Global Supply Chain under the Paris Agreement: The Relevance of Chemical and Product Regulations

Catherine K. Lin and Philip A. Moffat

Climate change demands action around the globe. Growing frustration with the failure of the Kyoto Protocol to reduce greenhouse gases (GHG) emissions significantly highlights the limitation of global action conceived as a top-down international convention. Thus, the Paris Agreement on climate change (Paris Agreement) that forged consensus by 195 nations opted for a bottom-up approach relying on each nation to enact domestic laws (nationally determined contributions or NDCs) to achieve, collectively, the aim of limiting "the increase in the global average temperature to well below 2° C above pre-industrial levels." (Paris Agreement, Art. 4, para. 2). No legally binding emissions targets nor substantive content is imposed on any nation in creating NDCs. Instead, the Paris Agreement commits nations to a binding process of five-year reviews of their NDCs, and the likely upward revisions of their aims through new NDCs (*Id.*, paras. 3, 8–14). Can Paris go where Kyoto feared to tread? The answer could be "yes," *if* it follows transnational legal process (TLP).

The analytical framework of this article—transnational legal process—is illustrated by a discussion of how a body of chemical- and product-oriented environmental regulations (chemical and product regulations) already applicable to the global supply chain operations can help address global environmental problems requiring collective action. Building on this understanding, we explore whether incorporation of certain basic tenets of chemical and product regulations can support the implementation of the Paris Agreement, further the resiliency of global supply chains, and aid adaptation to climate change. With apologies to Robert Browning, we conclude that "ah, but a nation's NDC should exceed the scope of its REACH regulation, [o]r what's the Paris Agreement for?"

We begin by considering the implementation challenges facing the Paris Agreement if NDCs were perceived simply as discrete, insular island universes of domestic laws that parties are free to game or disregard.

Lauded as nothing short of "historical," the source of the Paris Agreement's success is also its biggest challenge: namely, how to induce each nation to assume the political and economic costs of curbing domestic GHG emissions, absent binding legal obligation on other nations to do the same. Detractors of the Paris Agreement note that the stated aims of individual NDCs are incomparable. For example, the "intended NDCs" (INDCs) submitted to the United Nations Framework Convention on Climate Change by the top 10 emitters—China, the United States, the European Union (EU), India, Russia, Indonesia, Brazil, Japan, Canada and Mexico—include baseline scenario targets that range from the EU's 40 percent reduction of GHG emissions from its 1990 level by 2030, to the United States' 26 to 28 percent reduction of GHG emissions to below its 2005 level by 2025. Other reduction targets range from 26 to 37 percent, while the baseline year varies from 1990 (Russia) to 2005 (Japan) to none (Indonesia, Mexico). China's INDCs aim to reduce only the intensity of carbon dioxide (CO_2) emissions per unit of GDP by 60 to 65 percent from the 2005 level while reaching peak CO_2 emissions around 2030. India's INDCs promise "a healthy and sustainable way of living based on traditions and values of conservation and moderation," to be achieved through green investment, clean technology transfer, and 33 to 35 percent reduction of unspecified emissions from 2005 levels by 2030. China, India, and Russia contemplate achieving their respective targets through reliance on CO_2 sinks, while the former two promised to cut reliance on fossil fuel for power generation.

These INDCs (and ensuing NDCs) raise many challenges. First, even as we can track the progress made by each country through successive NDCs over time, we still are unable to ascertain from review of all of the NDCs at any moment in time whether these 195 nations have indeed laid down potentially effective measures to curb future warming.

Second, the variations in NDCs may augur variability in national enforcement of domestic climate change laws—not just in terms of stringency and consistency, but also in the enforceability of strictures such as India's commitment to "a healthy and sustainable way of living. . . ." *Intended Nationally Determined Contribution (India)*, United Nations Convention on Climate Change Conference of Parties (Dec. 2015), *reported at* http://cait.wri.org/indc/#/profile/India (last visited Nov. 7, 2016) (Texts and summaries of all submitted INCDs and NDCs are available at http://cait.wri.org/indc/#/.) Further, effective enforcement could be stymied at the collective level inasmuch as the Paris Agreement, *qua international law*, is without the means for cross-border enforcement.

In addition to the operational challenges raised, the Paris Agreement's reliance on NDCs also poses structural challenges. It invites nations to compete with each other and game the system. Thus, the third challenge is emissions leakage—the increase in GHG emissions in a country with lax NDC

Ms. Lin is of counsel at Verdant Law, PLLC, and Mr. Moffat is a principal at Verdant Law, PLLC, located in Washington, D.C. They may be reached at clin@verdantlaw.com and pmoffat@verdantlaw.com, respectively.

Published in *Natural Resources & Environment* Volume 31, Number 3, Winter 2017.

to take advantage of NDCs from other countries that include more stringent emission limits and controls. Over time, this could create a "race to the bottom," whereby less-developed and developing countries compete to lower their respective GHG emissions control to attract more industries, however polluting that might be, to spur economic growth and job opportunity.

The fourth challenge is the "free rider" problem. Slowing climate change requires significant political and economic investments. Yet, the benefits of these investments are often diffused globally so that GHG reduction achieved by a country anywhere benefits all countries everywhere. Consequently, some countries may decide to slow NDC implementation, while waiting for the efforts of other countries to bear fruit, so as to enjoy the same level of decreased climate change risk without comparable relative expenditures. Some believe that the Kyoto Protocol ran aground because of the tendency of countries to free ride on the efforts of others. Without a legally binding compliance mechanism, the Paris Agreement appears, *prima facie*, to face the same fate.

Linking Global Supply Chain and NDC

These implementation challenges notwithstanding, should NDCs become the "law of the planet," GHG emission reduction by the manufacturing sector would need to come under their ambit too. In the wake of the Paris Agreement's adoption, Business for Social Responsibility (BSR) and the Carbon Disclosure Project (CDP) released a study on supply chain climate resilience. They found that for a multinational corporation, its supply chain—with manufacturing activities located outside of developed economies—may be responsible for four times the GHG emitted from direct corporate operations. Moreover, suppliers are slow to act. Only 45 percent of the study's participating suppliers have set a target to reduce their emissions. Even fewer suppliers addressed their water-related risks, notwithstanding this sector's dependence on high-volume, high-quality water for production, material processing, cooling, or cleaning. CDP estimates that industries account for 16 percent of today's global water withdrawal, growing to a projected 22 percent by 2030—even as climate change–related droughts and floods are likely to limit water availability and rising sea levels contaminate coastal ecosystems and groundwater aquifers. Disconcertingly, 49 percent of the suppliers approached for the study failed to respond to their customers' requests for emissions data or information on risk management, creating not only commercial blind spots of climate vulnerability, but also data lacuna for institutions tasked with setting resilient adaptation targets.

Actual climate vulnerability of the global supply chain may be even greater than estimated in the BSR/CDP study. Portions of the global supply chain involved in raw materials extraction and supply, or low value-added manufacturing, tend to locate in countries with high dependence on fossil fuel, and employ less energy-efficient (i.e., higher-energy intensity) means of production. Moreover, a supply chain's carbon footprint is not limited to energy use from onsite manufacturing. It also includes emissions from international transportation and distributions of raw material, parts, and finished goods. Critics of globalization argue that the genesis of the global supply chain is the migration of some polluting industries from Europe and North America to the developing countries of Asia in pursuit of low labor and other costs and lax regulations. A key consequence of supply chains going global is that the more national borders they cross, the more they are beyond the reach of domestic laws; no single country acting alone can prevent the deleterious impact of an entire global supply chain's activities on the environment or public health and safety (EHS) by enforcing its own laws.

Put simply, the challenges of regulating the EHS impacts of the global supply chain resembles those of NDC implementation: unavailable or incomplete data as documented by BSR and CDP; ineffective cross-border compliance enforcement; leakage of pollution from countries with high labor costs and strict regulations to those with low costs and lenient regulations; and, curiously, the Chinese media described the differential distribution of EHS costs and benefits between the East and the West as the latter's "environmental free riding on China's extensive production of consumer goods for export to the West. *See* Chen Weihua, *Western polluters are free riders in China*, China Daily, Aug. 22, 2014, *available at* http://www.chinadaily.com.cn/opinion/2014-08/22/content_18466602_2.htm. If the challenges to the regulation of the global supply chain seem like a microcosm to challenges of NDC implementation, then we should ask whether: (1) it is possible to regulate the EHS aspects of the global supply chain in a manner that surmounts these challenges; (2) this regulatory approach can be transplanted to NDCs to ameliorate the problems of data incommensurability, uneven/no cross-border enforcement, emissions leakage, and free-riding that threaten the success of the Paris Agreement; and (3) such efforts will improve the climate-resiliency of the global supply chain.

The answer is "Yes" to each question. A set of chemical and product regulations exist that are not international conventions or treaties, but instead are national laws capable of influencing the behavior of states and private actors outside of their jurisdictional boundaries, resulting in desired cross-border behavior that can improve the global supply chain's EHS performances. These regulations treat the supply chain as a system to be managed as a whole when responding to change or risks. Before we describe these regulations, we explain the concept of transnational legal process.

Chemical and Product Regulations and the Transnational Legal Process

Transnational legal process, as propounded by Professor Harold Koh of Yale Law School, emphasizes the dynamics—as distinguished from the structure—of international law in answering the question of why nations comply in the absence of enforcement mechanisms. *See* Harold Koh, *Why Transnational Law Matters*, 24 Penn State Int'l L. Rev. 745 (2006). TLP breaks down the conventional dichotomies between domestic and international law, public and private spheres of action to include both state and non-state actors. It posits that the interactions between states or among private and public actors, including international organizations, multinational enterprises, nongovernmental organizations, in a variety of national and international fora, can generate norms, if not emerging new rules that can be interpreted, internalized, and enforced as transnational law. Transnational laws are neither purely domestic nor purely international but are comprised of laws that are "downloaded" from international to domestic law; "uploaded and downloaded" from original domestic law of

some countries to international law, and then "downloaded" into domestic law by other countries; and "horizontally transplanted" from one national system to another. Koh observed that *lex mercatoria*, the law used by merchants throughout medieval Europe, arose from the traders' reliance on market tribunals applying accepted customs—not specific national laws—to resolve cross-border disputes. It was "downloaded" into English common law, became American law and codified into the Uniform Commercial Code, and "uploaded" as the United Nations Conventions on Contracts for International Sale of Goods.

As a bottom up agreement with an NDC review process, the Paris Agreement should be amenable to the uploading, downloading, and horizontal transplanting of domestic laws. In our experience, these aspects of transnational law are already at work in several global chemical and product regulations. Chiefly, they are the EU Regulation on Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH), EU Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS), and, to a lesser extent, Section 1502 of the Dodd-Frank Act (Conflict Minerals Rule). We summarize each briefly below.

REACH, RoHS, and the Conflict Minerals Rule

REACH addresses EHS risks posed by chemicals in the stream of commerce. It is based on the principles of "no data, no market" and safe use of chemicals throughout the supply chain. Responsibility for implementing these principles is placed, ostensibly, on EU manufacturers and importers. In practice, many more parties belonging to the global supply chain may be involved, because preparation of the technical dossier needed for registration of chemicals requires generation, compilation, sharing, assessing, and communication of information on chemical properties that may be hazardous to human health and the environment. Moreover, the responsibility for hazard communication rests squarely on the supply chain. Suppliers must provide their customers, the downstream users, with extensive information on the safe use of chemicals throughout their life cycles. The downstream users, in turn, must inform the supplier of the chemicals' intended uses, changes in use, and newly discovered hazards. Thus, suppliers located outside of, but who export into, the EU, would find it imperative to recognize the extraterritorial effects of REACH and take measures to comply.

Governmental institutions must uphold chemical safety at the EU-wide level, including limiting or banning chemicals with unmanageable risks, or requiring substitution of safer alternatives by means of authorization or restriction of select chemicals with high-priority hazards. While restrictions will result in an outright ban of a chemical from the EU market, authorization sets out processes for managing chemicals of very high concern, and promoting their replacement with safer alternatives. Chemicals subject to authorization may not be used for non-authorized purposes in the EU and an authorized company and its registered users must be specifically permitted to undertake such use, subject to an eventual phase-out. Both authorization and restriction enable public authorities to influence an existing product's longevity on the market as well as the introduction of new products, because the threat of authorization or restriction may induce producers and distributors to remove or phase-out a product voluntarily or seize opportunities to introduce new ones. Thus, the public prong of authorization and restriction is more product-oriented, while its private prong of registration and hazard communication is more chemical-oriented.

Governmental institutions must uphold chemical safety at the EU-wide level, including limiting or banning chemicals with unmanageable risks, or requiring substitution of safer alternatives by means of authorization or restriction of select chemicals with high-priority hazards.

RoHS restricts the use of certain hazardous substances in electrical and electronic products (EEE) placed on the EU market, subject to specific exclusions and exemptions. EEE are broadly defined as products that are "dependent on electric current or electromagnetic fields for at least one intended function." RoHS Directive (Recast) 2011/65/EU 2002/95/EC Article 3(1), June 8, 2011, *available at* http://eurlex.europa.eu/legal-content/en/TXT/?uri=celex%3A32011L0065. EEE producers or importers are responsible for compliance with RoHS and must provide the end products with the requisite declarations and mark of conformity. Although such requirements apply only to covered end products, such products are made up of components and sub-assemblies. Inevitably, all parts of the EEE must be shown *not* to contain any of the restricted substances above threshold values. In practice, this means even portions of the EEE supply chain located outside of the EU must take measures to comply with RoHS.

Although the Conflict Minerals Rule is fraught with litigation and still subject to further judicial review, its impact on the supply chain is palpable. It requires publically traded companies to ascertain whether their products contain certain minerals that (i) are necessary to the functionality or the production of those products *and* (ii) originate (i.e., are not recycled, derived from scrap, or from non-covered countries) from the Democratic Republic of Congo or adjoining countries. If the minerals are or could be from the covered countries, then subject to independent third-party audits, due diligence must be performed on the sources and chains of custody of these minerals to determine whether they directly or indirectly finance or benefit armed groups. Disclosure of the determination and supporting materials to the Securities and Exchange Commission is required.

These three regulations take a system-wide approach to the

supply chain regulation and, on a global scale, allocate major responsibility to the private actors in the supply-chain enterprises, their suppliers, the suppliers' suppliers, and third-party experts—to obtain, generate, and compile the data critical to ensuring continued market access for the end product. Timely, targeted, and well-coordinated communication up and down the supply chain can build the capacity of suppliers to handle EHS information, thereby improving data collection and validating and standardizing the information transmitted. In our experience, most multinational corporations and their suppliers now see compliance with the EHS requirements of their market countries, and not just their home countries, as part of the supply chain operations. This may explain why some American companies devote as much effort to REACH or RoHS compliance as they do to compliance with the Toxic Substances Control Act. Possibly, the need for reliable and standardized chemicals information along the supply chain has contributed to the recent adoption of the United Nations' Globally Harmonized System for Classification and Labeling of Chemicals (GHS) by many countries, evidencing the downloading capacity of the global supply chain.

Most multinational corporations and their suppliers now see compliance with the EHS requirements of their market countries, and not just their home countries, as part of the supply chain operations.

Also notable are the rapidity and the geographical sweep of the "horizontal transplantation" associated with these regulations. Within a decade, countries with significant supply chains such as China, Japan, South Korea, Taiwan, Malaysia (voluntary), and Vietnam all have enacted their own REACH-like regulations. RoHS-like regulations have been adopted by China, South Korea, Japan, India, and the State of California. Although the United States is the only country to endeavor to implement conflict minerals regulation, the EU is not far behind. In June 2016, the EU Commission, Parliament, and Council agreed to a regulatory framework that would mandate certification of source material and cover conflicts worldwide. Earlier, China adopted a voluntary conflict mineral guideline based on the Organization for Economic Cooperation and Development (OECD) Guidelines.

In short, these regulations exhibit indicia of TLP: providing fora for state and private actor interactions and facilitating horizontal transplantation, downloading, and uploading of international norms (e.g., GHS, OECD Guidance on Conflict Minerals Due Diligence). Importantly, they address the challenge of incomplete or inadequate data through the principle of "no data, no market," or mandatory certification or due diligence. They solve the problem of cross-border enforceability by making each actor of the supply chain comply with regulatory requirements to ensure market accessibility of the end product and avoid supply chain disruption. The challenge of leakage is obviated because all the actors on the supply chain must act in concert to comply with the laws of the market country, regardless of how lax the EHS regulations of the host or home country may be. As for free riders, it appears that the roles have been reversed, with exporting countries such as China, South Korea, and India keen to toughen their domestic laws in order to maintain access to the EU market.

From the perspective of supply chain adaptation to climate change, the system-based approach taken by these regulations—as compared to an inside the fence line or end-of-the-pipe approach—also furnishes the scaffolding for resiliency building. As both an attribute of ecology and an objective of business management, resilience denotes the capacity to buffer change, learn, and develop. For businesses seasoned in compliance with REACH, RoHS, and other similar regulations, they have, most likely, already incorporated risk assessment and management; closed compliance gaps and vulnerabilities; ensured that functionality is retained or can be reinstated through system linkages; and utilized change, rather than simply reacting to change, in their global supply chain operations. In short, the systems approach taken by the chemical and product regulations could have primed global supply chains toward resiliency and prepared them for implementing NDCs with distinct features borrowed from chemical and product regulations.

Applying Chemical and Product Regulations Tenets to NDCs

Cognizant of the devil in the detail, we propose that countries or regions with existing chemical and product regulations, or whose manufacturing sectors are major links in the global supply chains, explore expanding the scope of these regulations to cover GHG emissions, energy use, and water conservation in a manner that best leverages their transnational characteristics. At a high level of generality, the following four examples demonstrate how key features of chemical and product regulations may be deployed to reduce adverse climate change impacts.

First, under "no data, no market," countries may require domestic manufacturers and importers to disclose the energy content (e.g., percent from renewable sources and/or fossil fuel, or the size of the carbon footprint from a product life cycle perspective) of a substance or product placed on the market. Other disclosure requirements may include GHG used in the manufacture of finished products, GHG in finished product that may be released into the environment during use, or the volume of water used per product in the manufacturing process. As in REACH, these requirements would prompt suppliers outside of the jurisdiction to collect and communicate relevant climate change data and transmit it up and down the supply chain, providing factual and real-time bases for improving the resilience of the entire chain's operations, regardless of where each link is located.

Second, under authorization, countries could limit to only authorized uses, the domestic manufacturing, importing, or the inclusion of high "global warming potential" gasses (high GWP gases; viz., all non-CO_2 GHGs) in products, on the basis of socio-economic impact and in accordance with a schedule for phase out or transition to less-warming alternatives.

Third, under restriction, countries may restrict the marketing and distribution of products that contain or use high GWP gases above a prescribed threshold level. Currently, high GWP gases are used in electronics manufacturing, which is already subject to restrictions under RoHS. The EU requires that the interpretation and implementation of RoHS be harmonized with REACH.

Fourth, under traceability due diligence disclosure, countries may require domestic manufacturers or importers to certify, before placing certain products on their markets, that they have conducted appropriate due diligence to ascertain that these products did not contain materials obtained as a result of destruction of forests or other carbon sinks, or critical habitats (e.g., coastal wetlands or mangrove estuary) that may serve as a buffer against rising sea level. Alternatively, countries could require certification—based on a third-party audit—that the products being placed on the market are manufactured by a chain of (direct) suppliers that practice energy and water conservation or actively support host communities that do.

We believe that integration of climate change regulation with salient tenets of chemical and product regulation can trigger transnational interactions conducive for promoting compliance with the Paris Agreement. Like the chemical and product regulations on which they are modeled, compliance with this new breed of climate change laws would entail regular communication between enterprises and their suppliers as well as among suppliers across the supply chain. Frequently, this will involve data exchange in ways that could lead to standardization of data collection, presentation, and classification. In most instances, such communications would travel across national borders. And, suppliers—direct or indirect ones—located in countries without effective NDCs will still need to take steps to comply. In time, countries where supply chain activities contribute significantly to economic development may decide to adopt comparable climate change-oriented chemical and product regulations as did many East Asian countries with the enactment of their own REACH and RoHS. Such a development, together with experts needed for certifications and industry consortia established to support mandatory tracing of product inputs, could serve as TLP fora. If so, we might anticipate global supply chain operations to stimulate horizontal transplant of domestic laws that engender an effective NDC scheme, further enabling "uploading" and "downloading" under the Paris Agreement.

Ultimately, we believe that the Paris Agreement challenges us to reexamine our accepted view of international law in favor of TLP, just as REACH, RoHS and the Conflict Minerals Rule caused us to embrace alternative paradigms of environmental protection that focus on regulating products and chemicals in the stream of commerce instead of curbing ambient pollution discharge from stationary sources. Armed with these new understandings, we believe the Paris Agreement can work, if a critical mass of the NDCs can produce domestic laws that utilize the tenets of chemical and product regulations to regulate GHG emissions and adapt to climate change. We hope that these types of domestic laws, when enacted by countries that are major markets for manufactured goods, can improve the climate change performance of the global supply chains and impart them with greater resilience. Finally, as the growth in voluntary corporate audit of supply-chain carbon footprints might suggest, perhaps this time, private parties engaged in commercial activities will facilitate implementation of an important international treaty.

Perspectives

(continued from page 2)

I had to restart my legal career from scratch. Pursuing a JD at the University of Richmond School of Law, I found myself gravitating toward my original interest in natural resources. Quickly realizing how developed environmental law is in this country, I decided not to waste time. Environmental law classes, competitions, research assistance, independent studies, and meeting practicing attorneys allowed me to discover that the world of environmental law indeed existed, along with real opportunities for practice.

Environmental law is not your typical legal practice. It is full of technicalities and thus can be very intimidating for someone without a science or technical background. It is often perceived as country-specific and narrow, with fewer career opportunities than in more traditional areas. And in developing nations, these opportunities are scarce. But that does not mean that these countries do not suffer from environmental problems (it is quite the opposite). In the twenty-first century, the importance of environmental law in the United States and throughout the world increases daily. Many domestic environmental problems—not only associated with climate change, but also stemming from biodiversity loss in the Amazon or excessive waste disposal in third-world countries—quickly gain international character. And the willingness of professionals from developed nations to share experience and assist developing countries in identifying and solving such problems through legal means is crucial.

Rising generations of multicultural attorneys are well positioned to take the lead in resolving many local environmental problems that escalate to global issues. Diverse attorneys bring unique perspectives to the table, taking advantage of their knowledge of different cultures, language, societal values, and legal regimes. Additionally, they can engage local communities and mobilize the work on the ground. As practicing attorneys who care about protecting our planet, we should strive to make environmental law practice attractive to young and diverse generations of attorneys. Especially in developing countries, diversity will bring progress and improvement that can positively influence the world around us.

Viktoriia De Las Casas is an attorney with the law firm of Akin Gump Strauss Hauer & Feld in its Washington, D.C., office. She may be reached at vdelascasas@akingump.com.

Editor's Note: Welcome to NR&E*'s new column, "Perspectives." We invite you to share your point of view on the practice of environmental law in 700 words or less. Send your submissions directly to Executive Editor Gale Lea Rubrecht at galelea@jacksonkelly.com.*