tampering and modifications that would likely render machines noncompliant with federally mandated environmental and safety regulations and manufacturing companies would have to spend burdensome costs in trying to track these machines in every state).

[79] *See* United States v. Haney Chevrolet, Inc., 371 F. Supp. 381, 384 (M.D. Fla. 1974) (holding that when the dealer "knowingly" removes or replaces a device regulating emissions in a vehicle and subsequently sells the vehicle, the dealer has relinquished custody or control of the vehicle, and rendered emission control or devices inoperable).

[80] *See* United States v. Econ. Muffler & Tire Ctr., Inc., 762 F. Supp. 1242, 1243 (E.D. Va. 1991) (explaining that the owner of Economy Muffler regularly signed EPA-issued notices for professional installers about the tampering provision policy); *see also* Shuster, *supra* note 78 (explaining that third-party access to proprietary software in the context of industrial and construction equipment inevitably leads to third-party modifications performed 'by mistake' during repairs, which unjustifiably forces liability on the manufacturer or dealer with deep pockets).

[81] *See An Act relative to the digital right to repair*, S. 107, 191st Leg., Reg. Sess. (Mass. 2019) [hereinafter Right to Repair Report] (requiring the manufacturer to "make available to independent repair facilities or owners of products manufactured by the manufacturer the same diagnostic and repair information, including repair technical updates, diagnostic software, service access passwords, updates and corrections to firmware, and related documentation, free of charge and in the same manner the manufacturer makes available to its authorized repair providers").

[82] *See* HB 2026, 101st Gen. Assemb., Reg. Sess. (Ill. 2019) (requiring "an original equipment manufacturer to make available . . . the same diagnostic, repair, and remote communications capabilities that the [manufacturer] makes available to its own repair or engineering staff or an authorized provider").

[83] *See* 42 U.S.C. § 7521(m)(1)(5) (1990) (mandating that the manufacturer provides any person engaged in repair with necessary emissions regulations in order to maintain compliance).

[84] *See* Alberto Ayala, California Air Resources Board, Comment Letter on Proposed Exemptions for Vehicle Software (July 21, 2015), https://www.copyright.gov/1201/2015/USCO-letters/, at 3-5 (explaining that the Clean Air Act mandates emissions performance of vehicles and engines that requires complex testing that can only be properly conducted in "multi-million dollar test facilities. . . companies that currently offer products that modify emissions-controlled vehicles must invest thousands of dollars to purchase necessary testing" in order to prove compliance pursuant to the anti-tampering statute).

[85] *See* Harry M. Lightsey & Jeffrey M. Stefan, General Motors, LLC, Comment Letter on Proposed Exemptions for Vehicle Software "Comments of General Motors LLC" (Mar. 27, 2015), https://www.copyright.gov/1201/2015/comments032715/class%2021/General_Motors_Class21_1201_2014.pdf (explaining that motor vehicles should not be subjected to the broad exemptions on TPMs because third-party access to seed/key control mechanisms would lead to modifications in violation of federal regulations).

[86] *See* Tr. at 58:16-23 (May 19, 2015) (Steven Metalitz, Alliance of Automobile Manufacturers) (contrasting the intense regulatory standards that the manufacturing industry complies with in developing equipment to the lack of federal regulation in the software industry); *see also Technology Quarterly: The Internet of Things*, The Economist (Sept. 14, 2019) [Hereinafter The Internet of Things], at 9 (explaining that the courts have broadly enforced disclaimers to liability for the software industry based on the software industry's argument that holding them accountable for third-party mishaps would stifle innovation).

[87] *See* Right to Repair Report, *supra* note 81 (stating that the failure to cure provision grants independent repair facilities and owners a remedy if a manufacturer fails to provide necessary diagnostic software or fails to respond to a request for such software by filing a complaint for damages in district court, which is enforced by the state's Attorney General).

[88] *See* Right to Repair Report, *supra* note 81 (noting that companies are increasingly unwilling to allow their customers to repair products with third-party fixers, and customers arguing they that are no longer buying products, but rather, a license to that product).

[89] 42 U.S.C. § 7522(a) (1990).

[90] *Compare* United States v. Haney Chevrolet, Inc., 371 F.Supp. 381, 385 (M.D. Fla. 1974) (holding that the employee voluntarily allowed the vehicle to leave his custody after removing the idle speed solenoid), *and* United Sates v. Econ. Muffler & Tire Ctr. Inc., 762 F.Supp. 1242, 1245 (E.D. Va. 1991) (holding that the employee knew the converter replacement violated Clean Air Act enforcement policy), *with* In re Volkswagen "Clean Diesel" Litigation, No. 3:15-md-02672-CRB, 2017 WL 66281, at *3 (N.D. Cal. Jan. 4, 2017) (stating that the software algorithm created the appearance of low emissions in vehicles sold), *and* EPA Settlement, *supra* note 28 (stating that Derive Systems is liable for selling software that overwrote the original equipment manufacturer's emissions controls systems).

[91] *See* Shuster, *supra* note 78 (stating that repair diagnostics for agricultural and industrial equipment are extremely complex in nature and it would become nearly impossible for the EPA or the state to track and identify modifications to emissions controls made by third-party owners during a repair).

[92] *See* Shuster, *supra* note 78 (stating that "because manufacturers would have no way of identifying products that might require service in (state), they would have to include service information on all products – the vast majority of which would never be needed in (state)").

[93] *See* The Internet of Things, *supra* note 86, at 10 (providing that Ford's F-150 pickup truck has "150 million lines of code [and] good programmers working under careful supervision average about one bug per 2,000 lines of code").

[94] *See Volkswagen*, 2017 WL 66281, at *3 (stating that Volkswagen installed software defeat devices that allowed vehicles to meet emissions standards during official testing); *see also* Ayala, *supra* note 84, at 3 (stating that due to the highly sensitive and sophisticated nature of emissions control systems, it is very likely that equipment owners will negatively impact emissions by modifications and the process of determining the impact is impractical for regulatory agencies).

[95] Lorenzen & Winkelman, *supra* note 64.

[96] 42 U.S.C. § 7522(a)(2) (1990).

[97] *See* United States v. Econ. Muffler & Tire Ctr. Inc., 762 F.Supp. 1242, 1245 (E.D. Va. 1991) (concluding that Economy Muffler regularly received Clean Air Act compliance notifications containing the details related to converter installation).

[98] Lorenzen & Winkelman, *supra* note 64.

[99] *Id.*

[100] *Id.*

[101] Shuster, *supra* note 78.

[102] *See* 42 U.S.C. § 7543(a) (mandating that states will not "adopt or attempt to enforce any standard relating to the control of emissions" either before or after the sale of equipment or engine).

[103] Morriss, *supra* note 26.

[104] Lorenzen & Winkelman, *supra* note 64.

[105] *See* § 7543(a) (providing that the state is not allowed to require certification or inspection or any other approval as a condition that the manufacturer must comply with prior to the sale of equipment or an engine).

[106] *See* Counts v. Gen. Motors, 237 F. Supp. 3d 572, 574 (E.D. Mich. 2017) (holding that the claim is not preempted by the Clean Air Act because it alleged that the manufacturer violated the duty to disclose state consumer law).

[107] *See id.* at 600 (finding that GM was in a "superior position" to know of the defeat device because GM was the original manufacturer of the vehicle).

[108] *See id.* at 593 (explaining that plaintiffs' consumer protection claims do not attempt to enforce emissions standards and there is no danger of regulatory "inconsistency").

[109] *See id.* at 600 (holding that if plaintiffs' claims are true, then GM installing the defeat device is sufficient to establish active concealment under the duty to disclose doctrine).

[110] Lorenzen & Winkelman, *supra* note 64.

[111] *See* H.R. 1138, 91st Leg., Reg. Sess. (Minn. 2019) (stating that the manufacturer must make all diagnostic software, service codes, and passwords that they provide to the engineering staff available to the third-party repair facility and equipment owner for repairs and other services).

[112] *See General Motors*, 237 F. Supp. 3d 572 at 600 (holding that "GM cannot reasonably argue that plaintiffs' could have discovered the device's

existence prior to purchasing the vehicle"). *See generally* H.R. 2026, 101st Leg., Reg. Sess. (Ill. 2019) (requiring the manufacturer to provide third-party repair facilities and equipment owners the same diagnostic software as the manufacturer's engineers).

[113] *Counts*, 237 F. Supp. 3d at 600.

[114] *Id*.

[115] *See id*. at 599 (holding that GM has not argued sufficient facts against the plaintiffs' allegation based on GM's failure to disclose the defeat device before sale).

[116] *Oversight of EPA's Decision to Deny the California Waiver: Hearing Before the S. Comm. on Env't & Pub. Works*, 110th Cong. 2, 71-83, 110-112 (2008) (statements of David Doniger, Natural Resources Defense Council, Conn. Governor M. Jodi Rell, Md. Governor Martin O'Malley, and Pa. Governor Edward G. Rendell).

[117] Claggett, *supra* note 8, at 954.

[118] *See* Tr. at 181:23-182:12 (May 19, 2015) (Kit Walsh, Electric Frontier Foundation) (stating that Section 1201 is interrupting years of traditional do-it-yourself repair for automobiles now that computerization has brought DMCA into the legal environment).

[119] *See* 17 U.S.C. § 117(c)(1)-(2) (1998) (providing that the owner or lessee of a machine that lawfully obtains a copy of a computer program may make a copy of that computer program if the purpose of the copy is made only for the purposes of maintenance or repair); *see also* Tr. at 275:10-277:19 (May 19, 2015) (Harry Lightsey, GM LLC) (explaining that automobile dealers have license agreements on telematics, but it would be near impossible to have license agreements covering all the ECUs that are contained in the vehicle). *But see* The Internet of Things, *supra* note 86, at 10 (John Deere has spent four years defending the licensing of farm equipment required to operate because operating systems are completely dependent on sophisticated technology).

[120] *See* Tr. at 74:4-75:25 (Apr. 10, 2018) (Kevin Amer, U.S. Copyright Office) (stating concern for unlocking or modifying software embedded in all devices would exceed the scope of rulemaking); *see also* Claggett, *supra* note 8, at 48 (stating that the Copyright Office "considered several options in distinguishing software embedded devices based on the fact that definitions based on the current ecosystem would quickly become obsolete"). *But see* Tr: at 28:19-22 (May 24, 2016) (Cathy Gellis, Digital Age Defense) (stating that there is currently no way to delineate which objects would get protection and which objects would get different sorts of protection or none at all pursuant to copyright law).

[121] *See* 17 U.S.C. § 301(a).

[122] *See* 17 U.S.C. § 106(3).

[123] *See* Claggett, *supra* note 8, at 52 (finding that Section 106(3)'s distribution right is implicated when the new software, device, or replacement part is transferred to a third party).

[124] 17 U.S.C. § 102(a).

[125] *See* Claggett, *supra* note 8, at 26 (stating that the Copyright Office notes that many copyright owner concerns are related to the Internet of Things that allows software-enabled products to communicate with each other); *see also* Wiens, *supra* note 49 (describing the difference between what is tangible versus intangible is becoming more difficult to ascertain with software-embedded devices).

[126] *See* Lotus Dev. Corp. v. Borland Int'l Inc., 49 F.3d 807, 815 (1st Cir. 1995) (stating that methods of operation are means by which a user operates something and are unprotected expression); *see also* Lexmark Int'l v. Static Control Components, Inc., 387 F.3d 522, 533 (6th Cir. 2004) (explaining that "to the extent that the code is functional, it is not entitled to copyright protections"). *But see* Mitel, Inc. v. Iqtel, Inc., 124 F.3d 1366, 1372 (10th Cir. 1997) (rejecting the *Lotus* court test and adopting the approach that an expressive work could be located within a functional component).

[127] 17 U.S.C. § 106(3) (2002).

[128] *See* Exemption to Prohibit on Circumvention of Copyright Protection Systems for Access Control Technologies, 80 Fed. Reg. 65,944, 65,963 (Oct. 28, 2015) (to be codified at 37 C.F.R. pt. 201) (permitting the circumvention of electronic control units for the purposes of diagnosis, repair, and modification of modern automobiles and agricultural machinery).

[129] *See* Tr. at 19:12-14 (May 18, 2016) (Jonathan Zuck, ACT) (arguing that allowing circumvention for proprietary software will fundamentally change how people and companies use their technology that stifles innovation in the search for new ways of protection).

[130] *Id*. at 19:12-14.

[131] 17 U.S.C. § 102(a)(1) (1998).

[132] *See* Lexmark Int'l v. Static Control Components, Inc., 387 F.3d 522, 533 (6th Cir. 2004) (explaining that "[T]o the extent that the code is functional, it is not entitled to copyright protections").

[133] *See* Oracle Am., Inc. v. Google Inc., 750 F.3d 1339, 1357–58 (Fed. Cir. 2014) (applying the abstraction-filtration-comparison test to Oracle's software coding to determine whether non-literal elements of a computer program constitute protectable expression).

[134] *Oracle*, 750 F.3d at 1367.

[135] *See* The Internet of Things, *supra* note 86, at 13 (predicting that liability protections historically afforded to the software industry for purposes of advancing innovation will soon be challenged in U.S. courts by personal injury and strict liability claims brought by consumers who were hurt or killed from compromised software in physical goods).

[136] *See* Sony Comp. Entm't v. Connectix, Corp., 203 F.3d 596, 608 (9th Cir. 2000) (holding that Sony's software program contained unprotected functional elements and that the defendant's only means to access the functional elements were through reverse engineering).

[137] Lorenzen & Winkelman, *supra* note 64.

[138] *See* 37 C.F.R. § 201 (2018) (explaining that the Register must consider "(i) the availability for use of copyrighted works; (ii) the availability for use of works for nonprofit archival preservation, and educational purposes; (iii) the impact that the prohibition on the circumvention of technological measures applied to copyrighted works has on criticism, comment, news reporting, teaching, scholarship or research; (iv) the effect of circumvention of technological measures on the market for or value of copyrighted works").

[139] *Oracle*, 750 F.3d at 1378–79.

[140] 37 C.F.R. § 201 (2018).

[141] *Id*.

[142] *See* Claggett, *supra* note 8, at 18–20 (explaining that the fair use doctrine applies to § 177(b)-(d) of the Copyright Act which lawfully authorizes a machine owner or lessee the right to make a lawful copy or to allow a third-party to make a copy of the machine's computer program for maintenance or repair purposes).

[143] *See* Claggett, *supra* note 8, at 63 (observing that questions around copyright protections stemming from the sale of software-enabled consumer devices related to licensee contracts or other forms of contracts are governed by state law).

[144] *See* Counts v. Gen. Motors, LLC, 237 F. Supp. 3d 572, 588 (E.D. Mich. 2017) (holding plaintiffs' suit does not attempt to enforce emissions standards and the court will not allow federal legislation to encroach on established state law).

[145] *See infra* note 149.

[146] *See* Lorenzen & Winkelman, *supra* note 64 ("Right to Repair model legislation hurts the consumer by grouping electronic devices like iPhones with heavy equipment because if something goes wrong during a repair or if a modified engine is sold by third-party, then these machines can cause lots of harm and even kill you as a result.").

[147] *See* S. 107, 191st Leg., Reg. Sess. (Mass. 2019) (stating that a "digital electronic product" is a "part or machine containing a microprocessor"); *see also* H.R. 2688, 80th Legis. Assemb., Reg. Sess. (Or. 2019) (stating that digital electronic equipment is a "product that functions on the basis of digital electronics that are embedded in . . . the product").

[148] Cooper, *supra* note 13, at 2; Ayala, *supra* note 84, at 4.

[149] *See* H.R. 1342, 66th Leg., Reg. Sess. (Wash. 2019) (exempting nonroad engines and vehicles and subjecting them to the standards for performance promulgated under the Clean Air Act). *But see* H.B. 1413, 121st Gen. Assemb., 1st Reg. Sess. (Ind. 2019) (stating that an electronic device does not include a motor vehicle that is designed to transport people or property on a street or highway).

[150] Cooper, *supra* note 13.

[151] Customer Choice Hearing, *supra* note 16, at 20.

[152] *See* Lorenzen & Winkelman, *supra* note 64.

[153] Metalitz, *supra* note 86, at 59:13-19.

[154] *See* In re Volkswagen "Clean Diesel" Litigation, No. 3:15-md-02672-CRB, 2017 WL 66281, at *3 (N.D. Cal. Jan. 4, 2017) (holding that Volkswagen is subject to at least $18 billion in penalty fines for emissions non-compliance violations of the Clean Air Act); *see also* Ayala, *supra* note 84, at 4 (explaining that manufacturing companies invest millions of dollars in emissions tests to remain compliant with the Clean Air Act).

[155] *See* Internet of Things, *supra* note 86, at 23 (explaining that maintaining good compliance security costs money and the benefits are not readily visible to end users).
[156] *See* Internet of Things, *supra* note 86, at 14.
[157] *Id.*
[158] *See* Internet of Things, *supra* note 86, at 11 (predicting that the Internet of Things will give hackers new objects that will enable attacks on life and property).
[159] S. 5283, 2019 Legis., 242nd Sess. (N.Y. 2019); S. 315, 2019 Gen. Assemb., Reg. Sess. (N.C. 2019).
[160] Claggett, *supra* note 37, at 47.
[161] *See* Claggett, *supra* note 37, at 95 (voicing concerns from commentators regarding the scope of the U.S. Copyright Office in making exemptions on technologies that will outpace statutory language and software repair concerns addressing public safety that are better addressed through other agency regulations); *see also* Daniel Bartholomew, John Deere, Comment Letter on Proposed Exemptions of Vehicle Software (Sept. 9, 2015) (arguing that the Copyright Office should not use its regulatory authority to encourage unauthorized copying and use of proprietary software that contains trade secrets).
[162] Exemption to Prohibit on Circumvention of Copyright Protection Systems for Access Control Technologies, 80 Fed. Reg. 65,944, 65,953 (Oct. 28, 2015) (to be codified at 37 C.F.R. pt. 201).
[163] Thompson, *supra* note 68, at 2.
[164] Lorenzen & Winkelman, *supra* note 64.
[165] *See* Claggett, *supra* note 37, at 96 (recognizing that defining modifications and the limits on exemptions to anticircumvention is increasingly difficult as repairs are reliant on complex software).
[166] *See* Claggett, *supra* note 8, at 27 (predicting that the findings in the report could be underinclusive and do not provide a bright line legislative fix because the technology in the products are evolving at a rapid pace).
[167] Bartholomew, *supra* note 161.
[168] *See* Claggett, *supra* note 8, at 27 (noting that Chairman Grassley and Ranking Member Leahy of the Committee on the Judiciary requested a report on the "expanding presence of software" in every day products and the Librarian's role in maintaining sufficient copyright protections to digital works).
[169] *Id.*

Endnotes: Nothing Shellfish About It: Why the FDA Needs to Update *The Seafood List* to Require Geographic Origin and Species-Specific Shrimp Labeling *continued from page 32*

[23] *See* Ganzler, *supra* note 19.
[24] *See* U.S. Seafood Import Monitoring Program, *supra* note 14.
[25] *See* 21 U.S.C. § 341. The Commissioner of Food and Drugs is the head of the FDA and is delegated the authority granted to the Secretary of Health and Human Services under the Food, Drug, and Cosmetic Act. Staff Manual Guide, Vol. II, 1410.10 (Aug. 26, 2016).
[26] U.S. Gov't Accountability Off., GAO-09-258, Seafood Fraud: FDA Program Changes and Better Collaboration among Key Federal Agencies Could Improve Detection and Prevention, (2009) (reporting on the examples of seafood fraud including statements from various government department).

AMERICAN UNIVERSITY
WASHINGTON, DC

Nonprofit Org.
U.S. Postage
PAID
Hagerstown MD
Permit No. 93

SDLP
American University
Washington College of Law
4300 Nebraska Avenue, NW Room CT03
Washington, DC 20016

Forwarding Service Requested