

INTERSECTIONS OF THE PARIS AGREEMENT AND CARBON OFFSETTING

LEGAL AND FUNCTIONAL CONSIDERATIONS

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Key Points

- Carbon offsetting — the process of purchasing carbon credits on the international or domestic market to “offset” carbon emissions — is quickly becoming an avenue of choice for industry seeking to initiate climate change mitigation.
- International aviation is a growing sectoral player in greenhouse gas (GHG) emissions, contributing 504.3 Megatonnes of carbon dioxide (MtCO_2) in 2014, which accounts for nearly two percent of global emissions and which increased by 95 percent between 1990 and 2014.
- The draft resolution establishing the global market-based measure (MBM) of the International Civil Aviation Organization (ICAO) recognizes the complementarity of the global MBM and various other measures in achieving emissions reductions goals. These goals have been clarified by the 2015 Paris Agreement.
- The proposed MBM should utilize a standard that fosters sustainable development, works to link with existing emissions trading schemes (ETSs) and aims to foster carbon-reducing growth.

Introduction

As the global community debates the viability of approaches to climate change mitigation and adaptation, carbon offsetting is quickly becoming an avenue of choice. Following the adoption of the Paris Agreement at the Twenty-first Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC), and looking forward to the potential outcomes of COP22 in Marrakesh, carbon offsetting is gaining increased emphasis, in particular in the context of ongoing discussions at ICAO relating to aviation-based carbon emissions. This policy brief explores the intersection of the Paris Agreement and carbon offsetting, and summarizes the legal and functional considerations. Carbon offsetting is explained, with particular emphasis on outlining the legal framework under the UNFCCC, including the Clean Development Mechanism (CDM) and the Paris Agreement of 2015, followed by a brief summary of project types, criteria and standards used to determine the quality of carbon offsets. As offsetting continues to grow in popularity and application, increased scrutiny must be placed on the quality of offset credits as carbon credits are inherently unequal.

Carbon Offsetting and the UNFCCC

The principal instrument governing reduction of anthropogenic GHG emissions is the 1992 UNFCCC,¹ along with the 1997 Kyoto Protocol² and the 2015 Paris Agreement.³ Under the UNFCCC, climate change is recognized as a global challenge that warrants an effective international response grounded in the principles of cooperation and common but differentiated responsibilities. To empower parties to achieve certified emission reductions (CERs) (article 2), the Kyoto Protocol introduced three market mechanisms: the CDM (article 12); emissions trading (article 17); and joint implementation (articles 3 and 4).⁴ Under the CDM, industrialized countries may invest in projects in developing countries that achieve CERs and receive credits for tonnes of CO₂ (tCO₂) reduced.⁵ The CDM plays an important role in fostering sustainable development, both actualizing emissions reductions and catalyzing domestic development priorities under sustainability.⁶ By the end of 2016, 4.8 billion CERs will be generated, based on 7,936 registered CDM projects, of which 2,943 projects have already issued credits.⁷

The Paris Agreement advances key market mechanisms relating to carbon offsetting developed under the Kyoto Protocol, aiming to hold global average temperature increases to well below 2°C and pursue efforts to achieve a limit of 1.5°C.⁸ A pillar of the post-Paris agenda, intended nationally determined contributions (INDCs) represent individual national emissions reduction targets. Iteratively developed by the Ad Hoc Working Group

on the Durban Platform for Enhanced Action (ADP),⁹ parties were encouraged at COP19 and COP20 to establish INDCs that allowed for progressive reductions in carbon emissions.¹⁰ Prior to COP21 in Paris, 119 INDCs — covering 147 parties and representing 75 percent of parties to the convention and 86 percent of total emissions — were received by the UNFCCC Secretariat.¹¹

INDCs were further entrenched in the Paris Agreement, first by reiterating the need for parties to communicate INDCs prior to COP22, and second, through the requirement to communicate nationally determined contributions (NDCs), on five-year intervals starting in 2020, that demonstrate a progressive commitment to ongoing carbon reductions (articles 3, 4.1–4.3). Environmental integrity and transparency to avoid “double counting” should also be promoted (article 4.13). Parties are further encouraged to conserve and enhance GHG sinks — through forests in particular, including through the use of positive incentives to combat deforestation and degradation, and promotion of sustainable management practices (article 5). Internationally transferred mitigation outcomes (ITMOs) — such as CDM credits — may be used by parties to contribute to NDCs through “cooperative approaches” (article 6.2). A mechanism to support mitigation and sustainable development is thus created, with parties able to use it on a voluntary basis, while the agreement also notes the importance of using integrated and holistic non-market based approaches as well (articles 6.4, 6.8). Compliance is achieved through a transparency framework whereby parties provide national communications, biennial reports and updates, and international consultation and analysis (article 13.4).

To effectively track mitigation and adaptation actions, parties are to take inventory and report on sources of anthropogenic emissions, track implementation activities and outline support provided or needed relating to capacity building, technology transfer and financial support (articles 13.7, 13.9). Compliance is monitored by an expert committee and is facilitated in a “transparent, non-adversarial and non-punitive manner,” consistent with national capabilities and circumstances (article 15.1). The Paris Agreement represents a retrenchment of the Kyoto Protocol, with the integration of flexible market mechanisms identified as integral to the achievement of the established commitments. However, the ultimate contours of

1 United Nations Framework Convention on Climate Change, 9 May 1992, 1771 UNTS 107, 31 ILM 849 (entered into force 21 March 1994) [UNFCCC].

2 Kyoto Protocol to the United Nations Framework Convention on Climate Change, 11 December 1997, 2303 UNTS 148, 37 ILM 22 (1998) (entered into force 16 February 2005).

3 Paris Agreement to the United Nations Framework Convention on Climate Change, 12 December 2015, Dec CP.21, UN Doc FCCC/CP/2015/L9 [Paris Agreement].

4 M Netto & K-U B Schmidt, “The CDM Project Cycle and the Role of the UNFCCC Secretariat,” in D Freestone & C Streck, *Legal Aspects of Carbon Trading: Kyoto, Copenhagen and Beyond* (Oxford: Oxford University Press, 2009) at 213.

5 *Ibid.*

6 Christina Voigt, “Is the Clean Development Mechanism Sustainable? Some Critical Aspects” (Winter 2008) 8:2 Sustainable Development L & Pol'y at 17.

7 UNFCCC, “CDM Insights Project Activities”, online: UNFCCC <cdm.unfccc.int/Statistics/Public/CDMinsights/index.html>.

8 Paris Agreement, *supra* note 3, art 2.

9 COP 17, Dec 1/CP.17, 2011, UN Doc FCCC/CP/2011/9/Add.1; COP 19, Dec 1/CP.19, 2013, UN Doc FCCC/CP/2013/10/Add.1, art 2 [COP Dec 1/CP.19].

10 COP Dec 1/CP.19, *supra* note 9, art 2; COP 20, Dec 1/CP.20, 2014, UN Doc FCCC/CP/2014/10/Add.1, arts 8–16.

11 UNFCCC, “Synthesis report on the aggregate effect of the intended nationally determined contributions”, 30 October 2015, UN Doc FCCC/CP/2015/7 at para 8.

the carbon market are far from conclusively defined, with the parties and the ad hoc Paris Committee working to facilitate implementation (article 15.2-3). The evolving landscape of carbon offsetting, post-Paris, will be a byproduct of market adoption and the eventual functionality of the regime.

Components of Carbon Offset Projects: Not All Apples Are Alike

Carbon offsetting carries with it innate challenges relating to the quality of the offset credit, available standards internationally, and the type and proprietor of the project. The number of offsets is usually calculated on the basis of a business-as-usual scenario baseline. Challenges in project accuracy have resulted in initiatives receiving significant media scrutiny amid claims of fraud, non-existent projects, and ongoing abuse or rent-seeking of the emerging sector.¹² Some commentators, including outspoken British journalist George Monbiot, have compared carbon offsetting to the Roman Catholic Church's practice of selling indulgences in fifteenth- and sixteenth-century Europe.¹³

Following the emphasis in the Paris Agreement on NDCs, and the important role carbon offsetting will play in addressing these targets, it is important to revisit these criteria and standards in an attempt to reinforce and update them. Concerns over the rent-seeking behavior of market participants looking for short-term economic returns even through projects with dubious legitimacy continues to raise questions relating to the use of carbon

offsetting as a policy tool.¹⁴ As the carbon market expands, increased diligence must be placed on ensuring the credits being generated actualize sustainable development.

Types of Carbon Offset Projects

- Renewable energy (wind solar, hydro, geothermal/ground-source or biomass) projects both avoid fossil fuel emissions and provide permanent energy alternatives. Renewable energy projects are considered strong carbon offsetting options,¹⁵ but can also inadvertently bring about negative environmental consequences.¹⁶
- Energy efficiency projects include investment in technologies that assist in the transition to a more energy-efficient economy and reduce energy demand. Energy efficiency projects are often considered strong, since they generate permanent emissions reductions by displacing energy-inefficient technologies.¹⁷
- Fuel switching projects stimulate use of non-carbon-intensive fuel sources, or alternatives. They are noted as relatively easy to quantify while providing a range of co-benefits.¹⁸
- Methane recovery, often derived from landfills, mining or livestock waste, presents an area of significance for offsetting due to the high global-warming potential of methane. However, landfill-based methane sequestration in many jurisdictions is already covered by regulation, negating qualification for offset credits.¹⁹
- Biological carbon sequestration, often achieved through sustainable landscape management practices or ecosystem

12 Doug Struck, "Buying carbon offsets may ease eco-guilt but not global warming", *Christian Science Monitor* (20 April 2010), online: CSM <www.csmonitor.com/Environment/2010/0420/Buying-carbon-offsets-may-ease-eco-guilt-but-not-global-warming>; D Melnick et al, "Make Forests Pay: A Carbon Offset Market for Trees", *New York Times* (19 January 2015), online: NYT <www.nytimes.com/2015/01/20/opinion/a-carbon-offset-market-for-trees.html?_r=0>; James Kanter, "Guilt-Free Pollution. Or Is It?", *The New York Times* (20 February 2007), online: NYT <www.nytimes.com/2007/02/20/business/worldbusiness/20carbon.html?ex=1329627600&en=ae3aa64d0ba3a471&ei=5090&partner=rssuserland&emc=rss&pagewanted=all&pagewanted=all>; Fred Pearce, "Greenwash: easyJet's carbon claims written on the wind", *The Guardian* (23 July 2009), online: Guardian <www.theguardian.com/environment/blog/2009/jul/23/easyjet-climate-change-claims>; Fred Pearce, "Drax power plant is no greener than the coal it burns", *The Guardian* (25 February 2010), online: Guardian <www.theguardian.com/environment/2010/feb/25/greenwash-drax-power-plant>; Fred Pearce, "Noel Kempff project is 'saving the forest' by forcing destruction elsewhere", *The Guardian* (11 March 2010), online: Guardian <www.theguardian.com/environment/2010/mar/11/greenwash-noel-kempff-forests>.

13 George Monbiot, "Paying for our sins", *The Guardian* (18 October 2006), online: Guardian <www.theguardian.com/environment/2006/oct/18/green-guardiansociety supplement>.

14 G Cornelis van Kooten, Tim Bogle & Frans P de Vries, "Rent Seeking and the Smoke and Mirrors Game in the Creation of Forest Sector Carbon Credits: An Example from British Columbia" (August 2012) Resource Econ & Pol'y Analysis Res Group Working Paper, University of Victoria, online: UVIC <<https://web.uvic.ca/~repa/publications/REPA%20working%20papers/WorkingPaper2012-06.pdf>>; G Cornelis van Kooten, Tim Bogle & Frans P de Vries, "Forest Carbon Offsets Revisited: Shedding Light on Darkwoods" (2015) 61:2 Forest Sci 370 at 371–73, online: UVIC <[http://web.uvic.ca/~kooten/Publications/Darkwoods\(ForSci2015\).pdf](http://web.uvic.ca/~kooten/Publications/Darkwoods(ForSci2015).pdf)>; Shashi Kant & Janaki Alavalapati, eds, *Handbook of Forest Resource Economics* (New York: Routledge, 2014) at 252; "One can only conclude that any carbon offset program is a second best solution that includes rent seeking."

15 Deborah Carlson et al, *Purchasing Carbon Offsets: A Guide for Canadian Consumers, Businesses, and Organizations* (Vancouver, BC: David Suzuki Foundation & Pembina Institute, 2009) at 23, online: Suzuki Foundation <www.davidsuzuki.org/publications/downloads/2009/climate_offset_guide.pdf>.

16 Otto Andersen, *Unintended Consequences of Renewable Energy: Problems to Be Solved* (London: Springer, 2013).

17 Carlson et al, *supra* note 15 at 24.

18 *Ibid.*

19 *Ibid.*

conservation/restoration, provides for broad approaches to carbon offsetting. Afforestation, reforestation, avoidance of deforestation/forest degradation, ecosystem rehabilitation and soil management all support enhanced carbon sequestration,²⁰ with wetland ecosystem restoration amplifying the environmental impact as wetlands hold a higher sequestration potential in comparison to an equivalent area of forest.²¹

Criteria Impacting the Quality of Carbon Credits

- Additionality, the notion that the carbon offset benefit must be in addition to any benefit that would occur without market incentive, has been a critical component of climate change mitigation measures from early on in the UNFCCC.²² Similarly, additionality was integrated into the Kyoto Protocol CDM (article 12.5). Projects that might be unattractive to investors, that carry at least one financial or technical barrier, that are not common practice, or that are made more feasible through CDM accreditation, may be considered additional.²³
- Accurate quantification is a crucial component to ensure the carbon offset is actualized. This includes the establishment of a baseline and determination of the “crediting lifetime” of the project.²⁴
- Auditing, conducted independently and based on applicable standards, provides validation, verification and assurance that the emissions reductions are authentic.²⁵
- Unique ownership, which clarifies the ownership rights relating to the offset credits, is crucial to ensure no double-counting occurs. All credits must be assigned to a single

entry,²⁶ and removed from circulation (“retired”) following use.²⁷

- Permanence, or the durability of the positive climatic benefit, is variable across project type. Carbon sequestration projects are particularly vulnerable, with the destruction of an ecosystem undermining past climate gains.²⁸
- Leakage occurs where emissions reductions in one sector or region are displaced to a different sector or region, and is a key factor relating to biological sequestration projects in particular.²⁹
- Sustainability considerations, including the fostering of sound socio-environmental outcomes and co-benefits, should be a defining characteristic of offset projects.³⁰ While sustainability is only voluntary in the CDM context, numerous other standards use sustainable development factors as critical criteria for project approval.³¹
- Stakeholder consultation, in terms of indigenous peoples and local communities as well as international experts and civil society groups, generates support for the project and assists project proprietors in identifying potential implementation pitfalls. Stakeholder consultation is a key factor for nearly all top-level certification schemes.³²
- Timing (and in particular the timing upon which credits are released) can be highly influential on the perceived quality of the offset project. The practice of releasing credits for sale prior to the actualization of emissions reductions (“forward crediting”) has the potential to undermine the integrity of the project.³³

20 *Ibid* at 25–26.

21 The Blue Carbon Initiative, “Costal Blue Carbon: Methods for assessing carbon stocks and emissions factors in mangroves, tidal marshes, and seagrass meadows” (Arlington, VA: Conservation International/International Union for Conservation of Nature, 2014) at 18, online: Blue Carbon <thebluecarboninitiative.org/wp-content/uploads/coastalbluecarbonmanualfull.pdf>. CM Duarte, JJ Middelburg, & N Caraco, “The major role of marine vegetation on the oceanic carbon cycle” (2005) 2 *Biogeosciences* 1–8.

22 COP 1, Dec 5/CP.1, 1995, UN Doc FCCC/CP/1995/7/Add.1, para 1(d).

23 UNFCCC, “CDM Methodological Tool: Tool for the demonstration and assessment of additionality” (2012) Version 7.0.0, online: UNFCCC <<https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>> [CDM Additionality Tool].

24 Carlson et al, *supra* note 15 at 31.

25 *Ibid*.

26 UNFCCC, Dec 3/CMP.1, 2005, UN Doc FCCC/KP/CMP/2005/8/Add.1, Appendix D.

27 Carlson et al, *supra* note 15 at 32.

28 *Ibid*.

29 ODI, “Additionality, non-permanence, and leakage” ODI infosheet 8 of 10, online: ODI <www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/6086.pdf>.

30 UNFCCC, “CDM Sustainable Development Tool: Voluntary tool for describing sustainable development co-benefits of CDM project activities or programmes of activities (PoA)” (2014) SD Tool 01 Version 0.1.1.

31 C Arens et al, “Reforming the CDM SD Tool: Recommendations for Improvement” (Berlin: German Emissions Trading Authority, 2015) at 11, online: DTU <orbit.dtu.dk/files/115264238/Reforming_the_CDM_SD_Tool.pdf>.

32 *Ibid* at 13–14.

33 Carlson et al, *supra* note 15 at 34.

International Standards for Carbon Offsetting

The CDM was established as one of three flexible mechanisms under the Kyoto Protocol. While shortcomings have been identified, overall the CDM has been deemed a success by commentators.³⁴ Projects must be submitted for review and registration, hosted in non-Annex I Party jurisdictions, and subject to monitoring, verification and post-project review prior to issuance of carbon credits.³⁵ While the CDM has demonstrated high aggregate value in terms of project frequency, both new project development and CDM credit prices have been steadily declining, with a 53 percent reduction in project registration in 2014 and the average CDM CER price trading at €0.17(US\$0.19) per tCO₂ in 2015.³⁶

A range of voluntary standards has also been developed, with adoption becoming increasingly common.

Key Standards

- The Gold Standard, which was established in 2003 by the World Wildlife Fund and a coalition of non-governmental organizations (NGOs) to ensure projects developed under the CDM achieve both emissions reductions and sustainable development.³⁷ In 2015, Gold Standard credits accounted for 18.5 percent of the voluntary carbon market share, representing 8.8 Megatonnes of carbon dioxide equivalent (MtCO₂e).³⁸
- The Verified Carbon Standard (VCS) has developed beyond a carbon emissions standard to include a collection of parallel standards and initiatives aimed at generating verified carbon units for emissions reductions.³⁹ Parallel standards developed by VCS, in partnership with a range

of organizations, include the Climate, Community and Biodiversity standard (CCB),⁴⁰ the Jurisdictional and Nested REDD+ (JNR),⁴¹ and the Landscape Standard.⁴² In 2015, VCS accounted for 37.2 percent of the voluntary carbon market share, representing 17.6 MtCO₂e, with the complementary use of CCB in conjunction with VCS covering an additional 12.1 percent of the market or 5.7 MtCO₂e.⁴³

- The American Carbon Registry Standard, developed by the American Carbon Registry (ACR), sets requirements governing quantification, ongoing monitoring and project-based reporting for GHG emissions reductions verified in compliance with the California cap-and-trade program. In 2015, ACR accounted for 5.3 percent of the voluntary carbon market share, equating to 2.5 MtCO₂e.⁴⁴
- The Climate Action Reserve (CAR) has developed a range of protocols that are applicable depending on project type, including: coal mine methane, forests, grasslands, nitric acid, nitrogen management, organic waste digestion, rice cultivation, urban forest management and urban tree planting. In 2015, CAR encompassed 19.6 percent of the voluntary carbon market share, equating to 9.3 MtCO₂e.⁴⁵
- The SocialCarbon Standard, which was developed in 2000 by the Brazil-based NGO Ecologica Institute, applies a sustainable livelihood approach to achieve carbon emissions reductions,⁴⁶ and works in conjunction with approved carbon-accounting standards (CDM, ISO, and VCS).⁴⁷ In 2015, SocialCarbon accounted for a modest 0.9 MtCO₂e.⁴⁸

The range of available standards creates disparities across initiatives, based on project and certification type, corrodes confidence in particular project types (such as sustainable

³⁴ Christina Voigt, “Responsibility for the Environmental Integrity of the CDM: Judicial Review of Executive Board Decisions” in D Freestone & C Streck, *Legal Aspects of Carbon Trading: Kyoto, Copenhagen and Beyond* (Oxford: Oxford University Press, 2009) at 272–73.

³⁵ Netto & Schmidt, *supra* note 4 at 224–28.

³⁶ World Bank Group, “State and Trends of Carbon Pricing 2015” (Washington, DC: World Bank, 2015) at 36, online: WB <www.worldbank.org/content/dam/Worldbank/document/Climate/State-and-Trend-Report-2015.pdf>.

³⁷ The Gold Standard, “Our Purpose” Gold Standard, online: GS <www.goldstandard.org/our-story/who-we-are>.

³⁸ Kelly Hamrick & Allie Goldstein, “Raising Ambitions: State of the Voluntary Carbon Markets 2016” (2016) Forest Trends’ Ecosystem Marketplace at 18, online: Forest Trends <www.fores-trends.org/documents/files/doc_5242.pdf>.

³⁹ VCS, “The VCS Project Cycle: Step by Step” (2013), online: VCS <www.v-c-s.org/wp-content/uploads/2016/05/FactSheet-PROJECT-CYCLE-2013-FINAL_0.pdf>; VCS, “VCS Methodology Development: Encouraging Innovation” (2013), online: VCS <www.v-c-s.org/wp-content/uploads/2016/05/FactSheet-MAP-2013-FINAL_0.pdf>; VCS, “VCS Program Guide,” v 3.5 (8 October 2013), online: VCS <<http://database.v-c-s.org/sites/vcs.benfredaconsulting.com/files/VCS%20Program%20Guide%20v3.5.pdf>>.

⁴⁰ CCBA, “Climate, Community & Biodiversity Standards, Third Edition”, Climate, Community & Biodiversity Alliance (December 2013), online: VCS <www.v-c-s.org/wp-content/uploads/2016/05/CCB_Standards_Third_Edition_December_2013.pdf>.

⁴¹ VCS, “Jurisdictional and Nested REDD+ (JNR) Validation and Verification Process” v 3.0 (8 October 2013), online: VCS <http://database.v-c-s.org/sites/vcs.benfredaconsulting.com/files/JNR%20Validation%20and%20Verification%20Process%2C%20v3.0_0.pdf>.

⁴² VCS, “Landscape Standard,” online: VCS <www.v-c-s.org/project/landscape-standard/>.

⁴³ Hamrick & Goldstein, *supra* note 38 at 18.

⁴⁴ *Ibid.*

⁴⁵ *Ibid.*

⁴⁶ SocialCarbon Standard, “SocialCarbon Standard” v 5.0 (July 2013), online: SC <www.socialcarbon.org/wp-content/uploads/2012/11/SOCIALCARBON_STANDARD_v-5-.00.pdf>.

⁴⁷ *Ibid* at 7–11.

⁴⁸ Hamrick & Goldstein, *supra* note 38 at 18.

agriculture and agroforestry),⁴⁹ and creates inequalities in the carbon market, even among the prevailing standards (Gold Standard, VCS, CAR and CCB).

Interlinkages of Carbon Offsetting under ICAO and the Paris Agreement

Carbon Offsetting Mechanism under ICAO

International aviation is a growing sectoral player in global GHG emissions, contributing 504.3 MtCO₂ in 2014, accounting for nearly 2 percent of global emissions and demonstrating an increase of 95 percent between 1990 and 2014.⁵⁰ Aviation emissions are forecasted to maintain significant growth trends, requiring offsets of an estimated 142 to 174 MtCO₂ in 2025 and 443 to 596 MtCO₂ in 2035 to achieve the ICAO goal of “carbon-neutral growth.”⁵¹ Costs of offsetting are expected to represent 0.2–0.6 percent and 0.5–1.4 percent of total international aviation revenue by 2025 and 2035 respectively.⁵² As ICAO discusses the establishment of a global MBM to act as a Carbon Offsetting Scheme for International Aviation (COSIA),⁵³ it is important to consider areas of convergence and divergence with the Paris Agreement, to inform ongoing policy discourse.

Under the proposed framework, a phased implementation will begin in 2021, first including high-income states (based on gross national income), as well as states that have international aviation activities in excess of 1.0 percent of the total revenue tonne-kilometres (RTK) in the year 2018, inclusive of 80 percent of all RTKs (Phase I) (paragraph 7(a)). The second phase of implementation, starting in 2026, will integrate upper-middle income states, inclusive of 95 percent of all RTKs (paragraph 7(b)). Least-developed countries, small island developing states and landlocked developing countries are exempted from

COSIA but are encouraged to participate voluntarily (Phase II) (paragraph 7(c-d)). Emissions reduction targets for aircraft operators will be calculated annually from 2021, based on the operator’s emissions from the previous year multiplied by the growth rate of emissions in the international aviation sector from 2020 (paragraph 9).

Monitoring, reporting and verification (MRV) criteria are to be developed by the ICAO Council by 2020, with the support of the Committee on Aviation Environmental Protection for adoption by 2017 (paragraphs 13, 17(a)). A three-year compliance window is provided (2021–2023) allowing impacted operators to reconcile requirements and report data to applicable domestic authorities (paragraph 14), with COSIA proposed to operate until 2035 (paragraph 16). The ICAO Council is also to develop emissions unit criteria (EUC) for adoption by 2018, as well as establish a standing technical advisory body on EUC, and a centralized consolidated register under the scheme (paragraph 17(e-h)). Member states implicated in Phase I and Phase II are required to establish domestic registers in accordance with the ICAO guidelines, and may cooperate to establish joint or group registers (paragraph 17(i-j) (l)). Additionally, member states are expected to bring their domestic regulatory framework into alignment by 2020 (paragraph 17(n)). The use of credits that align with the EUC and are beneficial to developing country states under COSIA is to be promoted, including units generated under CDM and other UNFCCC-approved mechanisms (paragraph 18). Lastly, development of aviation-related methodologies for application to offset projects is to be explored, with particular emphasis on the use of credits generated in these programs to be utilized under COSIA and ensuring double counting is avoided (paragraph 19).

The Impact of the Paris Agreement

Development of a global MBM to facilitate aviation sector carbon reductions directly contributes to the achievement of the Paris Agreement, but also raises crucial questions relating to credit quality and the relationship with domestic and regional ETSs. Under the Paris Agreement, parties are encouraged to employ cooperative approaches to facilitate the exchange of ITMOs toward NDCs, promote sustainable development, ensure environmental integrity and transparency, and apply robust accounting measures to avoid double counting (article 6.2). The mitigation mechanism created in article 6.4, while voluntary, aims to promote both the mitigation of GHG emissions and sustainable development. Simultaneously, article 6.8 recognizes the need for parallel holistic programs to assist in achievement of NDCs promoting sustainable development and poverty eradication, and emphasizing the role of capacity building and technology transfer. Achievement of the objectives of the aforementioned provisions of the Paris Agreement, in the

49 Rob Bailis, Derik Broekhoff & Carrie M Lee, “Supply and sustainability of carbon offsets and alternative fuels for international aviation” (2016) Stockholm Environment Institute Working Paper 2016-03 at 12–20, online: SEI <www.sei-international.org/mediamanager/documents/Publications/Climate/SEI-WP-2016-03-ICAO-aviation-offsets-biofuels.pdf>.

50 IEA, “Key CO₂ Emissions Trends: Excerpt from CO₂ Emissions from Fuel Combustion” (Paris: International Energy Agency, 2016) at 14, online: IEA <www.iea.org/publications/freepublications/publication/KeyCO2EmissionsTrends.pdf>.

51 ICAO, “On Board a Sustainable Future: 2016 Environmental Report” (Montreal: ICAO, 2016) at 141, online: ICAO <www.icao.int/environmental-protection/Documents/ICAO%20Environmental%20Report%202016.pdf>.

52 *Ibid* at 142.

53 ICAO, “Draft Assembly Resolution text on a Global Market-based Measure (GMBM) Scheme” (8 April 2016), online: ICAO www.icao.int/Meetings/GLADs-2016/Documents/Draft%20Assembly%20Resolution%20text%20on%20GMBM%20for%202016%20GLADs.pdf [ICAO Draft Resolution April 2016].

context of the ICAO global MBM, necessitates a critical inquiry into the verification standard and auditing methodology to be developed to ensure achievement of the sustainable development principles embodied in the accord.

The draft resolution establishing the ICAO global MBM recognizes the “complementary role” played by the instrument in achieving the aspirational goal of global emissions reductions,⁵⁴ and suggests promotion of emission units produced through the CDM, as well as new market measures and programs approved by the UNFCCC.⁵⁵ Mutually supportive development of the global MBM MRV methodology, in alignment with the principles of the Paris Agreement, provides a key opportunity for enhanced emphasis on emissions reduction standards that are more advanced on the sustainable development continuum.

As of 2016, 17 ETSs can be identified globally, within 35 countries, 13 provinces or states and seven cities.⁵⁶ Of the 17, only three currently cover aviation emissions, including the decade-old European Union Emissions Trading System (EU-ETS), the Republic of Korea Emissions Trading Scheme (KETS), and the pilot cap-and-trade project in Shanghai, China.⁵⁷ The EU-ETS has chosen to focus on regulating emissions relating to aviation travel within the European Union, temporarily exempting international travel from the scheme in 2012, pending clarification in ICAO.⁵⁸ Korea has five domestic airlines participating in the KETS, with Phase I allocations granted, and further amounts reduced in Phase II and III to be made up through auction.⁵⁹ Offsets under the KETS may account for up to 10 percent of the compliance allocation.⁶⁰

Since the mid-1990s, Canadian organizations and provincial entities have engaged in certification and trading of emissions reductions under the voluntary Greenhouse Gas Emissions

Reduction Trading (GERT) and Pilot Emissions Reduction Trading (PERT) schemes.⁶¹ Both the GERT and PERT projects were positioned as public-private partnerships, but resulted in limited uptake.⁶² Emissions trading in Quebec and Ontario has demonstrated broader engagement. Quebec implemented a cap-and-trade system regulating emissions, beginning in 2013 and covering industries with annual emissions in excess of 25,000 tCO₂, with others participating on a voluntary basis.⁶³ Ontario introduced a cap-and-trade system in 2001, but included only the Ontario Power Generation facilities, with initial allocations provided by the Ministry of the Environment governing nitrogen oxides (NO_x) and sulphur dioxide (SO₂) discontinued in 2004 and 2008 respectively. To receive emissions reduction credits that are tradeable on the market, participating organizations must put in place an emissions reduction project governed by an approved methodology.⁶⁴

The Quebec system, governed by the Western Climate Initiative (WCI), is linked to the California market, allowing for a common auction. In 2016, Ontario also linked its cap-and-trade system with California's.⁶⁵ The North American experience, pioneered by California and Quebec, should inform any potential linking process and highlights the importance of close planning and consultation.⁶⁶ Modalities to support effective linkage of the global MBM with existing ETS jurisdictions will be a crucial factor for continued reflection throughout the MRV negotiation process. The ultimate success of the global MBM to actualize emissions reductions will be the prime determinant of whether governance of aviation-based emissions remains under the responsibility of ICAO in the future.

Recommendations

Utilize a Standard That Fosters Sustainable Development

In the development of the global MBM and MRV standards, preference should be given to more socio-environmental focused

⁵⁴ *Ibid* at para 3.

⁵⁵ *Ibid* at para 18.

⁵⁶ ICAP, “Emissions Trading Worldwide: International Carbon Action Partnership (ICAP) Status Report 2016” (Berlin: ICAP, 2016) at 27, online: ICAP <https://icapcarbonaction.com/images/StatusReport2016/ICAP_Status_Report_2016_Online.pdf> [ICAP Status Report 2016]. There are 17 ETSs globally: EU-ETS, Swiss ETS, Kazakhstan ETS, Regional Greenhouse Gas Initiative (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, Vermont [USA]), WCI (California [USA], Manitoba, Ontario, Quebec [Canada]), Tokyo Cap-and-Trade Program (Japan), Target Setting Emissions Trading System in Saitama (Japan), New Zealand ETS, Korean ETS, China Pilot ETS (Beijing, Chongqing, Guangdong, Hubei, Shanghai, Shenzhen, Tianjin). Further jurisdictions that have ETSs under consideration: Russian Federation, Turkey, Ukraine, Washington (USA), Brazil (including Rio de Janeiro and São Paulo), Chile, Mexico, Japan, Taiwan, Thailand and Vietnam.

⁵⁷ *Ibid* at 31–32, 57, 63.

⁵⁸ *Ibid* at 31.

⁵⁹ *Ibid* at 57.

⁶⁰ *Ibid*.

⁶¹ Markus Gehring & Kristin Price, “Implementing the Kyoto Protocol in Canada and the UK: A Discussion of the Economic Instruments Employed” in Christopher PM Waters, ed, *British and Canadian Perspectives on International Law* (Leiden: Brill, 2014) at 260–62.

⁶² *Ibid*.

⁶³ ICAP Status Report 2016, *supra* note 56 at 43.

⁶⁴ Markus Gehring & Charlotte Streck, “Emissions Trading: Lessons From SO₂ and NO_x Emissions Allowance and Credit Systems Legal Nature, Title, Transfer, and Taxation of Emission Allowances and Credits” (2005) 35 Eur LR 4 at 10227–10228.

⁶⁵ WCI, *An Agreement between Ontario and the Western Climate Initiative* (1 January 2016), online: WCI <[www.wci-inc.org/docs/ON%20Funding%20Agreement%20\(01-01-2016\).pdf](http://www.wci-inc.org/docs/ON%20Funding%20Agreement%20(01-01-2016).pdf)>.

⁶⁶ ICAP Status Report 2016, *supra* note 56 at 41–44.

standards such as VCS, CCB and Gold Standard to promote the mutually supportive implementation of the Paris Agreement. Generation of sound socio-environmental or livelihood focused co-benefits, ideally those that integrate local stakeholders through consultation and where possible capacity building, concurrent with verified emissions reductions, creates enduring developmental shifts and positively incentivizes ecosystem conservation.

Consult and Be Transparent in ETS Linking

Transparency is a principal pillar of the Paris Agreement, both substantively and procedurally. Linking of ETSs will be an essential component in actualizing these transparency components, in particular, the global stocktake and progress on NDCs.

Provide Adequate Flexibility under the Global MBM, and Work Toward a Harmonized Standard

In developing the MRV standards and methodologies, efforts should be made to foster synergies across ETS jurisdictions to simplify potential linking and support transition to a relative level of harmonization. Particular emphasis will be needed to reconcile the inequality of carbon credits currently available on the market.

Aim to Achieve Carbon-reducing Growth

The goal of carbon-neutral growth needs to be revisited and recalibrated as growth that provides for an absolute reduction in sectoral emissions rather than percentage-based reductions that mirror the growth curve of the industry. Increased efficiencies over air traffic and flight routes are supportive of absolute emissions reductions. Parties should aspire to foster direct and systematic reductions in aviation emissions as a counterbalance to sectoral growth.

Acronyms and Abbreviations

ACR	American Carbon Registry
ADP	Ad Hoc Working Group on the Durban Platform for Enhanced Action
CAR	Climate Action Reserve
CCB	Climate, Community and Biodiversity
CDM	Clean Development Mechanism
CERs	certified emission reductions
COP	Conference of the Parties
COSIA	Carbon Offsetting Scheme for International Aviation
ETSs	emissions trading schemes
EUC	emissions unit criteria
EU-ETS	European Union Emissions Trading System
GERT	Greenhouse Gas Emissions Reduction Trading
GHG	greenhouse gas
ICAO	International Civil Aviation Organization
INDCs	intended nationally determined contributions
ITMOs	internationally transferred mitigation outcomes
JNR	Jurisdictional and Nested REDD+
KETS	Korea Emissions Trading Scheme
MBM	market-based measure
MRV	monitoring, reporting and verification
MtCO ₂	Megatonnes of carbon dioxide
MtCO ₂ e	Megatonnes of carbon dioxide equivalent
NDCs	nationally determined contributions
NGOs	non-governmental organizations
NO _x	nitrogen oxides
PERT	Pilot Emissions Reduction Trading
RTK	revenue tonne-kilometre
SO ₂	sulphur dioxide
tCO ₂	tonnes of carbon dioxide
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
WCI	Western Climate Initiative

About the ILRP

The International Law Research Program (ILRP) at CIGI is an integrated multidisciplinary research program that provides leading academics, government and private sector legal experts, as well as students from Canada and abroad, with the opportunity to contribute to advancements in international law.

The ILRP strives to be the world's leading international law research program, with recognized impact on how international law is brought to bear on significant global issues. The program's mission is to connect knowledge, policy and practice to build the international law framework — the globalized rule of law — to support international governance of the future. Its founding belief is that better international governance, including a strengthened international law framework, can improve the lives of people everywhere, increase prosperity, ensure global sustainability, address inequality, safeguard human rights and promote a more secure world.

The ILRP focuses on the areas of international law that are most important to global innovation, prosperity and sustainability: international economic law, international intellectual property law and international environmental law.

About the Authors



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Freedom-Kai Phillips joined CIGI's International Law Research Program (ILRP) as a research associate in 2016. At CIGI, Freedom-Kai provides legal research in support of the ILRP's international environmental law stream, examining law and governance innovations and tools for implementing the United Nations Sustainable Development Goals (SDGs). Specifically, Freedom-Kai is assessing law and governance innovations for realizing the SDGs, including but not limited to water, access to justice and biodiversity.

In addition to his work at CIGI, Freedom-Kai is a legal research fellow with the Centre for International Sustainable Development Law, and the manager of the CISDL International Secretariat. Prior to that, Freedom-Kai served as interim executive director of the Centre for Law, Technology and Society at the University of Ottawa, Faculty of Law. Freedom-Kai is an LL.M. candidate at the University of Ottawa, Faculty of Law.

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ADVANCING POLICY IDEAS AND DEBATE

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POLICY BRIEF
No. 87 • September 2016

THE WTO AND THE SPAGHETTI BOWL OF FREE TRADE AGREEMENTS FOUR PROPOSALS FOR MOVING FORWARD

Maria Panezi

Key Points

- As many major trading nations sign trade agreements among themselves, creating a “spaghetti bowl” of trade arrangements that bypass the World Trade Organization (WTO), the organization is becoming less relevant for international trade negotiations.
- The WTO’s lack of relevance is worsened by the negotiations impasse within the organization, the so-called Doha Round negotiations deadlock.
- The WTO has taken some steps to deal with the spaghetti bowl, mostly by introducing transparency mechanisms.
- The WTO needs to make these transparency mechanisms more robust and link them to national transparency on the ground, and WTO member states need to consider taking action more formally and systematically to control and monitor the spaghetti bowl.

Introduction¹

The WTO is a multilateral framework in which more than 160 countries engage in negotiations to reduce tariffs and other trade barriers among themselves. Several agreements limit the rules within the organization, such as the WTO's Non-agreements (the WTO agreement is its predecessor; the General Agreement on Tariffs and Trade (GATT) prevents countries from entering into other, smaller trade arrangements in addition to the WTO). These agreements can take several forms: they can be free trade agreements (FTAs), preferential trade agreements (PTAs) or regional trade agreements (RTAs). Eventually, these different types of agreements create miniature trade regimes that link countries in a number of ways. It has been suggested that a world map showing the plethora of trading relationships would resemble a spaghetti bowl.²

How We Got to the Spaghetti Bowl³

WTO agreements are regulated by article XXIV of the GATT, article V of the General Agreement on Trade in Services (GATS) and the Enabling Clause. These provisions recognize five forms of such arrangements: first, free trade areas, in which members, further to their WTO obligations, liberalize trade among themselves;⁴ second, customs unions, which are FTAs with a common external

¹ This policy brief draws on a forthcoming article, Maria Panezi, "The Ten Nasty Kinds: Interventions and Legal Transparency in the WTO and Their Connection to Preferential and Regional Trade Agreements," (2016) Special issue on Free Trade Agreements, *Rev. J. Am. Leg. Stud.*

² The spaghetti bowl is identified by James E. McGuire and A. Krugman, *The Politics of International Trade Agreements*, (Washington, DC: AEI Press, 1995).

³ General Agreement on Tariffs and Trade, 30 October 1947, 38 UNTS 187 (amended into 1 January 1994 at para 8, art. XXIV) (as GATT 1994).



The WTO and the Spaghetti Bowl of Free Trade Agreements: Four Proposals for Moving Forward

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CIGI PAPERS
NO. 83 — NOVEMBER 2015

WHEN CO₂ GOES TO GENEVA
TAXING CARBON ACROSS BORDERS —
WITHOUT VIOLATING WTO OBLIGATIONS

MARIA PANIZI



When CO₂ Goes to Geneva: Taxing Carbon across Borders – Without Violating WTO Obligations

Paper No. 83

Maria Panezi

This paper discusses how trade and the environment can intersect in the case of carbon taxes. Carbon taxes become relevant for international trade when they are coupled with border tax adjustment (BTA) legislation for imported products. BTAs are optional taxes or duties imposed on imports in order to ensure similar market conditions for similar domestic and imported products, when the domestic products are already taxed nationally. BTAs, in the case of products with a high carbon footprint, are equivalent to taxation imposed on similar domestic products with the same amounts of CO₂ emitted during their production. BTAs are intended to level the playing field between domestic and foreign products. Such tax schemes, if not designed properly, can be found to violate a country’s international commitments before the World Trade Organization (WTO).

This paper argues that environmentally conscious governments can impose a WTO-compatible BTA to offset domestic CO₂ legislation, following a set of requirements laid out in the main WTO agreement, the General Agreement on Tariffs and Trade (GATT). In order to benefit from the WTO-compatible offsetting BTA, federal governments need to engage in coordinated efforts to harmonize treatment of high CO₂ emitters domestically, since domestic industries will not bear the burden of environmental regulation alone.



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CIGI PUBLICATIONS

ADVANCING POLICY IDEAS AND DEBATE



POLICY BRIEF
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A MODEL-LAW APPROACH TO RESTRUCTURING UNSUSTAINABLE SOVEREIGN DEBT

Steven L. Schwarcz

Key Points

Unresolved sovereign debt problems are hurting debtor nations, their citizens and their creditors, and also can pose serious systemic threats to the international financial system.

- The existing contractual restructuring approach is insufficient to make sovereign debt sustainable. Although a more systematic legal resolution framework is needed, a formal multilateral approach, such as a treaty, is not currently politically viable.
- An informal model-law approach should be legally, politically and economically feasible. This informal approach would not require multilateral legislation, but could be adopted by one or both of those jurisdictions that enacted a proposed Sovereign Debt Restructuring Model Law as their domestic law.

Introduction

Recent court decisions in the United Kingdom regarding the illegality of exit consents, and in the United States regarding *per se* class actions in Argentine sovereign debt, as well as the ongoing Greek debt crisis, have dramatically highlighted the risks of an inadequate legal resolution framework for restructuring unsustainable sovereign debt. Such crises affect individual debtor nations and their citizens, as well as their creditors. A sovereign debt default can also pose a serious systemic threat to the international financial system.

The Contractual Approach Is Inadequate

One of the main impediments is that the existing “contractual” approach to sovereign debt restructuring — the use of so-called collective action clauses (CACs) — is insufficient to solve the holdout problem. CACs are clauses in debt contracts that enable a specified supermajority, such as two-thirds or three-quarters, of the debt contract party to amend the debt terms unilaterally, without the consent of other creditor representation. The holdout problem is a type of collective action problem in which certain creditors, such as venture funds that may have bought debt in the secondary market at a deep discount, hope to strong-arm other creditors into accepting a debt reduction. If a creditor proposes to change critical terms, even though no other debt holders consider the plan reasonable, CACs are insufficient to solve the holdout problem. Many sovereign debt contracts lack them, requiring unanimity to change critical repayment terms — and thus enabling any party to the contract to act as a holdout. For example, after years of trying to include CACs, relatively few Greek debt agreements actually contained such clauses and those that did were generally restricted to bond issues. Even so, contracts that include CACs often require a supermajority requirement may be so high (for example, three-quarters) that



A Model-Law Approach to Restructuring Unsustainable Sovereign Debt

Policy Brief No. 864

Steven L. Schwarcz

Unresolved sovereign debt problems are hurting debtor nations, their citizens and their creditors, and can pose serious systemic threats to the international financial system. The existing contractual restructuring approach — using collective action clauses to solve the holdout problem — is insufficient to make sovereign debt sustainable. A model-law approach, in which a proposed Sovereign Debt Restructuring Model Law would be enacted in New York or English law (or both), would lead to a systematic legal resolution framework for countries in severe debt crises.



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The Centre for International Governance Innovation is an independent, non-partisan think tank on international governance. Led by experienced practitioners and distinguished academics, CIGI supports research, forms networks, advances policy debate and generates ideas for multilateral governance improvements. Conducting an active agenda of research, events and publications, CIGI's interdisciplinary work includes collaboration with policy, business and academic communities around the world.

CIGI's current research programs focus on three themes: the global economy; global security & politics; and international law.

CIGI was founded in 2001 by Jim Balsillie, then co-CEO of Research In Motion (BlackBerry), and collaborates with and gratefully acknowledges support from a number of strategic partners, in particular the Government of Canada and the Government of Ontario.

Le CIGI a été fondé en 2001 par Jim Balsillie, qui était alors co-chef de la direction de Research In Motion (BlackBerry). Il collabore avec de nombreux partenaires stratégiques et exprime sa reconnaissance du soutien reçu de ceux-ci, notamment de l'appui reçu du gouvernement du Canada et de celui du gouvernement de l'Ontario.

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