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The Global Commons through a Regional Lens: The Arctic Council on Short-Lived Climate Pollutants

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Abstract

The regulation of short-lived climate pollutants (SLCPs) is widely seen as an important dimension of global atmospheric pollution control and climate change governance. SLCPs emitted outside the Arctic influence the Arctic atmosphere, Arctic communities, and the rate of ice melt. As an intergovernmental forum that brings together three of the world's major petroleum producers (Russia, the United States, and Canada), the Arctic Council has a pivotal role in reducing the rate of Arctic warming through SLCP mitigation. This article explores the Arctic Council's approach to SLCP mitigation. It begins by addressing the current status of black carbon and methane in international legal instruments, and goes on to explore the important regime linkages that are set in place through the Arctic Council's Framework for Action on Enhanced Black Carbon and Methane Emission Reductions. The article suggests that the Arctic Council provides an experimental platform that may catalyze SLCP regulation not only in Arctic jurisdictions but also in Arctic Council observer states, such as China and India. The transnational and inclusive character of the Arctic Council's constitutional framework and knowledge-generating mechanisms enables new pathways for global action on climate change and air pollution governance.

Keywords Short-lived climate pollutants, International law, Arctic governance, Experimental governance, Arctic Council, Black carbon

1. INTRODUCTION: THE SLCP CHALLENGE, FROM NEW KNOWLEDGE TO EFFECTIVE GOVERNANCE

The most complex and urgent item on the international environmental agenda is climate change, which presents novel challenges to the regulatory world through its intensity, its complexity, and its pervasively destructive influence on the ecosystem and human health.

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As scientific inquiry strengthens our understanding of the impacts of global warming¹ and the actions necessary to address it, so also are nations exploring environmental and public health solutions through various regulatory initiatives, at scales ranging from the municipal to the international. This multi-layered realm of environmental governance is marked by fragmentation in both substance and scale.²

As short-lived climate pollutants (SLCPs) gain greater attention as prominent contributors to global warming, the branches of climate governance multiply, yet again. Out of this multiplication arise new opportunities for global cooperation, including possibilities for a regeneration of Arctic governance centred on human and ecosystem health. This article makes two arguments. Firstly, a conventional international legal approach to SLCP regulation suffers from epistemological and spatial limitations. Hence, we must look beyond formal international law to realize our global aims regarding Arctic pollution. Secondly, the acute impact of climate change on the Arctic region (scientifically known as the Arctic amplification effect) has essentially amplified new and ancient claims to the Arctic (indigenous, national, scientific, and corporate). We see emerging a global Arctic epistemic community for whom the typical processes of public international law represent too narrow a perspective.

2. SLCPs AND THEIR MITIGATION POTENTIAL

Over the last decade, an emerging body of research from various scientific communities, international institutions, and regulatory bodies has consistently validated the need to control emissions of SLCPs. Also known as short-lived climate forcers, this subset of greenhouse gases (GHGs) and particulates – which includes black carbon (BC), methane, tropospheric ozone, and hydrofluorocarbons (HFCs) – can be pinpointed to both anthropogenic activities and natural sources.³

¹ See Arctic Climate Impact Assessment (ACIA), *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* (Cambridge University Press and ACIA, 2004).

² Fragmentation is understood here along the lines of the International Law Commission (ILC) 2006 report on fragmentation: ‘the splitting up of the law into highly specialized “boxes” that claim relative autonomy from each other and from the general law’: ILC, ‘Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law’, Report of the Study Group of the International Law Commission, UN Doc. A/CN.4/L.682, 13 Apr. 2006, at pp. 13–4. International legal discourse reveals ongoing debate as to the causes, solutions, and positive and negative dimensions of fragmentation: see J. Charney, ‘The Impact on the International Legal System of the Growth of International Courts and Tribunals’ (1999) 31(4) *New York University Journal of International Law & Politics*, pp. 697–708, at 699; P.-M. Dupuy, ‘The Danger of Fragmentation or Unification of the International Legal System and the ICJ’ (1999) 31 *International Law and Politics*, pp. 791–807; M. Koskeniemi & P. Leino, ‘Fragmentation of International Law? Postmodern Anxieties’ (2002) 15(3) *Leiden Journal of International Law*, pp. 553–79; E. Benvenisti & G. Downs, ‘The Empire’s New Clothes: Political Economy and the Fragmentation of International Law’ (2007) 60(2) *Stanford Law Review*, pp. 595–632, at 597. On the fragmentation of international environmental law, see G. Loibl, ‘International Environmental Regulations: Is a Comprehensive Body of Law Emerging or Is Fragmentation Going to Stay?’, in G. Hafner & I. Buffard (eds), *International Law between Universalism and Fragmentation: Festschrift in Honour of Gerhard Hafner* (Martinus Nijhoff, 2008), pp. 783–96. On climate law, in particular, see K. Kulovesi, *The WTO Dispute Settlement System: Challenges of the Environment, Legitimacy and Fragmentation* (Wolters Kluwer Law & Business, 2010); H. van Asselt, *The Fragmentation of Global Climate Governance: Consequences and Management of Regime Interactions* (Edward Elgar, 2014).

³ United Nations Environment Programme (UNEP) and World Meteorological Organization (WMO), *Integrated Assessment of Black Carbon and Tropospheric Ozone: Summary for Decision Makers*

BC, also referred to as soot, is a component of particulate matter (PM), which results from the incomplete combustion of fossil fuels, biofuels and biomass. Its sources include vehicular and shipping traffic, agricultural and forest burning, and wood or coal-based residential heating, and it has been linked with respiratory and cardiovascular health risks and cancer.⁴ In addition, light-absorbing BC particles darken snow and ice, reducing the Earth's capacity to radiate sunlight back to space and thereby contributing to the warming of the atmosphere.⁵

There are still significant gaps in our understanding of the specific role of BC and other SLCPs in Arctic climate change. These gaps are as a result of, for example, limitations in our ability to measure BC in the atmosphere and environment, uncertainty regarding the impact of global and regional emissions on the Arctic climate, and our still embryonic knowledge of the complex physical and chemical processes that affect the levels of SLCPs in the atmosphere.⁶ Still, the idea that specific SLCP mitigation measures represent an integral part of the broader climate governance agenda is becoming more widespread. Because SLCPs remain in the atmosphere for only days, weeks, or months – a significantly shorter period than long-living carbon dioxide (CO₂) emissions – the mitigation of SLCP emissions is seen as a promising pathway to immediate and meaningful climate benefits. Above all, SLCP regulation is driven by a concern for the human and ecosystem health effects of atmospheric pollution.

3. A GLOBAL LANDSCAPE OF SLCP MITIGATION EFFORTS

A broad range of institutions, agreements, and multi-stakeholder initiatives currently address SLCPs. Existing mitigation efforts are disconnected and range from international and regional regulatory regimes to voluntary, industry-led initiatives. For example, both methane and HFCs⁷ are GHGs covered by the

(UNEP/WMO, 2011); Arctic Monitoring and Assessment Program (AMAP) & P.K. Quinn et al., 'The Impact of Short-Lived Pollutants on Arctic Climate', AMAP Technical Report No. 1 (2008); AMAP & P.K. Quinn et al., 'The Impact of Black Carbon on Arctic Climate', AMAP Technical Report No. 4 (2011); D. Zaelke & N. Borgford-Parnell, 'The Importance of Phasing Down Hydrofluorocarbons and Other Short-Lived Climate Pollutants' (2015) 5(2) *Journal of Environmental Studies and Sciences*, pp. 169–75; A. Hu et al., 'Mitigation of Short-Lived Climate Pollutants Slows Sea-Level Rise' (2013) 3(8) *Nature Climate Change*, pp. 730–4; D. Shindell et al., 'Simultaneously Mitigating Near-Term Climate Change and Improving Human Health and Food Security' (2012) 335(6065) *Science*, pp. 183–9; J.K. Shoemaker et al., 'What Role for Short-Lived Climate Pollutants in Mitigation Policy?' (2013) 342(6164) *Science*, pp. 1323–4; United States Environmental Protection Agency (US EPA), *Report to Congress on Black Carbon* (US EPA, 2012); United Nations Economic Commission for Europe (UNECE), Executive Body for the Convention on Long-Range Transboundary Air Pollution, 'Report by the Co-Chairs of the Ad-hoc Expert Group on Black Carbon', UN Doc. ECE/EB.AIR/2010/7, 30 Sept. 2010.

⁴ European Environment Agency (EEA), *Status of Black Carbon Monitoring in Ambient Air in Europe*, EEA Technical Report No. 18/2013 (EEA, 2013); World Health Organization (WHO), *Health Effects of Black Carbon* (WHO Regional Office for Europe, 2012).

⁵ T.C. Bond et al., 'Bounding the Role of Black Carbon in the Climate System: A Scientific Assessment' (2013) 118(11) *Journal of Geophysical Research: Atmospheres*, pp. 5380–552; V. Ramanathan & G. Carmichael, 'Global and Regional Climate Changes Due to Black Carbon' (2008) 1(4) *Nature Geoscience*, pp. 221–7.

⁶ See AMAP, *Summary for Policy-Makers: Arctic Climate Issues 2015 – Short-Lived Climate Pollutants* (AMAP, 2015).

⁷ HFCs are factory-produced SLCPs that have replaced ozone-depleting substances in air conditioning and refrigeration systems, among other industrial applications.

Kyoto Protocol⁸ to the United Nations Framework Convention on Climate Change (UNFCCC);⁹ emissions reduction credits have been issued, for example, to projects involving agricultural and landfill site methane destruction and HFC abatement.¹⁰ In addition, parties to the Montreal Protocol on Substances that Deplete the Ozone Layer¹¹ recently committed to a global phase down of HFC production and consumption, starting in 2016.¹²

International concern over the climate impacts of BC can be traced back at least as far as the Intergovernmental Panel on Climate Change (IPCC) Report of 1995, which addresses the radiative forcing effects of soot from the burning of fossil fuels and biomass.¹³

Amendments made in 2012 to the Convention on Long-Range Transboundary Air Pollution (CLRTAP),¹⁴ the first multilateral treaty to address air pollution, brought BC emissions within the scope of the Convention. This and other international legal developments on SLCPs are discussed in greater depth below.

The International Maritime Organization (IMO) has also been working on the issue of BC emissions from ships. At its 62nd session (2011), the Marine Environment Protection Committee initiated a work plan to address the Arctic impacts of BC emissions from ships and instructed the Subcommittee on Bulk Liquids and Gases – now the Sub-Committee on Pollution Prevention and Response (PPR) – to adopt a definition of BC, evaluate measurement methods, and propose potential control measures to reduce BC emissions from international shipping in the Arctic region.¹⁵ At its 2nd session (2015), the Sub-Committee on PPR recommended the adoption of a definition of BC developed by Bond and co-authors¹⁶ and broadly recognized by the scientific community. The Sub-Committee could not yet propose control measures because of ongoing questions about how best to measure BC from international shipping activities.¹⁷

⁸ Kyoto Protocol to the UNFCCC, Kyoto (Japan), 11 Dec. 1997, in force 16 Feb. 2005, available at: http://unfccc.int/kyoto_protocol/items/2830.php.

⁹ New York, NY (US), 9 May 1992, in force 21 Mar. 1994, available at: <http://unfccc.int>.

¹⁰ For a discussion of the controversial aspects of certain HFC-23 abatement projects under the Clean Development Mechanism, see L.R. Schneider, 'Perverse Incentives under the CDM: An Evaluation of HFC-23 Destruction Projects' (2011) 11(2) *Climate Policy*, pp. 851–64; and B. Rich, *Foreclosing the Future* (Island Press, 2013), p. 163.

¹¹ Montreal (Canada), 16 Sept. 1987, in force 1 Jan. 1989, available at: http://ozone.unep.org/new_site/en/montreal_protocol.php.

¹² UNEP, Decision XXVII/5: Issues Related to the Phase-Out of Hydrochlorofluorocarbons, 'Report of the 27th Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, Dubai (United Arab Emirates), 1–5 Nov. 2015', UN Doc. UNEP/OzL.Pro.27/13, 30 Nov. 2015.

¹³ IPCC, *Climate Change 1995: The Science of Climate Change. Contribution of WGI to the Second Assessment Report of the Intergovernmental Panel on Climate Change* (IPCC, 1996).

¹⁴ Geneva (Switzerland), 13 Nov. 1979, in force 16 Mar. 1983, available at: <http://www.unece.org/env/lrtap>.

¹⁵ IMO, 'Environment Meeting Completes Packed Agenda', Marine Environment Protection Committee, 62nd Session, 11–15 July 2011, 2011. Briefing 43, 19 July 2011, available at: <http://www.imo.org/en/MediaCentre/PressBriefings/Pages/43%20MEPC62ENDS.aspx#.VrIfNhfFu0>.

¹⁶ Bond et al., n. 5 above.

¹⁷ IMO, Sub-Committee on Pollution Prevention and Response, 2nd Session, 19–23 Jan. 2015, Meeting Summary, 23 Jan. 2015, available at: <http://www.imo.org/en/MediaCentre/MeetingSummaries/PPR/Pages/PPR-2.aspx>.

Practical recommendations for SLCP reductions have generally been sector-specific. In 2011, the United Nations Environment Programme (UNEP) compiled a list of 16 SLCP mitigation measures, associated with six specific sectors, that could be implemented on the national scale. The Climate and Clean Air Coalition (CCAC) – a multi-stakeholder group of governments, international organizations, and corporate and other non-governmental entities – has been working on the global reduction of SLCPs since 2012. It has launched a number of mitigation initiatives that focus on fostering public–private partnerships, building capacity, assisting governments in developing national action plans, and promoting the adoption of standards and regulations aimed at reducing SLCP emissions. The work of the CCAC includes 11 single-sector and cross-cutting initiatives. Other prominent global SLCP initiatives include the Global Alliance for Clean Cookstoves, a public–private partnership launched in 2010 and hosted by the United Nations (UN) Foundation, and the Global Methane Initiative, a multilateral partnership also launched in 2010 and based on a voluntary non-binding framework in coordination with international and non-governmental entities.

The global landscape of SLCP mitigation efforts, therefore, reveals a diverse array of initiatives, but no systematic approach or coherence. In this regard, emergent SLCP regulation displays the prevalent characteristics of international environmental governance: organizational and regime fragmentation.¹⁸

4. THE ARCTIC COUNCIL AND ITS WORK ON SLCPs

The present article focuses on the Arctic Council, one of the earliest institutions to have started working on SLCPs. The Arctic Council is a truly distinct global actor. It comprises the eight Arctic states as Members, and six international organizations representing Arctic indigenous peoples as Permanent Participants. Established in 1996, the Council's primary objective is to foster cooperation between its Members and Permanent Participants on 'common Arctic issues, in particular issues of sustainable development and environmental protection in the Arctic'.¹⁹ To date, 32 entities (non-Arctic states, global and regional intergovernmental and inter-parliamentary organizations as well as non-governmental organizations) have been granted observer status in the Arctic Council, which allows them to attend meetings, engage in working groups, contribute to project funding, and make statements at Ministerial meetings.²⁰ Hence, even though the Arctic Council is geographically

¹⁸ The possibility of 'institutional interplay', in relation to the global and sub-global regulation of SLCPs, remains an open and relevant question for prospective research. As elaborated by Young, the notion of institutional interplay refers to interactions and linkages between institutions and regimes, both intentional and unintentional, that impact upon their individual performance and effectiveness: O.R. Young, *Institutional Interplay: Biosafety and Trade* (UN University Press, 2008), and S. Stokke & O.S. Oberthür, 'Institutional Interaction in Global Environmental Change', in S. Stokke & O.S. Oberthür (eds), *Managing Institutional Complexity: Regime Interplay and Global Environmental Change* (The MIT Press, 2011), pp. 1–23. In particular, there is room for greater understanding as to the degree of interplay that exists in SLCP regulation, if any.

¹⁹ Art. 1(a), Declaration on the Establishment of the Arctic Council, Ottawa, ON (Canada), 19 Sept. 1996.

²⁰ Declaration on the Establishment of the Arctic Council (ibid.), Arctic Council Rules of Procedure, and Arctic Council Observer Manual for Subsidiary Bodies, adopted at the 8th Arctic Council Ministerial Meeting, Kiruna (Sweden), 15 May 2013.

exclusive with regard to its official decision-making processes, it nonetheless engages the active involvement of important global stakeholders, including the world's largest GHG-emitting nations.²¹ Despite having no formal status under international law, it has progressed 'from being simply a high level consultative forum to become an emerging regional organization with the ability to assist its members in organizing, managing and directing their collective efforts in the region'.²²

The work of the Arctic Council is carried out through its six thematic working groups as well as subsidiary bodies (task forces and expert groups) established to address specific issues. The activities, studies, and assessments of the working groups cover various aspects of the Arctic environment and communities, and provide the basis upon which the Arctic Council makes its official recommendations and decisions. Even though the Council claims no enforcement authority over its Members, it has provided a forum for the successful negotiation of two legally binding agreements between its member states on maritime search and rescue and on marine oil pollution in the Arctic.²³

The Arctic Monitoring and Assessment Programme (AMAP) Working Group delivered a first technical report, in 2008, on the impact of SLCPs in the Arctic. The following year, the Arctic Council established a task force on SLCPs and, since then, has published a number of reports through both the task force and other working groups addressing the Arctic implications of SLCP emissions.²⁴ Most recently, at the Iqaluit Ministerial Meeting in 2015, Arctic Council members agreed upon a Framework for Action on Enhanced Black Carbon and Methane Emission Reductions (the Framework).²⁵ Through the Framework, the Arctic Council Members have committed themselves to establishing BC inventories and strengthening information exchange on BC and methane emissions with a view to eventually adopting a quantitative collective goal on BC – without, however, creating legally binding obligations. This may suggest a relatively weak contribution to the goal of reduced SLCP emissions. It is also possible, however, that the instrument's informal nature will foster flexibility, experimentation, and the inclusion of non-Arctic nations. Such attributes may be necessary to achieve greater effectiveness than is usually achieved through a conventional international legal approach.

²¹ These include Canada, China, the European Union (EU), India, Japan, Russia, and the US.

²² D.C. Nord, 'The Challenge of Governance in the Arctic: Now and in the Future', in B. Evengard, J.N. Larsen & O. Paasche (eds), *The New Arctic* (Springer, 2015), pp. 303–14, at 307.

²³ Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic, Nuuk (Greenland), 12 May 2011, in force 19 Jan. 2013, available at: <https://oaarchive.arctic-council.org/handle/11374/531>; Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic, Kiruna (Sweden), 15 May 2013, in force 25 Mar. 2016, available at: <https://oaarchive.arctic-council.org/handle/11374/529>.

²⁴ Arctic Council, *An Assessment of Emissions and Mitigation Options for Black Carbon: Technical Report of the Task Force on Short-Lived Climate Forcers* (Arctic Council, 2011); and Arctic Council, *Recommendations to Reduce Black Carbon and Methane Emissions to Slow Arctic Climate Change, Task Force on Short-Lived Climate Forcers* (Arctic Council, 2013).

²⁵ Arctic Council, 'Framework for Action on Enhanced Black Carbon and Methane Emission Reductions', Annex 4, Iqaluit [NU (Canada)] 2015 SAO Report to Ministers (Arctic Council, 2015) (Framework), available at: <https://oaarchive.arctic-council.org/handle/11374/610>.

This argument will be developed further momentarily, after a closer examination of the international regulatory context and the new Arctic Council instrument pertaining to BC and methane.

The Framework is innovative in that it creates linkages between existing international legal instruments. Rather than duplicate existing legal mechanisms, it instead connects existing bodies of international law (namely, the CLRTAP²⁶ and the UNFCCC²⁷). Yet, because the Framework itself is not bound by the limitations of public international legal process, and because it engages not only states but also indigenous peoples and other stakeholders, it introduces a new, locally oriented, and inclusive approach to the problem of Arctic warming. The resulting transnational interplay between the local and the global is worth further investigation as a contrast to traditional approaches to international environmental law.

Public international legal processes are limited in at least two notable respects. The first of these limitations concerns participation. The state-centred spheres of international legal negotiation do not fully embrace the participation of non-state actors.²⁸ Although the classical assumption²⁹ that states are the exclusive makers and subjects of international law has long been challenged,³⁰ it is argued here that the continued closed nature of most international legal regimes affects the epistemological understanding and shaping of the global problems they intend to address. By focusing narrowly on the state, international legal systems have a tendency to homogenize spatial realities, while making some spaces completely invisible.³¹ This leads to a second limitation, which concerns international legal outcomes. In general, states are reluctant to compromise their sovereignty through international environmental regimes; hence, commitments made under international law tend to lack substance and depth, veering instead towards the informational and

²⁶ N. 14 above.

²⁷ N. 9 above.

²⁸ As Hickman remarks, the involvement of new (non-state) actors in global negotiations is conditioned by state-determined rules, norms and existing frameworks for international cooperation: T. Hickman, *Rethinking Authority in Global Climate Governance: How Transnational Climate Initiatives Relate to the International Climate Regime* (Routledge, 2016), p. 191.

²⁹ As articulated by Lassa Oppenheim in 1912, 'International Law is the name for the customary and conventional rules which are considered legally binding by civilised States in their intercourse with each other. ...[S]tates solely and exclusively are the subjects of international law': L. Oppenheim, *International Law: A Treatise, Vol. 1: Peace*, 2nd edn (Longmans, Green and Co., 1912), pp. 3, 19.

³⁰ See the discussion by McCaffrey, Shelton and Cerone of the post-Second World War evolution of the definition of international law to include non-state actors. In particular, they point to Phillip Jessup's 1948 definition: '[I]nternational law or the law of nations must be defined as law applicable to states in their mutual relations and to individuals in their relations with states ... [It] may also be applicable to certain interrelationships of individuals themselves, where such relationships involve matters of international concern': P. Jessup, *A Modern Law of Nations* (Macmillan, 1948), cited in S.C. McCaffrey, D. Shelton & J. Cerone, *Public International Law: Cases, Problems and Texts* (Lexis Nexis, 2010), p. 552. Even in his 1912 Treatise, Oppenheim admits his understanding of international law is not without contestation: Oppenheim, *ibid.*, p. 20, n. 1.

³¹ See J.C. Scott, *Seeing Like a State* (Yale University Press, 1998), on the simplification of space, or 'narrowing of vision', as a technique for producing certain forms of knowledge and control. See also I. Braverman, 'Hidden in Plain View: Legal Geography from a Visual Perspective' (2011) 7(2) *Law, Culture and the Humanities*, pp. 173–86, on the limits of legal sights and technologies and how they produce 'invisible legal geographies'.

aspirational.³² Prospects for the progressive evolution or meaningful interpretation of reporting mechanisms (such as the UNFCCC for methane and the CLRTAP for BC) are inherently constrained by the mandate, objectives, and scope of the regime in question. Yet, these same reporting mechanisms can be used creatively beyond the contexts in which they have been generated. Their significance may be enhanced by integration into other spheres of transnational cooperation, such as the Arctic Council.

Metaphors of *architecture*³³ are often invoked to capture the fragmented yet interconnected essence of international environmental governance. By utilizing and expanding upon reporting mechanisms of the UNFCCC and the CLRTAP, the Arctic Council Framework can be seen as accomplishing a type of architectural work. It not only links but also builds upon the knowledge that is generated in two distinct international regimes which are both relevant to climate change and air pollution governance. In this way, the Arctic Council's approach promotes and strengthens existing mechanisms of international law, while also innovating beyond them.

Do such 'hybrid legal spaces'³⁴ embody any systemic ordering or collective vision? This question has long pervaded our inquiry into international lawmaking, institution building, and communicating – three dimensions of what can be visualized as our ongoing global *life space*³⁵ negotiation. Indeed, this is the central question raised by the concepts of international legal *fragmentation* and *architecture*.³⁶ Moreover, soft law³⁷ mechanisms that emerge from and reconstitute international cooperation

³² E.g., legal obligations under the recently adopted Paris Agreement, Paris (France), 13 Dec. 2015, not yet in force (in UNFCCC, Report of the Conference of the Parties on its Twenty-First Session, Addendum, UN Doc. FCCC/CP/2015/10/Add.1, 29 Jan. 2016), are essentially informational: communicating nationally determined contributions every five years to a public registry (Art. 4(2)(9)(12)), providing national inventory reports on anthropogenic emissions and carbon sink capacity (Art. 13(7)) and, in the case of developed countries, providing reporting on financial support, technology transfer and capacity building provided to developing countries (Art. 13(9)).

³³ M. Ivanova & J. Roy, 'The Architecture of Global Governance: Pros and Cons of Multiplicity', in L. Swart & E. Perry (eds), *Global Environmental Governance: Perspectives on the Current Debate* (Center for UN Reform Education, 2007); L. Rajamani & D. Bodansky, 'Evolution and Governance Architecture of the Climate Change Regime', in D. Sprinz & U. Luterbacher (eds), *International Relations and Global Climate Change: New Perspectives*, 2nd edn (The MIT Press, 2016), available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2168859; H. van Asselt, M. Mehling & C.K. Siebert, 'The Changing Architecture of International Climate Change Law', in G. van Calster, W. Vandenberghe & L. Reins (eds), *Research Handbook on Climate Change Mitigation Law* (Edward Elgar, 2015), pp. 1–30.

³⁴ P. Schiff Berman, 'The New Legal Pluralism' (2009) 5(1) *Annual Review of Law and Social Science*, pp. 225–42.

³⁵ Drawing from Sassen, I use 'life space' here to denote the collective embodiment of our environmental, social, and economic spaces: S. Sassen, *Expulsions* (Belknap, 2014).

³⁶ On fragmentation in international environmental law, in particular, see T. Gehring, 'Treaty-Making and Treaty Evolution', in D. Bodansky, J. Brunnée & E. Hey (eds), *Oxford Handbook of International Environmental Law* (Oxford University Press, 2007) pp. 467–97, at 475; F. Biermann et al., 'The Fragmentation of Global Governance Architectures' (2009) 9(4) *Global Environmental Politics*, pp. 14–40; Stokke & Oberthür, n. 18 above.

³⁷ Soft law is understood here as referring to 'legally non-binding norms' of the international system: see D. Shelton, 'Introduction: Law, Non-Law and the Problem of Soft Law', in D. Shelton (ed.), *Commitment and Compliance: The Role of Non-Binding Norms in the International Legal System* (Oxford University Press, 2000), pp. 1–20. Because the notion of soft law essentially introduces a third dimension to the traditional dichotomy of law and non-law, its role, functions and even conceptual relevance are extensively debated in international legal scholarship. Even though the normativity of soft law may be deeply

offer another layer of institutional complexity and interdependence to our international legal existence. The view taken here is that while soft law may not create any legally enforceable obligations, this in no way implies that it does not create expectations of environmental and social ordering³⁸ or that it does not fulfil a governance role. In fact, its very significance lies in the fact that it exudes both 'stability' and 'flexibility'.³⁹ In some cases, soft law can be an early expression of, and testing ground for, contemporary and evolving modes of legal thought and action.⁴⁰ Moreover, soft law may enhance and emphasize the problem-solving purposes of international law.⁴¹ This is especially so in cases where the adoption of a legally binding agreement is not immediately possible as a result of, for example, prevailing scientific uncertainty with regard to what would constitute an appropriate response to the given problem.⁴² The following section explores the uncertain and diffuse way in which SLCP regulation unfolds in current international law.⁴³

4.1. *International Law Relevant to SLCPs in the Arctic*

Gothenburg Protocol to the CLRTAP

The CLRTAP⁴⁴ was adopted in 1979 under the auspices of the United Nations Economic Commission for Europe (UNECE) and constitutes the first multilateral agreement to address air pollution. To date, the Convention has been ratified by 51 UNECE Member States.⁴⁵ It is an environmental treaty that establishes a number of fundamental principles in relation to air pollution control and elaborates a

contested, it is widely accepted that non-legal norms can generate legal effects. According to Abbott and Snidal, the hard law and soft law concepts do not reflect a dichotomy, but rather a continuum of legalization that varies along three dimensions: obligation, precision, and delegation: K.W. Abbott & D. Snidal, 'Hard and Soft Law in International Governance' (2001) 54(3) *International Organization*, pp. 421–56.

³⁸ I use the term 'ordering' to overcome dichotomous ideologies of the legal and non-legal, and to invoke the sense that law is expressed concretely via 'complexes' that engage plural scales and actors. My framing draws on the rejection by Rose and Valverde of the idea of law as a uniform concept or autopoietic social subsystem and their suggestion that law should instead be thought of in terms of the 'legal complex', which they describe as encompassing the 'assemblage of legal practices, legal institutions, statutes, legal codes, authorities, discourses, texts, norms and forms of judgment': N. Rose & M. Valverde, 'Governed by Law?' (1998) 7(4) *Social & Legal Studies*, pp. 541–51, at 542.

³⁹ C. Chinkin, 'Normative Development in the International Legal System', in Shelton (ed.), n. 37 above, pp. 21–42, at 22.

⁴⁰ Shelton, n. 37 above, p. 10.

⁴¹ See the discussion by Cottrell and Trubek of the characteristics and processes of institutions that promote law's problem-solving function: M.P. Cottrell & D.M. Trubek, 'Law as Problem-Solving: Standards, Networks, Experimentation and Deliberation in Global Space' (2012) 21 *Transnational Law and Contemporary Problems*, pp. 359–93, at 367.

⁴² See Shelton's discussion of what motivates states to adopt soft law over hard law in Shelton, n. 37 above, pp. 12–3.

⁴³ For a comprehensive overview see Y. Yamineva & K. Kulovesi, 'Keeping the Arctic White: The Current Legal Landscape for Reducing Short-Lived Climate Pollutants in the Arctic Region and Opportunities for Future Development' (unpublished draft, filed with author).

⁴⁴ N. 14 above.

⁴⁵ Canada and the US are parties to the CLRTAP and have implemented their obligations through a bilateral treaty: US and Canada Air Quality Agreement, Ottawa, ON (Canada), 13 Mar. 1991, in force 13 Mar. 1991, available at: <https://www.ec.gc.ca/Air/1E841873-E03B-4F16-A8E1-EB2E37095B62/CanadaUSAirQualityAgreement.pdf>.

framework of information exchange and consultation, as well as research and monitoring, to assist contracting parties in reducing and preventing air pollution. The Implementation Committee, established in 1997 by decision of the Convention's Executive Body, reviews and reports on parties' compliance with obligations agreed upon under the Convention.

Initially designed to reduce sulphur emissions, the scope of the CLRTAP has substantially broadened since its adoption. Currently, eight protocols under the Convention provide legally binding emissions reduction targets covering a range of pollutants. While the series of 'first generation' protocols stipulated common emissions reduction targets for all parties, protocols developed since the 1990s have implemented the 'critical loads approach', whereby national targets vary according to regional ecosystem vulnerability and cost effectiveness.⁴⁶

The Gothenburg Protocol,⁴⁷ adopted in 1999, contains national emissions caps for sulphur dioxide (SO₂), nitrogen oxides (NO_x), ammonia (NH₃), and volatile organic compounds (VOCs). In 2012, the Gothenburg Protocol was amended to extend to fine PM.⁴⁸ Although the amendment is still pending formal entry into force, the Gothenburg Protocol is the first and only international legal instrument to provide specific emissions reduction targets for PM and BC. One of the new objectives of the amended Protocol is that, in implementing PM control measures, parties 'give priority, to the extent they consider appropriate, to emission reduction measures which also significantly reduce black carbon in order to provide benefits for human health and the environment and to help mitigation of near-term climate change'.⁴⁹ In this regard, the Protocol obliges parties to 'seek reductions from those source categories known to emit high amounts of black carbon' to the extent they deem appropriate. Parties are also encouraged to 'develop and maintain inventories and projections for emissions of black carbon, using guidelines adopted by the Executive Body' and to report this data.⁵⁰ The Protocols of the CLRTAP are accompanied by guidance documents on best abatement strategies and best available emissions reduction techniques. Under Article 10 of the Protocol, an evaluation of BC emissions mitigation measures by the Executive Body is to be included in its sessionary reviews once the amendment has entered into force.

Several parties to the Convention, including those that have yet to ratify the amended Gothenburg Protocol, have already voluntarily submitted BC emissions inventories through the Convention's European Monitoring and Evaluation Programme

⁴⁶ R. Lidskog & G. Sundqvist, 'Transboundary Air Pollution Policy in Transition', in R. Lidskog & G. Sundqvist (eds), *Governing the Air* (The MIT Press, 2011), pp. 1–36.

⁴⁷ Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution to Abate Acidification, Eutrophication and Ground-Level Ozone, Gothenburg (Sweden), 30 Nov. 1999, available at: <http://www.unece.org/fileadmin/DAM/env/lrtap/full%20text/1999%20Multi.E.Amended.2005.pdf>.

⁴⁸ 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone to the Convention on Long-Range Transboundary Air Pollution, as amended on 4 May 2012, not yet in force except for Annex I (5 June 2013), available at: http://www.unece.org/fileadmin/DAM/env/documents/2013/air/eb/ECE.EB.AIR.114_ENG.pdf.

⁴⁹ *Ibid.*, Art. 2(2).

⁵⁰ *Ibid.*, Arts 6(2)(2) and 7(1)(d).

(EMEP). While it is clear that the CLRTAP does not create any supranational authority to determine regulatory commitments or to impose sanctions for not upholding CLRTAP obligations, the Convention nonetheless fulfils a critical and unique role in channelling and standardizing scientific information on BC emissions, hence creating a valuable and unprecedented knowledge base. Even as a voluntary dimension of CLRTAP reporting obligations, national inventories of BC will contribute to advancing the scientific understandings necessary to substantiate regulatory decisions on SLCs. In light of the various sources of emissions in different countries and persistent scientific uncertainties as to the processes that affect BC impacts, closing in on knowledge gaps and setting an appropriate frame for comparative analysis remains a pressing challenge. In this regard, methodological guidance and BC information exchanges under the CLRTAP should be viewed as progressive developments, despite the absence of any clear, collective mitigation objective.

There are inherent limitations to regulating BC under the CLRTAP that merit consideration. Most notably, the Convention has a limited membership that does not include the highest BC-emitting nations such as India and China. The Convention maintains a strictly regional scope and there are currently no prospects for expansion. Moreover, with regard to regulatory ambition, the evolution of the CLRTAP Protocols towards a pollution control approach that is based on ‘critical levels’ and ‘critical loads’, determined according to the ‘current state of knowledge’, arguably does not embody the precautionary principle, a central feature of environmental law on all levels.

SLCP emissions reductions under the UNFCCC

The UNFCCC was adopted in 1992 at the Rio Conference as a primary global response to stabilizing GHG emissions globally. International climate governance under the UNFCCC has been relentlessly criticized with respect to its legitimacy and effectiveness. Most notably, the 1997 Kyoto Protocol,⁵¹ establishing legally binding national emissions reduction targets, has suffered significant setbacks, including the refusal by the United States (US) to ratify and Canada’s withdrawal in 2011. Yet, the recent adoption of the Paris Agreement⁵² by all 196 parties to the UNFCCC is a clear signal that the framework treaty retains political symbolism, and there are strong expectations for it to spur global trends towards progressively stronger regulatory and market mechanisms aimed at GHG emissions reductions.

PM emissions, and thus BC, do not fall within the scope of the UNFCCC; nor does there appear to be momentum to extend the UNFCCC framework to BC emissions – the issue was left out of the UNFCCC Negotiating Text prepared for the Paris negotiations.⁵³ With the shift of the international climate regime from a ‘top-down’ to

⁵¹ N. 8 above.

⁵² N. 32 above.

⁵³ T.L. Brewer, *Arctic Black Carbon from Shipping: A Club Approach to Climate and Trade Governance*, Issue Paper No. 4 (International Centre for Trade and Sustainable Development (ICTSD), 2015).

a ‘bottom-up’ approach,⁵⁴ states are highly unlikely to allow the specifics of mitigation to be determined through international negotiation, whether for GHGs or SLCPs.

At the same time, the regulation of BC under the UNFCCC is not entirely impossible. The UNFCCC Preamble acknowledges the inherently evolutionary nature of international climate change cooperation: ‘Steps required to understand and address climate change will be ... most effective if they are based on relevant scientific, technical and economic considerations and continually re-evaluated in the light of new findings in these areas’.⁵⁵

Moreover, even though aerosols are not explicitly within the scope of the UNFCCC,⁵⁶ the basic rules of treaty interpretation as codified in the Vienna Convention on the Law of Treaties (VCLT)⁵⁷ do provide an opening to extend the scope of the UNFCCC to aerosols. Articles 31 and 32 VCLT provide that – in addition to the text, Preamble, Annexes, and subsequent agreements between the Parties – the ‘subsequent practice’ of state parties shall be used for interpreting a treaty. The inclusion of BC mitigation measures in the nationally determined contributions (NDCs)⁵⁸ of some UNFCCC parties, as well as greater discussions on SLCPs within the context of technical workshops/expert meetings, and other similar subsequent practice under the Convention, could eventually provide support for the view that the regime may be extended to BC.

Unlike BC, methane is within the scope of the UNFCCC via the Kyoto Protocol. The Framework Convention itself does not create any specific emissions reduction obligations for methane or other GHGs, but the Kyoto Protocol is a legally binding instrument that sets specific emissions reduction targets for a list of GHGs, which includes methane and HFCs. The almost universal membership of the UNFCCC, combined with the regime’s ongoing political momentum, make it an important potential site for global SLCP regulation. At the same time, prevalent apprehension over the effectiveness of the UNFCCC regime – given its current structural dynamics and consensus-based decision-making framework – should certainly not be overlooked.⁵⁹ Moreover, the inclusion of SLCPs within the scope of the UNFCCC is not without risk. It is possible that linking CO₂ and

⁵⁴ D. Bodansky, ‘A Tale of Two Architectures: The Once and Future U.N. Climate Change Regime’ (2011) 43(3) *Arizona State Law Journal*, pp. 697–712.

⁵⁵ UNFCCC, n 9 above, Preamble.

⁵⁶ Art. 1(4) UNFCCC defines ‘emissions’ restrictively, as ‘the release of greenhouse gases and/or their precursors into the atmosphere over a specified area and period of time’; hence, aerosols do not fall within the Convention’s definitional understanding of emissions.

⁵⁷ Vienna (Austria), 23 May 1969, in force 27 Jan. 1980, available at: <https://treaties.un.org/doc/Publication/UNTS/Volume%201155/volume-1155-I-18232-English.pdf>.

⁵⁸ Prior to the Paris negotiations, UNFCCC parties were invited to communicate their intended NDC towards achieving the objective of the Convention as stipulated under Art. 2 UNFCCC: see Decision 1/CP.19 Further Advancing the Durban Platform, UN Doc. FCCC/CP/2013/10/Add.1, 31 Jan. 2014. As per the Paris Agreement, these communications are now referred to as NDCs. Certain countries (e.g. Mexico) have included BC mitigation measures in their NDCs.

⁵⁹ For a discussion on contemporary challenges of the UNFCCC regime, see A. Vihma, *How to Reform the UN Climate Negotiations? Perspectives from the Past, Present and Neighbour Negotiations*, FIIA Working Paper 82 (Finnish Institute of International Affairs, 2014).

SLCP mitigation may induce governments and corporations to subsume CO₂ reduction with SLCP mitigation, rather than thinking of both measures as complementary. This could lead to perverse effects, for unless strengthened SLCP mitigation measures are coupled with equally stringent CO₂ mitigation efforts, any short-term benefits of the former will be eclipsed by CO₂-induced global warming in the longer term.⁶⁰

Although both the CLRTAP and the UNFCCC are formal legal instruments, neither is structured to deliver more than thin guidance (if any) with respect to national BC mitigation measures. While these treaties may create the idea of an international regulatory space, they contribute very little substance with regard to how this so-called 'legal' space is ordered, and even less with regard to its enforcement. As for setting collective goals regarding BC mitigation, neither regime can be expected to progress rapidly in this regard. By contrast, the Arctic Council Framework, although not a legally binding instrument, is structured to deliver concrete regulatory impacts on BC mitigation. It creates a new linkage between the local and global in a way that has eluded international legal regimes. Whether soft law or not, it may very well lead to a harder legal outcome than current international law.

4.2. *The Arctic Council Enhanced Actions on Black Carbon and Methane*

Environmental protection and transboundary pollution have been leading concerns of the Arctic Council since its inception. In recent decades, its agenda has been broadened to include climate change. Although not originally established as either a truly *international* or *legal* platform, the Arctic Council recently concluded two legally binding agreements between the eight Arctic nations.⁶¹ This turn towards legalization is driven by the implications of climate change as well as the emergence of new opportunities for resource exploitation.⁶² Lucrative prospects tied to shipping routes, tourism, infrastructure development, and resource wealth have raised global political interest in the Arctic region. We are already seeing a more international Arctic Council in that it now includes 12 observing non-Arctic states, including China, India and Japan – all nations whose GHG and SLCP emissions have a profound effect on the global ecosystem.

While the Arctic Council's adoption in 2015 of a voluntary framework to address BC and methane emissions might not translate into binding international legal obligations, the initiative does signal an emerging effort towards integrated climate

⁶⁰ J. Rogelj et al., 'Disentangling the Effects of CO₂ and Short-Lived Climate Forcer Mitigation' (2014) 111(46) *Proceedings of the National Academy of Sciences*, pp. 16325–30; see also J.J. Blackstock & M.R. Allen, *The Science and Policy of Short-Lived Climate Pollutants*, Oxford Martin Policy Brief (Oxford University Press, 2012).

⁶¹ Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic, n. 23 above; Agreement on Cooperation in Marine Oil Pollution, Preparedness and Response in the Arctic, n. 23 above.

⁶² T. Koivurova, 'Increasing Relevance of Treaties: The Case of the Arctic,' *AJIL Unbound*, 6 May 2014, available at: <https://www.asil.org/blogs/increasing-relevance-treaties-case-arctic-agenda-treaties>.

and air pollution governance in the Arctic region. A clearly informal approach, the Framework is nevertheless linked to the broader body of international environmental law, with its opening paragraphs explicitly affirming its supportive and complementary relationship with the UNFCCC regime. Moreover, the informational mechanisms envisioned by the Framework rely on and complement the CLRTAP and UNFCCC emissions inventories and projections. The Framework's reporting mechanism makes it possible for Arctic and observer states to use information submitted to these other global reporting mechanisms as part of their national submissions to the Arctic Council Secretariat.⁶³

Through the Framework, the Arctic Council states commit themselves to 'enhanced, ambitious, national and collective action' with respect to reducing their overall BC and methane emissions. In this respect, they have agreed to provide BC inventories to the Arctic Council Secretariat as of 2015, to establish an aggregate summary of their emissions (of BC and methane), and furthermore to adopt an 'ambitious, aspirational and quantitative collective goal on black carbon and to consider additional goals by the next Arctic Council Ministerial meeting in 2017'. The Framework also establishes a two-year iterative process to assess progress towards the 'common vision' of the Framework and to make relevant recommendations.⁶⁴ Observer states are called upon to join in the active implementation of the Framework by 'strengthening their domestic actions, developing robust emission inventories, taking part in relevant meetings and submitting national reports as outlined in Annex B'.⁶⁵ Annex B of the Framework provides guidelines on national submissions of information.

The adoption of the Framework by the Arctic states follows a trend in international climate change cooperation towards fragmented and informal climate governance arrangements.⁶⁶ However, the Framework distinguishes itself from other climate governance instruments in one important respect. As an intergovernmental instrument, the Framework escapes the criticism commonly directed towards transnational governance regarding rule making by non-state actors.⁶⁷ So, while the Framework's soft law nature could limit its legal relevance and its impact on emissions mitigation, its adoption – viewed in light of the difficulty of achieving legally enforceable, specific and *substantive* collective commitments in global climate negotiations – may signal the beginning of an experiment in climate governance.

⁶³ Framework, n. 25 above, Annex B.

⁶⁴ *Ibid.*, Annexes A and C. The iterative process is stipulated in Annex A of the Framework. The objective, composition, and working modalities of the Expert Group are outlined in Annex C. Members of the Expert Group include representatives from Arctic states, Permanent Participants, Arctic Council Working Groups and Arctic Council observer states that intend to implement the Framework.

⁶⁵ *Ibid.*, para. 3.

⁶⁶ See Van Asselt, Mehling & Siebert, n. 33 above, and Yamineva & Kulovesi, n. 43 above.

⁶⁷ For a discussion of the legitimacy and accountability issues surrounding transnational governance see G.C. Schaffer, *Transnational Legal Ordering and State Change* (Cambridge University Press, 2013), p. 34; S. Bernstein, 'Legitimacy in Intergovernmental and Non-State Global Governance' (2011) 18(1) *Review of International Political Economy*, pp. 17–51; S. Bernstein & B. Cashore, 'Can Non-State Global Governance be Legitimate? An Analytical Framework' (2007) 1(4) *Regulation & Governance*, pp. 347–71.

In many respects, the Framework resembles what De Búrca, Keohane and Sabel have termed ‘global experimentalist governance (GXG)’:

[A]n institutionalized process of participatory and multilevel collective problem solving, in which the problems (and means of addressing them) are framed in an open-ended way, and subjected to periodic revision by various forms of peer review in the light of locally generated knowledge.⁶⁸

GXG, as an iterative and non-hierarchical form of global regulation, involves ‘the deliberative and inclusive redefinition, based on exchanges of information and experience over time, of the preferences and goals that it fosters’.⁶⁹ The authors further point to other attributes that make GXG a desirable form of collective rule making: discussion and perception sharing/building, framework articulation, contextually situated implementation, observation and review.⁷⁰

The Arctic Council Framework, with its emphasis on continuous learning and national autonomy and its non-hierarchical monitoring system, demonstrates several key features of a GXG regime. Firstly, the Framework is intended to serve as an evolutionary mechanism. States’ national action plans and mitigation strategies are to be strengthened over time as a result of the collective learning experience set in motion through a two-year iterative review process.⁷¹ The expert group leading the review process is mandated to propose improvements to the Framework and its Annexes and to propose options in relation to the collective quantitative goals referred to in the ‘common vision’ of the Framework.⁷² Secondly, in terms of implementation, the Framework underscores the importance of collective action in sectors ‘identified as the most significant and emerging sources of anthropogenic black carbon and methane’.⁷³ It encourages states to report on key mitigation actions and best practices by sector, while at the same time providing flexibility in the way in which this information is summarized. In a sub-section titled ‘Increasing Awareness’, the Framework underscores the importance of contextual factors, such as sub-national governmental collaboration on ‘projects that strengthen local capacities to identify, mitigate, and prevent localized pollution’.⁷⁴ In another section, private sector actors are encouraged to participate in implementing the Framework as appropriate. Finally, the expert group review process is primarily focused on achieving collective progression from individual national experiences and the proliferation of best practices, and hence is very different from punitive or compliance-based approaches to monitoring.

Another necessary dimension of GXG regimes is the presence of a ‘penalty default’ or ‘shadow of power’ that incites parties to cooperate, generally under the potential

⁶⁸ G. de Búrca, R.O. Keohane & C.F. Sabel, ‘Global Experimentalist Governance’ (2014) 44(3) *British Journal of Political Science*, pp. 477–86, at 477.

⁶⁹ *Ibid.*

⁷⁰ *Ibid.*, p. 478.

⁷¹ Framework, n. 25 above, para. 1.

⁷² *Ibid.*, Annex C, Terms of Reference.

⁷³ *Ibid.*, para.2.

⁷⁴ *Ibid.*

threat of a less desirable alternative outcome.⁷⁵ Currently, it is not clear that an Arctic Council or observer state that fails to implement the Framework would experience any specific drawbacks – aside from, of course, the continued deterioration of local environmental and human health – as compared with those states that follow through with its implementation. Unlike a club governance approach, where participation and compliance are incentivized by a structure of exclusive benefits,⁷⁶ implementation of the Framework for BC and methane is not linked to any enhanced Arctic entitlements.

Therefore, the Arctic Council may lack a sufficient ‘shadow of power’ to induce effective international participation comparable with an authoritative institutional setting. Arctic Council observers and other non-Arctic states may be reluctant to commit themselves to SLCP emissions reduction targets in the context of an intergovernmental forum to which they will never fully belong. The following section explores how the Arctic Council might enhance its influence on regional and global environmental governance.

4.3. *The Arctic Council and Prospective ‘Shadows of Power’*

Arctic Council observer states such as China and India have much to offer the global ecosystem in adopting the Framework for BC and methane, as they are substantial emitters of SLCPs and GHGs. At the same time, these states may well perceive that any commitments they undertake to reduce BC and methane emissions under the Arctic Council will place them at a competitive disadvantage relative to states that refuse to regulate SLCP emissions to the same degree. In order to compel these and other states to embark on the Framework, it may be necessary to introduce participation incentives. For instance, if non-participation is perceived to lead to exclusion from broader Arctic governance and from the Arctic Council community, non-Arctic states may be more inclined to implement the Framework. The benefits of cooperation and the disadvantages of non-participation in voluntary Arctic Council initiatives are likely to become more apparent as the Arctic Council continues to assert a predominant role in the stewardship of the Arctic life space, especially with regard to the Arctic marine environment and the shaping of Arctic issues in multilateral settings. A stepping stone in this regard is reflected in the proposal to establish a dynamic Arctic Ocean Coordinating Agreement (AOCA) under the Arctic Council. The AOCA would serve as a scientific knowledge-generation platform as well as an informal convening mechanism for the systematic coordination of international, regional, and national efforts addressing Arctic Ocean governance issues.⁷⁷ At the same time, any Arctic Council agreement aiming to coordinate

⁷⁵ De Búrca, Keohane & Sabel, n. 68 above, p. 482.

⁷⁶ For a discussion of the relevance of club governance in the context of climate change, see D. Victor, ‘The Case for Climate Clubs’, E15 Expert Group on Measures to Address Climate Change and the Trade System, ICTSD and World Economic Forum, Jan. 2015. See also Brewer’s proposal for an Arctic Black Carbon ‘club’ according to which licences to operate ships in the Arctic region would be made available only to those entities that meet specific standards regarding BC emissions: Brewer, n. 53 above.

⁷⁷ B. Baker & B. Yeager, ‘Coordinated Ocean Stewardship in the Arctic: Needs, Challenges and Possible Models for an Arctic Ocean Coordinating Agreement’ (2015) 4(2) *Transnational Environmental Law*, pp. 359–94.

activities beyond the jurisdiction of Arctic states – such as within the Arctic high seas – would clearly be met with apprehension by non-members of the Arctic Council. Even within the Council, the issue of Arctic Ocean governance is highly contested, as when the Arctic coastal states decided to exclude other Arctic Council members from participating in recent collaborative decision making on the Arctic Ocean.⁷⁸

Since its inception, the Arctic Council has played an unprecedented role in producing scientific knowledge on the Arctic and, to a lesser degree, in voicing Arctic environmental concerns in various international fora.⁷⁹ The challenge today is to transform the Council's strengths into an influential Arctic voice in global environmental governance, in particular with regard to regulatory issues that implicate the Arctic environment, such as worldwide emissions of GHGs and SLCPs. To work towards this objective, several pathways could be explored, ranging from the negotiation of new agreements under the Council to broader institutional restructuring. Transforming the Arctic Council into a formal, treaty-based, regional organization would not necessarily enhance its authoritative *global* environmental influence and, moreover, would remove the cooperative and consensual essence that is widely perceived as having propelled its success and relevance. Although the adoption of an AOCA could pave the way for a coordinated Arctic voice in international governance initiatives, it remains unclear to what extent such an agreement might influence decision making beyond the jurisdiction of Arctic states, or how it could enhance the bargaining power of the Arctic Council in global environmental negotiations. Furthermore, the Council's inner tensions attest to the reality that a coordinated Arctic voice may not be an easily realizable objective.

As emphasized by Young, 'the most acute environmental problems in the region ... are products of global forces; they cannot be addressed through the development of Arctic regimes'.⁸⁰ Still, deeper engagement with the Arctic Council and its emerging environmental governance mechanisms could become important for non-Arctic states wishing to secure their participation in the exploitation of the region's marine resources.⁸¹

5. EXPERIMENTATIONS IN LAW: TRAVERSING THE SPECTRUM

Global trends towards the adoption of informal climate and air pollution governance mechanisms and a concomitant thinning of international legal obligations in these realms shine a new light on the relationship between 'hard' and 'soft' framings of law and their respective implications for international cooperation. The hard law–soft law

⁷⁸ O.R. Young, 'Governing the Arctic Ocean' (2016) 72 *Marine Policy*, issue in press, available at: doi:10.1016/j.marpol.2016.04.038, pp. 1–7.

⁷⁹ P. Kankaapä & O. Young, 'The Effectiveness of the Arctic Council' (2012) 31 *Polar Research*, pp. 1–14.

⁸⁰ Young, n. 78 above, p. 4.

⁸¹ For a discussion of the establishment of a regional fisheries management organization via a legally binding agreement on the Central Arctic Ocean and other potential shifts towards hard law in the Arctic, see T. Koivurova & D. VanderZwaag, 'The Arctic Council at 10 Years: Retrospect and Prospects' (2007) 40(1) *University of British Columbia Law Review*, pp. 121–94. See also Young's discussion on the prospects of a multi-functional regional seas agreement with distinct categories of membership for states that would govern all human activities in the Arctic Ocean: Young, *ibid.*, p. 6.

discourse ultimately draws attention to the persistent dilemma experienced in all fields of international law: striking the right balance between law's flexibility (its inherent evolutionary nature) and its binding authority (its reliability and predictability).⁸² The trend towards international hard law mechanisms that emerged in the second half of the 20th century has been overtaken by the rapid production of soft law in environmental, trade, and social spheres.⁸³ Under the UNFCCC, international climate law navigated away from orthodox international legal formalism; the market-based Kyoto Protocol delegated a central role to non-state actors.⁸⁴ More recently, the legally binding dimension of the newly negotiated Paris Agreement⁸⁵ extends only to informational processes and procedural requirements, with the actual substance of NDCs to global emissions reduction remaining, in essence, aspirational (that is, not enforceable under international law). Slaughter characterizes the Paris Agreement as 'not law' but 'public problem solving on a global scale'.⁸⁶ For Haas, the new climate treaty is an example of 'green pluralism',⁸⁷ an emerging political approach to international cooperation that innovates in its reliance on private sector and civil society actors in tracking national commitments and compliance. Overall, it needs to be emphasized that despite the legally binding nature of the Paris Agreement, NDCs remain non-binding. Moreover, as Bodansky highlights, the treaty relies on 'transparency rather than legal enforcement to promote accountability and effectiveness'.⁸⁸ These developments prompt a rethinking of the meaning and nature of international law and, in particular, of the kinds of expectation appropriate to legal processes on a global scale. What the Paris Agreement signals foremost is that local, national, and regional scales of governance will be central in shaping the actual substance of international environmental law.

The crisis of climate change requires a constant, critical re-evaluation of our international legal order, and thus of our framing of and hopes for international legal thought.⁸⁹ Although Arctic climate change is a global matter, treating Arctic

⁸² For a recent and insightful compilation of works on how different realms of international law relate to the constantly changing nature of their objects and subjects, see *Netherlands Yearbook of International Law 2014: Between Pragmatism and Predictability – Temporariness in International Law* (T.M.C. Asser Press, 2015).

⁸³ J. Kirkton & M.J. Trebilcock (eds), *Hard Choices, Soft Law: Voluntary Standards in Global Trade, Environment and Social Governance* (Ashgate, 2004); J. Pauwelyn, 'Informal International Law-Making: Framing the Concept and Research Questions', in J. Pauwelyn, R. Wessel & J. Wouters (eds), *Informal International Lawmaking* (Oxford University Press, 2012), pp. 13–34.

⁸⁴ Van Asselt, Mehling & Seibert, n. 33 above.

⁸⁵ N. 32 above.

⁸⁶ A.-M. Slaughter, 'The Paris Approach to Global Governance', Project Syndicate, 28 Dec. 2015, available at: <https://www.project-syndicate.org/commentary/paris-agreement-model-for-global-governance-by-anne-marie-slaughter-2015-12>.

⁸⁷ P. Haas, 'The Day after Paris: Politicians Hand the Baton to Green Industries', *The Conversation*, 17 Dec. 2015, available at: <https://theconversation.com/the-day-after-paris-politicians-hand-the-baton-to-green-industries-51787>.

⁸⁸ D. Bodansky, 'Reflections on the Paris Conference', *Opinio Juris*, 15 Dec. 2015, available at: <http://opiniojuris.org/2015/12/15/reflections-on-the-paris-conference>.

⁸⁹ I am referring here to accounts of law centred on order, rules, command, control and sanction, i.e. 'the view that law and legal institutions can keep order and solve policy disputes': E.A. Posner, *The Perils of*

problems within existing global regulatory regimes and dominant discursive paradigms may neglect the significance of local and regional social and environmental claims, leading to a homogenization of the Arctic life space. This homogenization is illustrated by Stepien and co-authors in their discussion of how the notions of vulnerability and adaptation that dominate climate change scholarship, along with the technical framing of environmental phenomena, have excluded certain Arctic problems from political and scientific discourse.⁹⁰ Such homogenization can be seen as one of the epistemological and spatial limitations of conventional international legal thought. Although international treaties embody universalist ideals centred on a common humanity, the structural imbalances and interpretative styles of our international legal order are historically linked to the exploitation of human and environmental resources for exclusionary economic purposes.⁹¹ In particular, Arctic indigenous peoples, though influential in international norm creation on certain issues, have never been able to crystallize their full participation.⁹² Conversely, within the Arctic Council, Arctic organizations of indigenous peoples are granted active participation in and full consultation on all aspects of the Council's work, a status giving rise to a *'de facto'* power of veto should they all reject a particular proposal.⁹³

The institutional composition of the Arctic Council and its soft law approach allow it to surpass the epistemological limitations of the traditional international legal order in that the centrality of indigenous participation alters the nature of scientific knowledge that is, and can be, produced.⁹⁴ In this respect, Koivurova and Heinämäki remark that soft law possesses a 'revolutionary potential'⁹⁵ for Arctic organizations of indigenous groups, as a norm-making method that is not dependent on international law's state-based structures.

The spatial limitations of international law include its general failure to see global problems *across* the multiple scales upon which they are experienced and ordered. Because international legal realms restrict access to participation in the circuits of international negotiation, communication, and exchange, and have been constructed

Global Legalism (University of Chicago Press, 2009), p. 21, cited in Cottrell & Trubek, n. 41 above, p. 361.

⁹⁰ A. Stepien et al., 'Arctic Indigenous Peoples and the Challenge of Climate Change', in E. Tedsen, S. Cavalieri & R.A. Kramer (eds), *Arctic Marine Governance: Opportunities for Transatlantic Cooperation* (Springer, 2014), pp. 71–99.

⁹¹ A. Anghie, "'The Heart of my Home": Colonialism, Environmental Damage and the Nauru Case' (1993) 34(2) *Harvard International Law Journal*, pp. 445–506; M.R. Islam, 'History of the North-South Divide in International Law: Colonial Discourses, Sovereignty, and Self-Determination', in S. Alam et al. (eds), *International Environmental Law and the Global South* (Cambridge University Press, 2015), pp. 23–49, at 23; A. Anghie, *Imperialism, Sovereignty and the Making of International Law* (Cambridge University Press, 2005).

⁹² T. Koivurova & L. Heinämäki, 'The Participation of Indigenous Peoples in International Norm-Making in the Arctic' (2006) 42(221) *Polar Record*, pp. 101–10. On the participation of indigenous groups within the climate regime, see E.A. Kronk Warner, 'South of South: Examining the International Climate Regime from an Indigenous Perspective', in Alam et al., *ibid.*, pp. 451–68, at 451.

⁹³ Koivurova & Heinämäki, *ibid.*, p. 104.

⁹⁴ For a discussion of the evolution of the culture of climate change assessment see M.L. Martello, 'Arctic Indigenous Peoples as Representations and Representatives of Climate Change' (2008) 38(3) *Social Studies of Science*, pp. 351–76.

⁹⁵ Koivurova & Heinämäki, n. 92 above, p. 103.

on the mythical idea of the homogenous state, they can produce only limited spatial understandings of environmental problems such as Arctic warming. By comparison, the transnational features of the Arctic Council enable it to produce innovative models and tools for cooperation that reflect more inclusive legal geographies of Arctic life space. This is because the Arctic Council introduces a different scale and framing for regulatory experimentation on the global commons. The Arctic Council maintains a distinct regional voice that all the while remains permeable to global actors. The focus on the regional ensures the precedence of local contexts and the enhanced engagement of indigenous peoples, as the Arctic Council is the only intergovernmental organization to *centralize* the participation of indigenous peoples. These organizational features make it an important forum on the international scale and place it at the forefront of a new, globally located Arctic epistemic community,⁹⁶ producing knowledge that remains dismissed or difficult to locate within the traditional fragmented spheres of international law. For the most part, international legal regimes engage with non-state actors only at a distance and often exclusively from the perspective of states parties. As such, certain Arctic actors and issues are bound to gain more visibility and voice than others under international law. In this context, the Arctic Council can exert pressure on the architecture of international law while also providing a platform for a more representative array of Arctic actors to negotiate their *modus vivendi* in the hope of a more inclusive Arctic future.

6. CONCLUSION: VOICES AND PLACES OF ARCTIC GOVERNANCE

While the mitigation of SLCPs such as BC and methane represents a new branch of global climate concern, the issue has thus far been integrated haphazardly into international law. In the meantime, the urgency of regulating SLCP emissions is becoming more and more evident. As a component of fine PM, the World Health Organization (WHO) estimates that global BC emissions contribute to 4.3 million deaths annually from household air pollution and 3.7 million deaths from ambient air pollution.⁹⁷ Moreover, in terms of contributing to climate warming, human emissions of BC are considered to have the most powerful forcing effect behind emissions of CO₂.⁹⁸ Considering the short atmospheric lifetime of BC and other SLCPs, reducing their emissions will generate immediate benefits in terms of protecting human health and slowing the rate of warming over the coming decades.⁹⁹ In light of the time-sensitive dimension of the problem of regulating SLCPs, and the notoriously lengthy delays and time frames of international legal processes, the new Arctic Council

⁹⁶ Epistemic communities are understood here as Peter Haas has described them: ‘a network of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue-area’: P. Haas, ‘Introduction: Epistemic Communities and International Policy Coordination’ (1992) 46(1) *International Organization*, pp. 1–35, at 3.

⁹⁷ WHO, *Reducing Global Health Risks through Mitigation of Short-term Climate Pollutants* (WHO, 2015).

⁹⁸ Bond et al., n. 5 above.

⁹⁹ See AMAP, n. 6 above.

Framework provides a unique opportunity. The Framework supports the work of existing international legal institutions by disseminating and utilizing their reporting mechanisms and, at the same time, produces a new kind of transnational and multi-stakeholder knowledge network and collective vision on BC and methane.

The various institutions and mechanisms of international law interpret and help to construct scientific knowledge in different ways. Often, the rationality of international law can be elusive, as revealed by the recent attempt by the International Law Commission (ILC) to map out a set of comprehensive international legal principles and rules that can be derived from current state practice on the protection of the atmosphere.¹⁰⁰ While the project is intended to draw out the general legal rules and principles emerging from the many treaties that currently regulate the atmosphere in one way or another, the ILC's constrained approach to this codification has been criticized for diluting the project's scope and importance.¹⁰¹ As Sand and Weiner point out, the Commission's decision to not address BC and other 'dual-impact substances'¹⁰² means that in the ILC's legal analysis, atmospheric pollution is narrowly understood as resulting from gaseous emissions only – a definitional caveat that has no scientific basis whatsoever and can be considered politically motivated above all else.¹⁰³ As such, the process of codification of 'an international law of the atmosphere' will fail to address a range of emissions that are increasingly seen as one of the most threatening sources of both atmospheric pollution and global warming.

In light of the current failure of the international legal system to address atmospheric pollution in its fullest and most meaningful sense, and at a time when the disastrous health and climate impacts of BC and other SLCPs are becoming increasingly evident,¹⁰⁴ the Arctic Council's Framework for BC and methane

¹⁰⁰ ILC, 'Report of the Commission to the General Assembly on the Work of its 65th Session', UN Doc. A/68/10 (2013), para. 168, available at: <http://legal.un.org/docs/index.asp?symbol=A/68/10&referer=http://legal.un.org/ilc/reports/2013/&Lang=E>.

¹⁰¹ P.H. Sand & J.B. Weiner, 'Towards a New International Law of the Atmosphere?' (2015) 7(2) *Goettingen Journal of International Law*, pp. 1–25.

¹⁰² Dual-impact substances refer to those which have implications for both atmospheric pollution and climate change: ILC, n. 100 above, para. 168(b).

¹⁰³ Sand & Weiner, n. 101 above, p. 19.

¹⁰⁴ While displacement as a result of global warming affects all Arctic inhabitants, the negative outcomes of climate change especially impact upon Arctic indigenous peoples because of their unique cultural, social and economic reliance on the Arctic environment, which is crucial for sustaining their livelihoods and indigenous ways of life: see M. Nuttall et al., 'Hunting, Herding, Fishing and Gathering: Indigenous Peoples and Renewable Resource Use in the Arctic', in *Arctic Climate Impact Assessment – Scientific Report* (Cambridge University Press, 2005), pp. 649–90. For a discussion of specific environmental justice claims initiated by Arctic indigenous communities, see E.A. Kronk Warner & R.S. Abate, 'International and Domestic Law Dimensions of Climate Justice for Arctic Indigenous Peoples' (2013) 43 *Revue générale de droit*, pp. 113–50. It is also worth noting that with regard to SLCP emissions specifically, in 2013 the Arctic Athabaskan Council (a Permanent Participant of the Arctic Council, which represents approximately 45,000 indigenous peoples spread across 76 communities in Alaska, Yukon and the Northwest territories) filed a petition against the government of Canada in the Inter-American Court of Human Rights, for undermining the human rights of Athabaskan peoples by failing to implement effective regulatory measures on BC emissions: Arctic Athabaskan Council, *Petition to the Inter-American Commission on Human Rights Seeking Relief from Violations of the Rights of Arctic Athabaskan Peoples Resulting from Rapid Arctic Warming and Melting Caused by Emissions of Black Carbon by Canada*, 23 Apr. 2013, available at: http://earthjustice.org/sites/default/files/AAC_PETITION_13-04-23a.pdf.

indicates progressive intergovernmental action between the eight Arctic states. The Framework's adoption signals the beginning of a new era of climate governance as it represents the first time that Arctic States have elaborated climate mitigation goals under a common vision and extended to the international community an invitation to work together on a problem of global magnitude.