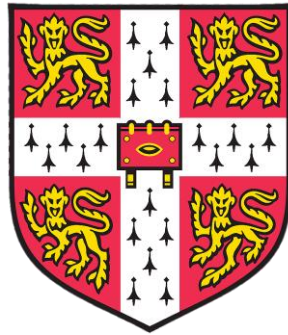


# Development of Market Mechanisms Under International Law to Advance Sustainable Development

An Analysis of the Frameworks Related  
to Climate Change and Biodiversity



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This dissertation is submitted in fulfillment of the degree of Doctor of Philosophy

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April 2022



## **Declaration**

*This thesis is submitted according to the requirements of the Degree Committee of Land Economy. It does not exceed the regulation length of 80,000 words including footnotes. References and appendices are not included. It is the result of my own work and includes nothing which is the outcome of work done in collaboration with others, except where specifically indicated in the text and Acknowledgements.*



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## Abstract

Achievement of sustainable development in light of ongoing climate change and biodiversity pressures benefits from the deployment of innovations that foster engagement and uptake across all levels, mobilises finance flows commensurate to the scale of the challenge, and enables the dissemination of transition solutions that support the low carbon economy. This research investigates the relationship between the legal architecture of market mechanisms under international law and the role of private actors, and how this contributes to sustainable development. Through an exploration of how market mechanisms under the climate change and biodiversity regimes have achieved environmentally sound outcomes, been advanced in sectoral approaches, and facilitated via bilateral and multilateral trade and investment relationships, important insights are identified regarding the composition of effective law and governance architectural approaches.

Leveraging experiences derived from treaty practice viewed through an interactional account of international law, this assessment elucidates the important role played by alignment of legal regimes, robust transparency measures, and complementary schemes such as stakeholder-endorsed certifications in buttressing the established measures to ensure sustainable development outcomes and contributes to understanding the role of private actors in the operationalisation of environmental agreements. Research findings suggest it is the interaction of norms across the international legal architecture, informed by relationships within and across relevant treaty systems and the general corpus of international law, and actualised through engagement with private actors as a component of market mechanisms that provides the opportunity for congruence of practice, forging of shared understandings, and normative internalisation and ownership among communities of practice that stimulates both innovative solutions and ambitious action.



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## Chapter 1 | Mapping the Way Forward

### Overview

Actualisation of climate ambition sufficient to hold global warming at 1.5°C requires collective momentum at a global scale to enable economy-wide transition solutions across sectors to be developed, deployed, and implemented at a rapid pace to both decouple growth from emissions and to successfully facilitate a low carbon economy.<sup>1</sup> Mobilisation of finance flows commensurate with the magnitude of the challenge is both a prerequisite to success but also a prime indicator. While Member States remain the principal actors under international law, market mechanisms<sup>2</sup> created through international instruments when properly constructed are a critical modality for operationalisation of sustainable development as they provide legal pathways for treaty implementation, positively incentivise behavioural shifts, and send an important signal to investors and stakeholders of the legal certainty underpinning climate action.

The research aims to answer the research question: What is the relation between the legal architecture of market mechanisms under international law and the role of private actors in them, and how does this contribute to sustainable development? Findings evaluate the role that market mechanisms play in advancing the functional norm of sustainable development through fostering congruence of practice among both States and non-Party stakeholders. Viewing the expansion of international law as a fluid process that benefits from pathways which enable operationalisation and reinforce the legality and legitimacy of the framework,<sup>3</sup> insights are drawn through a mapping of current practice to identify strengths and shortcomings of market mechanisms in furtherance of sustainable development outcomes. Understanding how the legal architecture of market mechanisms can be leveraged to engage private actors in the operation of environmental treaties through a critical analysis of experiences under the climate mechanism (certified emission reductions/internationally transferred mitigation outcomes) and biodiversity mechanism (internationally recognised certificates of compliance), informed by experiences

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<sup>1</sup> Barbara Buchner et al., “Global Landscape of Climate Finance 2019” (Climate Policy Initiative, 2019); Climate finance in a 1.5 °C scenario requires \$1.6-3.8 trillion annually between 2016-2050.

<sup>2</sup> Leonid Hurwicz & Stanley Reiter, *Designing Economic Mechanisms* (Cambridge: Cambridge University Press, 2006), 14: A market mechanism may be defined as “a formal entity intended to represent a system for organizing and coordinating economic activity;” JH Dales, *Pollution, Property and Prices* (Toronto: University of Toronto Press, 1968): Tradable market instruments may be used to achieve environmental goals; B Kelsey Jack et al., “Designing payments for ecosystem services: Lessons from previous experience with incentive-based mechanisms” (2008) 105:28 Proceedings of the National Academy of Sciences, online: <[www.pnas.org/doi/10.1073/pnas.0705503104](http://www.pnas.org/doi/10.1073/pnas.0705503104)>; Explores payments for ecosystem services (PES) incentive schemes and intersections with biodiversity conservation.

<sup>3</sup> Jutta Brunnée & Stephen J. Toope, *Legitimacy and Legality in International Law: An Interactional Account* (Cambridge, Cambridge University Press, 2010). [Brunnée & Toope 2010]

under related international instruments, as well as relevant sectoral and trade approaches, increases knowledge of the trade and environment nexus and informs avenues for the furtherance of the 2030 Agenda, and its Sustainable Development Goals (SDGs).<sup>4</sup> Relevant datasets include applicable international instruments, State practice as seen in treaty negotiations and decisions of treaty bodies, relevant international jurisprudence, and compiled arrangements under each respective market mechanism, with findings contextualised through analysis of market impacts and innovative approaches adopted.

Market mechanisms integrated into the climate and biodiversity regimes provide identified pathways to nurture responsive solutions to biodiversity loss and climate change, with success measured ultimately by the scale of ambition, the actualisation of cooperation, and the fluidity of finance and technology flows. Ongoing experience across market mechanisms can shed light on requisite structural elements. This research hopes to clarify the legal architecture of market mechanisms under international environmental law, and how these modalities can engage private sector actors to advance sustainable development objectives.

## *Methodology*

### Theoretical Framework

This work investigates the legal architecture of market mechanisms and how their formulation under international treaty regimes engages and empowers private sector actors while fostering environmentally sound outcomes. Analysis focuses on experiences in regimes related to climate change and biodiversity, as well as the complementary, facilitative, or mutually supportive approaches derived from parallel instruments to elucidate the relationship between treaty formulation, incentive structures, industry-focused initiatives, and sustainable development outcomes. Exploration is grounded in an interdisciplinary methodology that leverages doctrinal legal method and interactional legal theory to examine treaty practice and experiences to contextualise conclusions. Doctrinal inquiry is applied to the interpretation of international instruments and materials underpinning the development and implementation of normative obligations under the respective regime. Application of an interactional account to the development of international law, grounded in constructivist legal scholarship, is utilized to examine if and under what conditions congruence of practice based on shared understandings is formulated.<sup>5</sup>

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<sup>4</sup> United Nations, Transforming our World: the 2030 Agenda for Sustainable Development, 18 September 2015, UN Doc. A/70/L.1. [SDGs, 2030 Agenda]

<sup>5</sup> Brunnée & Toope 2010, *supra* note 3; see also Jutta Brunnée, Stephen J. Toope. "Constructivism and International Law" in Jeffrey L. Dunoff & Mark A. Pollack, eds., *Interdisciplinary Perspectives on International Law and International Relations: The State of the Art* (Cambridge: Cambridge University Press, 2012), 119–45 [Brunnée & Toope 2012]; Jutta Brunnée & Stephen J. Toope. "Interactional International Law and the Practice of

International relations have significantly evolved since Thucydides aptly scribed that “right, as the world goes, is only in question between equals in power, while the strong do what they can and the weak suffer what they must.”<sup>6</sup> Where in antiquity, these alliances were often forged by marriage, an exchange of goods, or common interest, international law has developed into a form of a social contract.<sup>7</sup> Whereas, previously human nature would habitually solve problems through the use of force and saw this tool as a legitimate means of statecraft,<sup>8</sup> this was tempered through adherence to a legal order which shifted beyond the formalistic adherence to the primacy of power,<sup>9</sup> to align with elements of duty,<sup>10</sup> morality,<sup>11</sup> and defined by shared understandings, common norms, and common practice.<sup>12</sup> For this system to work, it is these latter two – the intersection of law and morality and the interactional and constructivist account of international law – which are the central focus.

Imposition of power or enlightened mutual-self-interest are insufficient paradigms to adequately explain the development of international law, the modes in which it has and continues to evolve, or the unique relationship of it across multiple fora so as to inform future policy discourse. International environmental law has limited direct enforcement mechanisms at the international level opting predominantly for facilitative compliance,<sup>13</sup> and is structured through a network relationship across multiple fora in a way that necessitates an inherent acceptance of the legitimacy, legality, and the importance of the policy goals. For law to guide societal actors through creation of norms, Fuller suggested eight “principles of legality” which balance conduct through an inner morality of law, with this framework informative in an inquiry into how best to advance normative operationalisation underpinning sustainable development.<sup>14</sup> Fuller posits that

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Legality” in Emanuel Adler & Vincent Pouliot, eds., *International Practices* (Cambridge: Cambridge University Press, 2011), 108–36 [Brunnée & Toope 2011]; Emanuel Adler, *Communitarian International Relations: The Epistemic Foundations of International Relations* (London: Routledge, 2005). [Adler 2005]

<sup>6</sup> Thucydides, *The Peloponnesian War*. (London: J. M. Dent; New York: E. P. Dutton, 1910), Ch 5.89.1.

<sup>7</sup> Carlo Focarelli, “Society” in *International Law as Social Construct: The Struggle for Global Justice* (Oxford: Oxford University Press, 2012), 11-18.

<sup>8</sup> Oona A Hathaway & Scott J Shapiro, *The Internationalists: How a Radical Plan to Outlaw War Remade the World* (New York: First Simon & Schuster, 2017); The authors suggest *The Kellogg–Briand Pact* signed 27 August 1928 in Paris France, which outlawed the use of force, was the first step to the establishment of international law.

<sup>9</sup> Plato, *The Republic*, Benjamin Jowett trans. (Auckland: The Floating Press, 2009), 61-97; Hans Kelsen, *General Theory of Law and State* (New Brunswick and London: Transaction Publishers, 2005) 15-20; Thomas M Franck, *The Power of Legitimacy Among Nations* (Oxford: Oxford University Press, 1990), 42, 52.

<sup>10</sup> HLA Hart, *The Concept of Law* 2nd ed (Oxford: Oxford University Press, 1994) 185, 250; John Austin, *The Province of Jurisprudence Determined* (Cambridge: Cambridge University Press, 2009), 217-218; MH Kramer, H.L.A. Hart, *The Concept of Law*, in J. T. Kevy, ed., *The Oxford Handbook of Classics in Contemporary Political Theory* (Oxford: Oxford University Press, 2016).

<sup>11</sup> LL Fuller, *The Morality of Law* (New Haven and London: Yale University Press, 1969). [Fuller 1969].

<sup>12</sup> Brunnée & Toope 2010, *supra* note 3; Jutta Brunnée & Stephen J. Toope. “The Rule of Law in an Agnostic World” in Wouter Werner, Marieke de Hoon & Alexis Galán, eds., *The Law of International Lawyers: Reading* (Cambridge: Cambridge University Press, 2017), 137–66. [Brunnée & Toope 2017]

<sup>13</sup> Cathrin Zengerling, Greening International Jurisprudence Environmental NGOs before International Courts, Tribunals, and Compliance Committees in David Freestone, ed. *Legal Aspects of Sustainable Development*, vol 17 (Leiden: Martinus Nijhoff, 2013), 43-91; Jutta Brunnée, “Enforcement Mechanisms in International Law and International Environmental Law” in U Beyerlin, Peter Tobias-Stoll & Rüdiger Wolfrum, eds, *Ensuring Compliance with Multilateral Environmental Agreements* (Leiden: Brill/Nijhoff, 2006), 1-24; Mary Ellen O’Connell, “Enforcement and the Success of International Environmental Law” (1995) 3:1 *Indiana Journal of Global Legal Studies*, 47-64.

<sup>14</sup> Fuller 1969, *supra* note 11, , 46-91.

for law to be successful in guiding human conduct, it must have: (i) Generality, (ii) Promulgation, (iii) Non-retroactivity, (iv) Clarity, (v) Non-contradiction, (vi) Possibility, (vii) Constancy, and (viii) Congruence.<sup>15</sup>

First, legal norms must be general, having general application and cannot be ad hoc pronouncements of a whimsical oligarch.<sup>16</sup> Second, law must be promulgated, requiring that legal obligations be accessible and understandable to the populous.<sup>17</sup> This allows social actors to clearly know the type of conduct that is permissible and prohibited. Third, retroactivity is not permitted as it would undermine principles of due process, and inhibit citizens from exercising informed judgement.<sup>18</sup> Put simply, law must be prospective not retrospective. Fourth, legal obligations must be reasonably clear, and not obscure or incoherent, to ensure social actors are able to determine the scope of permissible conduct.<sup>19</sup> Fifth, contradictions, direct or inadvertent, must be avoided. Practically, this translates into ensuring provisions found in one or more instruments are inconsistent.<sup>20</sup> Sixth, legal obligations should be realistic in their expectations and not ask the impossible of the citizenry.<sup>21</sup> Seventh, while legal evolution is expected, there should remain an objective level of constancy whereby amendments, alterations, or changes are incremental rather than significant and frequent.<sup>22</sup> Lastly, and arguably most importantly, there must be congruence between legal rules and official practice.<sup>23</sup> Notably, this requirement of consistent and ongoing practices is a central factor or keystone for Fuller, whereby the operationalisation of legal norms in official practice breathes life into the legislative framework.

Adopting Fuller's principles and applying them to international law through the lens of constructivist scholarship, Brunnée and Toope propose an interactional account that significantly advanced legal thinking and informed understanding around the stability and evolution of international law. They argue that legal obligation, rather than prescribed or formalistic rules, influences actions through an acceptance of legitimacy.<sup>24</sup> This acceptance of legitimacy – or operationalisation of normative principles – is grounded in the development of “shared understandings” among actors of what is to be accomplished, engagement with the ongoing process of legal refinement to fit the principles of legality, and actualisation of these

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<sup>15</sup> *Ibid.*

<sup>16</sup> *Ibid.*, Fuller 1969, 46-49.

<sup>17</sup> *Ibid.*, Fuller 1969, 49-51.

<sup>18</sup> *Ibid.*, Fuller 1969, 51-62.

<sup>19</sup> *Ibid.*, Fuller 1969, 62-65.

<sup>20</sup> *Ibid.*, Fuller 1969, 65-70.

<sup>21</sup> *Ibid.*, Fuller 1969, 70-79.

<sup>22</sup> *Ibid.*, Fuller 1969, 79-80.

<sup>23</sup> *Ibid.*, Fuller 1969, 81-91.

<sup>24</sup> Brunnée & Toope 2010, *supra* note 3, 20-55, 350-354; Brunnée & Toope 2017, *supra* note 12.

shared understandings through continuing practice.<sup>25</sup> Formal validity is important, in the case of international law the conclusion of a treaty, but this pomp and circumstance only mark the beginning of the journey to build, maintain, and enhance the elements that ground the legality of norms in patterns of shared understanding and practice.<sup>26</sup> It is this congruence of normative development coupled with the ongoing reciprocal practice which animates the norm, fosters fidelity among actors of its responsibilities, and in turn attracts compliance.<sup>27</sup>

As norms are integrated into public debate, institutions, policies, and governance frameworks, they become animated and begin to organically influence conduct of engaged actors in tangible ways.<sup>28</sup> For Brunnée and Toope the “practice of legality” is highly informative as it bridges normative constructs through shared understandings culminating in an acceptance of the normative validity as an element of the social fabric.<sup>29</sup> Overall, Brunnée and Toope argue that law must be grounded in social norms informed through shared understandings, adhere to criteria of legality, and actualized in ongoing application through practice.<sup>30</sup> Importantly, international fora, be they international organisations or treaty bodies, are noted as playing an essential role in providing opportunities to interface with legal norms, development of shared values among communities of practice, refinement of complementary modalities under the framework, and illustration of practice of congruence among States.<sup>31</sup>

Brunnée and Toope interactional theory aligns with the process of interpretation utilised to determine the scale and scope of legal obligations under the international law while remaining responsive to the practical realities of Party-driven treaty processes. Importantly it provides an informative analytical lens to consider sustainable development as a concept, practice, and architectural goal of treaty practice.

Notwithstanding the proposed utility, it is important to briefly explore potential shortcomings and virtues to justify selection and application of this theoretical approach in this research process. Constructivist thinking embodies an inherent positivist undertone.<sup>32</sup> Viewing development of law systemically, alignment of the international community into a “family of nations” as suggested by Oppenheim,<sup>33</sup> leads to

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<sup>25</sup> Brunnée & Toope 2010, *supra* note 3, 20-55, 350-354; see also: Brunnée & Toope 2012, *supra* note 5, 119–145; Brunnée & Toope 2011, *supra* note 5, 108–136;

<sup>26</sup> *Ibid*, Brunnée & Toope 2010, 74-75.

<sup>27</sup> *Ibid*, Brunnée & Toope 2010, 96-100.

<sup>28</sup> *Ibid*, Brunnée & Toope 2010, 61; Harold Hongju Koh, “Transnational Legal Process” (1996) 75 Nebraska Law Review 181.

<sup>29</sup> *Ibid*, Brunnée & Toope 2010, 49, 350-353.

<sup>30</sup> Jutta Brunnée & Stephen J. Toope, “International Law and the Practice of Legality: Stability and change” (2018) Victoria University of Wellington Law Review, 49:4, online: <[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3203728](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3203728)>.

<sup>31</sup> *Ibid*, Brunnée & Toope 2010, 100-103; Adler 2005, *supra* note 5, at 11–12.

<sup>32</sup> Brunnée & Toope 2012, *supra* note 5.

<sup>33</sup> R Jennings & A Watts, *Oppenheim’s International Law* (9th Edition), vol 1: Peace (Oxford: Oxford University Press, 2008), 14-15.

international law being viewed as valid through systemic affirmation or by virtue of these norms embodying the common interests of the Parties. Similarly, the conclusion of treaty negotiations, which for Kelsen would constitute formal affirmation of the normativity of the encompassed provisions,<sup>34</sup> is not responsive enough to be responsive to the realities of climate and biodiversity governance which are facilitative in function. An additional lens could be derived from the works of Lauterpacht who in writing about the Groatian tradition notes the significance of the corpus of international law rests in its ever-present foundation for judging and influencing nations in line with ethical and reasoned conduct.<sup>35</sup> For Lauterpacht a key purpose of international law was a fostering of fraternity and solidarity through “exposition and progressive interpretation” of the normative fabric governing the conduct of nations.<sup>36</sup>

However, these views assume a liberal state, where democracy and the rule of law prevail, and are administered through a stable institutional structure allowing for both progressive legal development and effective enforcement. Chayes and Chayes suggest a management model as opposed to an enforcement model, whereby sovereignty provided an opportunity to engage in the international order, with a corresponding impetus for compliance not resulting from fear of sanction but of loss of reputation.<sup>37</sup> While reputational damage may remain important, the announced withdraw of the US from the Paris Agreement illustrated the need for broader perspectives to understand and explain congruence of practice. Franck offers the inclusion of fairness of international law as an informative lens to consider adherence,<sup>38</sup> failure to clarify normative internalization limits application.

An alternative could be as Koh purports a transnational legal process defined by four features: non-traditional: breaking down barriers between domestic and international; non-statist: recognizing the role of both State and non-State actors; dynamic: recognizing the fluid nature of transnational reforms; and normative: grounded in a sense of obligation.<sup>39</sup> For Koh, internalization of norms through transnational interaction creates a sense of obedience to that interpretation and value set.<sup>40</sup> However as noted by Martin, Hoh’s reasoning that the process of interaction, interpretation, and internalisation fails to account for self-

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<sup>34</sup> H Kelsen, *Pure Theory of Law*, Max Knight trans (Clark, NJ: Law Book Exchange, 2005), 199-200.

<sup>35</sup> H. Lauterpacht, "The Grotian Tradition in International Law" (1946) 23 *Brit YB Int'l L* 1.

<sup>36</sup> H Lauterpacht, "The Reality of the Law of Nations," in E Lauterpacht ed., *International Law: Collected Papers*, vol 2 (Cambridge: Cambridge University Press, 1975) 47; P Capps, "Lauterpacht's Method" (2012) 82:1 *British Yearbook of International Law*, 248–280.

<sup>37</sup> A Chayes and AH Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements* (Cambridge, MA: Harvard University Press, 1998).

<sup>38</sup> T Franck, *Fairness in International Law and Institutions* (Oxford, Clarendon, 1998).

<sup>39</sup> H Koh, "Transnational legal Process" (1996) 75 *Nebraska Law Review* 181 [Koh 1996]; H Koh, "Why do nations obey international law?" (1997) 106:8 *Yale Law Journal*, 2599. [Koh 1997]

<sup>40</sup> *Ibid*, Koh 1997, 2599.

correction, reflection or reevaluation should earlier normative interpretations be flawed.<sup>41</sup> Additionally, Shaffer notes the impact of transnational legal process often depends on alignment of normative affinity within the jurisdiction cautioning that further analysis is needed to understand the multi-directional nature of normative development, and further attention is needed to more deeply understand the role of non-State actors in advancing normative development.<sup>42</sup> On balance these theoretical approaches are insufficient to adequately account for normative evolution and internalisation synergistically.

Adoption of the interactional account of international law is both responsive to the differing political realities globally, but also the wide range of actors, processes, and practices utilized to advancing compliance. While the interactional theory holds potential to inform our thinking on the ways in which non-Party stakeholders may advance normative development, this area is underdeveloped in the scholarship and rests on the somewhat nebulous features of “shared understandings” and “congruence on practice.” This research looks to apply the interactional theoretical lens in the climate and biodiversity realms to explore and further our understanding of the characteristics of these features in practice.

Application of the perspectives informed and applied by Brunnée and Toope align with the process of interpretation utilised to determine the scale and scope of legal obligations under the international law. Under the Vienna Convention on the Law of Treaties, interpretations are to be grounded in a good-faith reading of the treaty, include all relevant elements of the text (preamble, annexes, etc), and shall be understood in connection with any subsequent agreements, practice, and applicable rules of international law.<sup>43</sup> Resources may also be taken into consideration in the supplementary materials, including the preparatory work or “travaux préparatoires,” to provide further clarity where preliminary interpretation leads to unreasonable results.<sup>44</sup> In considering obligations under customary international law, the ICJ uses a process of induction or deduction whereby the elements of “actual practice and *opinio juris* of States” are utilised as the basis of interpretation.<sup>45</sup> Taken holistically, the emphasis on alignment with common norms, a sense of obligation, and continued practice radiates through shrouds of pessimism, illuminating a path to identify modalities to support sustainable development.

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<sup>41</sup> Craig Martin, “Symposium: The Assumptions of Koh’s Transnational Legal Process as Counter-Strategy” *Opinio Juris* (26 February 2018), online: <<http://opiniojuris.org/2018/02/26/symposium-the-assumptions-of-kohs-transnational-legal-process-as-counter-strategy/>>.

<sup>42</sup> Gregory Shaffer, “Transnational Legal Process and State Change” (2012) 37:2 *Law & Social Inquiry*, 229-264.

<sup>43</sup> *Vienna Convention on the Law of Treaties*, UN Doc. A/Conf.39/27; 1155 UNTS 331; 8 ILM 679 (1969); 63 AJIL 875 (1969), Article 31. [VCLT]

<sup>44</sup> *Ibid*, VCLT, Article 32.

<sup>45</sup> *Case Concerning the Continental Shelf (Libyan Arab Jamahiriya v. Malta)*, Judgment, 3 June 1985, ICJ Reports 1985, p. 13, at 29, para. 27; *Military and Paramilitary Activities in and against Nicaragua (Nicaragua v. United States of America)*, Judgement (Merits), 27 June 1986, ICJ Reports 1986 p. 14, at 97, para. 183; See more generally: Stefan Talmon, “Determining Customary International Law: The ICJ’s Methodology between Induction, Deduction and Assertion” (2015) 26:2 *European Journal of International Law*, 417-443.

This interactional lens is applied to analyse how the private sector's role in market mechanisms illustrates the critical factors to foster congruence of practice and informs treaty design to enable private sector engagement in the operationalisation of international environmental treaties. These insights inform future treaty design to enable attainment of norms and global goals through private actors.

It is through the application of the principles of legality and interactional theory that the evolution of market mechanisms under international law will be examined. Acknowledging the need to move beyond superficial environmental solutions which leave an exploitative architecture of international law intact,<sup>46</sup> and otherwise boilerplate-style solutions,<sup>47</sup> taken holistically, this research extrapolates intersections between and insights across central international environmental regimes to traverse impasses inhibiting further ambition and enabling achievement of their environmental and sustainable development objectives. Understanding the international legal architecture underpinning market mechanisms and the role that plays in fostering or frustrating engagement of private actors is critical to advancing positive environmental outcomes through the multilateral treaty process.

### Process of Inquiry

This thesis argues that market mechanisms hold the potential to advance sustainable development outcomes when appropriately formulated including with the intended purpose, and complemented by sufficient alignment of related international instruments, requisite transparency and disclosure practices, and stakeholder-endorsed procedural practices to buttress the operationalisation.

Chapter 1 introduces the issues explored throughout, a roadmap of the forthcoming chapters, a discussion of the methodological approach adopted and summarises existing literature positioning the forthcoming analysis as a novel contribution to scholarship on operationalisation of international legal obligations.

Application of a doctrinal approach allows for an exploration of international agreements, decisions of the meetings of the Conference of the Parties (COP), and related instruments with an eye to analyse the establishment, core factors, and evolution of the approach in question. Relevant provisions, decisions, and instruments ranging across fora from 1993-2021 have been identified and systematised. Through the application of the doctrinal legal method, relevant agreements are compared, leveraging a highly analytical lens to identify key milestones, delineate critical factors that support successful functionality of market-

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<sup>46</sup> Surabhi Ranganathan, "Ocean Floor Grab: International Law and the Making of an Extractive Imaginary" (2019) *European Journal of International Law* 30:2, at 599; Isabel Feichtner & Surabhi Ranganathan, "International Law and Economic Exploitation in the Global Commons: Introduction" (2019) *European Journal of International Law* 30:2, at 546.

<sup>47</sup> Michael Waibel, "Fair and Equitable Treatment as Boilerplate" (2019) *The American Review of International Arbitration* 30:1, 85-111.

based approaches, and calibrate alignment with sustainable development principles. Each chapter includes a detailed discussion of relevant treaty provisions, a summary of negotiations under the respective fora, an inquiry into intersections with other relevant regimes, and identification of interlinkage to sustainable development broadly and the SDGs specifically.

Selected to provide regional balance and diversity of approaches, a case study approach is adopted to analyse each relevant market mechanism exploring the international framework, legal intersections, and innovative experiences to illustrate relevant areas of convergence and divergence. Case studies utilised throughout are summarised to highlight the factual experiences followed by analysis provided by the author to identify and link how outcomes deliver contributions towards sustainable development.

Chapter 2 provides an overview of critical perspectives relating to the use of market mechanisms under environmental law in general, and as it relates to experiences related to climate change and biodiversity. Chapter 3 summarises the core provisions of international instruments under the climate change regime. Through an assessment of the negotiating history of the *United Nations Framework Convention on Climate Change* (UNFCCC),<sup>48</sup> the clean development mechanism (CDM) under the *Kyoto Protocol* to the UNFCCC,<sup>49</sup> and the sustainable development mechanism (SDM) under the *Paris Agreement on Climate Change*,<sup>50</sup> potential types of disputes that could arise are discussed, and experiences derived from the *Montreal Protocol on Substances that Deplete the Ozone Layer* (Montreal Protocol),<sup>51</sup> CDM projects and Paris Agreement pilot schemes are highlighted illustrating interlinkages with the SDGs.

Chapter 4 similarly surveys core provisions of international instruments governing biodiversity. The negotiation, adoption, and experiences under the *Convention on Biological Diversity* (CBD)<sup>52</sup> and the *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization*<sup>53</sup> are summarised, intersections with related agreements are surveyed including plant genetic resources, endangered species, and intellectual property, and experiences from access and benefit-sharing (ABS) practices and regional fisheries through the *Palau Arrangement for the Management of the*

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<sup>48</sup> *United Nations Framework Convention on Climate Change*, 9 May 1992, 1771 UNTS 107, 31 ILM 849 (entered into force 21 March 1994). [UNFCCC]

<sup>49</sup> *Kyoto Protocol to the United Nations Framework Convention on Climate Change*, 10 December 1997, 2303 UNTS 148; UN Doc. FCCC/CP/1997/7/Add.1 (entered into force 16 February 2005) [Kyoto Protocol]; See: Clean Development Mechanism (CDM) under the *Kyoto Protocol*.

<sup>50</sup> *Adoption of the Paris Agreement*, 12 December 2015, Dec 1/CP.21, FCCC/CP/2015/L.9, UNTS No 54113 (entered into force 4 November 2016). [Paris Agreement]; See: Sustainable Development Mechanism (SDM) under the *Paris Agreement* discussion on Article 6.

<sup>51</sup> *Vienna Convention for the Protection of the Ozone Layer*, 22 March 1985, 26 ILM 1529 (entered into force 22 September 1988) [Ozone Convention]; *Montreal Protocol on Substances that Deplete the Ozone Layer*, 16 Sept. 1987, 26 ILM 1550 (entered into force 1 January 1989) [Montreal Protocol].

<sup>52</sup> *Convention on Biological Diversity*, 5 June 1992, 31 ILM 822 (1992) (entered into force 29 December 1993). [CBD]

<sup>53</sup> *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity*, UNEP/CBD/COP/DEC/X/1, 29 October 2010, UNTS No 30619 (entered into force 12 October 2014). [Nagoya Protocol]

*Western Pacific Purse Seine Fishery*<sup>54</sup> are used to illustrate the embedded market mechanisms utilised, both innovations and critical shortcomings, and sustainable development interfaces.

Following specific discussions on climate change and biodiversity-related regimes key aspects of market mechanisms enabled or enabled through mutually supportive sectoral and trade instruments are reviewed. Chapter 5 addresses relevant sectoral approaches under the international regimes governing civil aviation and maritime transport, climate-related financial instruments, and the Agriculture, Forests and Other Land Uses (AFOLU) sector, identifying sectoral market mechanisms, mutually supportive factors including long-term targets, disclosure standards, and adoption of certification schemes that enable sustainable development outcomes, support legal certainty and mobilisation of finance, and foster innovative solutions and approaches. Chapter 6 explores regional and bilateral trade and investment agreements to highlight substantive, procedural, and institutional approaches to operationalise requisite elements of market mechanisms, highlighting complementary provisions creating a nurturing environment, and emphasising the role of international trade and investment play as enabling modalities. Through a detailed doctrinal inquiry into each thematic instrument, the experience of that framework is distilled to elucidate the relationship between the legal architecture of market mechanisms and the role of private actors, emphasise the importance of the mechanisms to the achievement of the objectives of the framework, and identify relevant factors supporting sustainable development and the interaction across regimes.

Analysis in chapter 7 bridges the previous evidentiary discussions through application of the interactional approach to the development of international law. Leveraging the interactional theory put forward by Brunnée and Toope, which posits that the operationalisation of normative principles is achieved through the development of shared understandings and congruent practice, in conjunction with the application of the principles of legality as identified by Lon Fuller,<sup>55</sup> and the notion of communities of practice as put forward by constructivist scholar Emanuel Adler,<sup>56</sup> critical consideration and elements of market mechanisms are identified as modalities that stitch together the fragmented tapestry of international environmental law and provide pathways to advance the SDGs. Research findings are collected and explained considering the theory highlighting virtues and contributing to our understanding of treaty practice.

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<sup>54</sup> *Nauru Agreement Concerning Cooperation in the Management of Fisheries of Common Interest*, 11 February 1982, Government of the Solomon Islands (entered into force 2 December 1982) [Nauru Agreement] *Palau Arrangement for the Management of the Western Pacific Purse Seine Fishery*, 2 October 1992, South Pacific Forum Secretariat (entered into force 1 November 1995) [Palau Arrangement 1995].

<sup>55</sup> Fuller 1969, *supra* note 11.

<sup>56</sup> Adler 2005, *supra* note 5.

Insights drawn are contextualised through innovative approaches developed by non-Party stakeholders that advance market mechanisms illustrating the central role of private sector actors vis-à-vis the respective treaty regime in advancing ambition.

Concluding thoughts are provided in Chapter 8 outlining potential implications for treaty design related to market mechanisms to effectively enable private sector uptake in the operationalisation of environmental treaties. Adoption of an interdisciplinary approach, drawing together legal, international relations, and social science methodologies, is central to a holistic understanding of how to advance sustainable development through market mechanisms. Combating climate change, conserving biodiversity, and achievement of the SDGs requires law and governance solutions that provide for informed trade-offs, development of responsive policy measures, and mobilisation of engagement across all levels of the social spectrum.

This research provides a scholarly inquiry which results in actionable insights to inform future negotiations, policies, programs, and scholarship. Through creation of market-based pathways that foster rather than frustrate private sector engagement with multilateral environmental agreements, the cacophony of perspectives needed to advance innovative solutions can be sufficiently balanced to support realisation of sustainable development in the face of anthropogenic climate change.

## Research Focus

Introducing the interrelationship of the legal architecture of market mechanisms through an examination of the existing systems, this section surveys the applicability and relevance of international environmental law to private enterprises, considers the use, critical perspectives, and applications of market mechanisms, identifies, and discusses a gap in the literature, and explores the way forward. This research posits that achievement of environmentally sound treaty obligations benefits from the development of supportive systemic modalities which assist in facilitating congruence of practice among private actors.

### *Private Actors in International Law*

While international law is principally focused on inter-State relations,<sup>57</sup> the increased role of non-State actors / non-Party stakeholders in the development and operationalisation of international norms has been widely noted.<sup>58</sup> Private actors have been recognised as engaging in transboundary economic activity and holding the ability to establish concessions or contracts with States despite lacking international legal personality and as such any agreement between the contracting parties would not be governed by the law of treaties.<sup>59</sup> Many critical aspects at the nexus of private actors and international law have been previously explored,<sup>60</sup> including: (i) creation of an intergovernmental private actor or joint agency that is governed by the national laws of a State Party and is provide privileges, immunities, or delegated responsibilities which are effective internationally,<sup>61</sup> (ii) determination of international legal personality,<sup>62</sup> (iii) situations where the organisation is not a joint agency yet provides a special function,<sup>63</sup> and (iv) application of rights and

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<sup>57</sup> J Bentham, *An Introduction to the Principles of Morals and Legislation* (New York: Dover Publications, 2007), 236; James Crawford, *Brownlie's Principles of Public International Law*, 9th ed (Oxford: Oxford University Press, 2019), 105 [Crawford]; Crawford highlights "A subject of international law is an entity possessing international rights and obligations and having the capacity (1) to maintain its rights by bringing international claims; and (2) to be responsible for its breaches of obligation by being subjected to such claims."

<sup>58</sup> Jean d'Aspremont, "Subjects and Actors in International Lawmaking: The Paradigmatic Divides in the Cognition of International Norm-Generating Processes" in C Brölmann & Y Radi, eds., *Research Handbook on the Theory and Practice of International Lawmaking* (Cheltenham, UK: Edward Elgar Publishing, 2016), 32–55; Paul Schiff Berman, "Non-State Law Making through the Lens of Global Legal Pluralism" in Michael A. Helfand, ed. *Negotiating State and Non-State Law: The Challenge of Global and Local Legal Pluralism* (Cambridge, UK: Cambridge University Press, 2015); 15–40; Dennis Patterson, "Transnational Lawmaking" in C Brölmann & Y Radi, eds., *Research Handbook on the Theory and Practice of International Lawmaking* (Cheltenham, UK: Edward Elgar Publishing, 2016); B Arts, "Non-state Actors in Global Environmental Governance: New Arrangements Beyond the State" in M Koenig-Archibugi et al., eds., *New Modes of Governance in the Global System: Exploring Publicness, Delegation and Inclusiveness*. International Political Economy Series (Basingstoke: Palgrave Macmillan, 2006); S R Ratner, "Business" in D Bodansky, J Brunnée & E Hey, eds., *The Oxford Handbook of International Environmental Law* (Oxford: Oxford University Press, 2008).

<sup>59</sup> Crawford, *supra* note 85, 112; *Cf Anglo-Iranian Oil Co (UK v Iran)*, Judgment, 22 July 1952, ICJ Reports 1952 p 93, 112; *SGS v Philippines*, Decision on Jurisdiction, 29 January 2004, 8 ICSID Reports 518, 553.

<sup>60</sup> See generally: Andrea Bianchi, ed., *Non-State Actors and International Law* (London: Routledge, 2009); M Noortmann, A Reinisch & C Ryngaert, *Non-state actors in international law* (Oxford: Hart Publishing, 2015) [Noortmann et al.]; J d'Aspremont, *Participants in the International Legal System* (London: Routledge, 2011); M Noortmann & C Ryngaert, *Non-state actor dynamics in international law: from law-takers to law-makers* (London: Routledge, 2016). [Noortmann & Ryngaert]

<sup>61</sup> Crawford, *supra* note 85, 112, 512-515; Hersch Lauterpacht, "The Subjects of International Law" in E Lauterpacht, ed., *International Law. Being the Collected Papers of Hersch Lauterpacht, Volume I: The General Works* (Cambridge: Cambridge University Press, 1970), 136–50 in Andrea Bianchi, ed. *Non-State Actors and International Law* (London: Routledge, 2009).

<sup>62</sup> J Wouters & A-L Chané, "Multinational Corporations in International Law" in Noortmann et al., *supra* note 88, 228-230. [Wouters & Chané].

<sup>63</sup> Crawford, *supra* note 85, 112-113; *Convention on the Establishment of Eurofima*, European Company for the Financing of Railway Equipment, 20 October 1955, 378 UNTS 159

obligations relating to human rights and investment disputes.<sup>64</sup> Given this deep interrelationship more research is needed to understand how and under what circumstances private actors can advance development and implementation of international norms and responses to biodiversity loss and climate change.

Regarding the environment, early normative development focused on establishment of governance principles and provided limited or superficial reference to “business and industry.”<sup>65</sup> Convened in 2002, the World Summit for Sustainable Development (WSSD) famously established the Johannesburg Plan of Implementation (JPOI) which marked a turning point through which States committed to a range of actions to advanced sustainable development including mobilisation of the private sector to ignite progress and furtherance of international cooperation efforts through market mechanisms among many others.<sup>66</sup>

Adopted in the fall of 2015 by the UN, the Sustainable Development Goals (SDGs) – comprised of 17 goals and 169 targets– are grounded in a range of existing international legal obligations and provide a common foundational framework to advance sustainable development globally.<sup>67</sup> Private actors were again identified as important collaborators to support implementation playing a vital role in technology transfer, providing essential services, catalysing sources of finance, and mobilising entrepreneurial engagement at all levels.<sup>68</sup> Engagement with private actors was also stressed through the encouragement and promotion of public-private partnerships as important modalities to build on collective experience and resource

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<sup>64</sup> Wouters & Chané, *supra* note 90, 230-246; R McCorquodale & P Simons, “Responsibility Beyond Borders: State Responsibility for Extraterritorial Violations by Corporations of International Human Rights Law” (2007) 70 *Modern Law Review* 598-625; P Muchlinski, “Multinational Enterprises as Actors in International Law: Creating ‘Soft Law’ Obligations and ‘Hard Law’ Rights” in Noortmann & Ryngaert, *supra* note 88; Alan Boyle & Catherine Redgwell, “Non-State Actors: Environmental Rights, Liability, and Crimes” in *Birnie, Boyle, and Redgwell's International Law and the Environment*, 4th ed (Oxford: Oxford University Press, 2021), 282-355 [Birnie, Boyle & Redgwell 4th ed].

<sup>65</sup> United Nations, “Stockholm Declaration on the Human Environment” 16 June 1972, UN Doc. A/Conf.48/14/Rev. 1, 11 ILM (1973), preamble [Stockholm Declaration]; United Nations, “Report of the United Nations Conference on Environment and Development: Programme of Action for Sustainable Development” A/CONF.151/26/Rev. I (vol. I) (1992), Annex 1 Rio Declaration; Annex 2: Agenda 21.;

<sup>66</sup> S Maljean-Dubois & V Richard, “The applicability of international environmental law to private enterprises” in Pierre-Marie Dupuy & Jorge E Viñuales, eds., *Harnessing Foreign Investment to Promote Environmental Protection: Incentives and Safeguards* (Cambridge: Cambridge University Press, 2013), at 70 [Maljean-Dubois & Richard]; United Nations, Report of the World Summit on Sustainable Development: Johannesburg Plan of Implementation. 4 September 2002, UN Doc. A/CONF.199/20, para 40, 84-86, 88, 99; Chapter V, para 7. [JPOI]

<sup>67</sup> 2030 Agenda, *supra* note 4; S Atapattu & S Fraser, “SDG 1 on Ending Poverty in All its Forms: Contributions of International Law, Policy and Governance” Issue Brief (UNEP/CISDL, 2016); M Prabhu & S Blakely, “SDG 3 on Ensuring Healthy Lives and Promoting Well-Being for All at All Ages: Contributions of International Law, Policy and Governance” Issue Brief (UNEP/CISDL, 2016); C Fenton-Glynn & P Towela Sambo “SDG 4 on Ensuring Inclusive and Equitable Quality Education: Contributions of International Law, Policy and Governance” Issue Brief (UNEP/CISDL, 2016); A Harrington & WB Shipley, “SDG 5 on Gender Equality: Contributions of International Law, Policy and Governance” Issue Brief (UNEP/CISDL, 2016); Freedom-Kai Phillips et al., “SDG 6 on Ensuring Water and Sanitation for All: Contributions of International Law, Policy and Governance” Issue Brief (UNEP/CISDL, 2016); S Bruce & S Stephenson “SDG 7 on Sustainable Energy for All: Contributions of International Law, Policy and Governance” Issue Brief (UNEP/CISDL, 2016); M Gehring, et al., “SDG 12 on Ensuring Sustainable Consumption and Production Patterns: Contributions of International Law, Policy and Governance” Issue Brief (UNEP/CISDL, 2016); K Lofts, et al., “SDG 13 on Taking Action on Climate Change and its Impacts: Contributions of International Law, Policy and Governance” Issue Brief (UNEP/CISDL, 2016); K Koutouki & FK Phillips “SDG 14 on Ensuring Conservation and Sustainable Use of Oceans and Marine Resources: Contributions of International Law, Policy and Governance” Issue Brief (UNEP/CISDL, 2016); J Cabrera, et al., “SDG 15 on Terrestrial Ecosystems and Biodiversity: Contributions of International Law, Policy and Governance” Issue Brief (UNEP/CISDL, 2016).

<sup>68</sup> *Ibid*, 2030 Agenda, para 39, 41, 43-44, 67.

strategies.<sup>69</sup> Observing this shift, international fora have increasingly created pathways for non-Party stakeholders, including, in limited capacities, private actors, to be involved in the international negotiation process.<sup>70</sup> Paradoxically, the scale of behaviour shifts facilitated by private actors is central to achievement of international environmental objectives, yet, influence over this sector remains largely indirect with their jurisdiction falling under domestic legislation,<sup>71</sup> and engagement at the international level largely exploratory. Notwithstanding, in the same manner that private actors have gained protection under international law for fair and equitable treatment of investments,<sup>72</sup> intellectual property rights,<sup>73</sup> and limitation of civil liability in such areas as oil,<sup>74</sup> and considered for mining activities in the deep seabed,<sup>75</sup> increasingly they are being expected to provide a facilitative role in the achievement of environmental treaty objectives.

Moving beyond corporate social responsibility or voluntary commitments,<sup>76</sup> the markets and conduct of private actors are progressively being directly created, refined, and influenced by international environmental law. The instruments under review each provide proof of activities encompassed under international law through incorporation into a market mechanism be it relating to climate change (certified emission reductions/internationally transferred mitigation outcomes) and biodiversity (internationally recognised certificates of compliance), while drawing insights from experiences under ozone depleting substances (consumption and production capacity), regional fisheries (vessel day scheme permits), and identified parallels from related sectoral approaches. As noted by Crawford, while private actors are not

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<sup>69</sup> *Ibid*, 2030 Agenda, SDG 17.16.

<sup>70</sup> Freedom-Kai Phillips, "Participation of Non-party Stakeholders under the United Nations Framework Convention on Climate Change: Options for Future Engagement" CIGI Paper 205 (CIGI, 2018). [Phillips 2018]

<sup>71</sup> Maljean-Dubois & Richard, *supra* note 94, at 71.

<sup>72</sup> R Dolzer & C Schreuer, *Principles of International Investment Law*, 2nd ed (Oxford: Oxford University Press, 2012), 130-144 [Dolzer & Schreuer]; *Metalclad v Mexico*, Award, 5 ICSID Reports 209 (2002) [*Metalclad*]; *Técnicas Medioambientales Tecmed S.A. v The United Mexican States*, Award, 29 May 2003, ICSID, Case No ARB(AF)/00/2 [Tecmed]; *The Loewen Group, Inc. and Raymond L. Loewen v. United States of America*, Award, 26 June 2003, Case No. ARB (AF)/98/3; *Petrobart v Kyrgyz Republic*, Award, 29 March 2005, SCC Case No. 126/2003; *SD Myers, Inc. v. Canada*, Partial Award, 13 November 2000, 261, 263.

<sup>73</sup> *Marrakesh Agreement Establishing the World Trade Organization*, 15 April 1994, UNTS Volume 1867, No 31874, Annex 1C: Agreement on Trade-Related Aspects of Intellectual Property Rights [TRIPS].

<sup>74</sup> Brussels International Convention on Civil Liability for Oil Pollution Damage, 29 November 1969, 973 UNTS 3 (entered into force 19 June 1975) [1992 CLC]; amended by the 1976 Protocol, 19 November 1976, 16 ILM 617 (1977) (entered into force 8 April 1981); 1984 Protocol, 25 May 1984, 23 ILM 177 (1984) (not in force); 1992 Protocol, 27 November 1992, IMO LEG/ CONF.9/15 (entered into force 30 May 1996) [1992 Protocol]; Brussels International Convention on the Establishment of an International Fund for Compensation of Oil Pollution Damage, 18 December 1971, 1110 UNTS 57 (entered into force 16 October 1978) [1992 Fund Convention]; amended by 1976 Protocol, 19 November 1976, 16 ILM 621 (1977) (not yet in force); 1984 Protocol, 25 May 1984 (not yet in force); 1992 Fund Protocol, 27 September 1992, IMO LEG/CONF.9/16 (entered into force 30 May 1996); Protocol to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 16 May 2003, 92FUND/A.8/4, Annex I (entered into force 3 March 2005) [2003 Supplementary Fund Convention].

<sup>75</sup> Neil Craik et al., "Legal Liability for Environmental Harm: Synthesis and Overview" Legal Working Group on Liability, Liability Issues for Deep Seabed Mining Series, Paper No. 1 (CIGI, 2018); Guifang (Julia) Xue, "The Use of Compensation Funds, Insurance and Other Financial Security in Environmental Liability Schemes" Liability Issues for Deep Seabed Mining Series, Paper No. 6 (CIGI, 2019).

<sup>76</sup> F Francioni, "The private sector and the challenge of implementation" in P Dupuy & J Viñuales, eds., *Harnessing Foreign Investment to Promote Environmental Protection: Incentives and Safeguards* (Cambridge: Cambridge University Press, 2013).

subjects of international law, they perform important functions, establish contracts with States, and in limited circumstances have rights recognised (notably human rights and protection of investments).<sup>77</sup>

This hybridisation of governance approaches which places an emphasis on – if not dependence upon – engagement with private actors necessitates deeper inquiry into the architectural factors under international treaty regimes which actively facilitate positive environmental outcomes.

### *Market Mechanisms Explained: Understanding the Role and Controversy*

A market mechanism is one that leverages economic modalities to incentivise the achievement of a particular outcome. In environmental law, the term “market mechanism” encompasses a range of regulatory tools which include exchangeable carbon offsets and permits, feed-in-tariffs, payment for ecosystem services, performance bonds, eco-labelling, taxes, and compensations funds, among others.<sup>78</sup> In discussing market mechanisms, Sanja Bogojević proposes three models: the economic efficiency model which internalises externalities to incentivise action, the private property rights model which creates a rights based approach to commonly held resources, and the command and control model which focuses on ensuring compliance.<sup>79</sup> The term market mechanism often does raise issues of contention,<sup>80</sup> with Article 6 of the Paris Agreement formulated to encourage “cooperative approaches” to facilitate the exchange of internationally transferred mitigation outcomes (ITMOs) thereby providing a balanced framework for advancement.<sup>81</sup>

An informative opinion is provided in *Air Transport Association of America et al.* in respect of the European Union Emissions Trading Scheme, whereby the European Court of Justice (ECJ) noted the objective of environmental protection through the reduction of greenhouse gas (GHG) emissions is pursued at the lowest possible cost, not by requiring reductions in and of themselves, but by creating a marketplace which encourages participants to reduce emissions below their respective allowance with the aim to sell the surplus to other participants on the open market.<sup>82</sup> The emphasis by the Court on the use of “market logic”

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<sup>77</sup> Crawford, *supra* note 85, 111-113.

<sup>78</sup> Sanja Bogojević, “Trading Schemes” in Emma Lees & Jorge E Viñuales, eds., *The Oxford Handbook of Comparative Environmental Law* (Oxford: Oxford University Press, 2019), at 929 [Bogojević]; Jerneja Penca, “Marketing the Market: The Ideology of Market Mechanisms for Biodiversity Conservation” (2013) *Transnational Environmental Law* 2:2, 235-257, at 250; Michael A Mehling, “Market Mechanisms” in Lavanya Rajamani & Jacqueline Peel, eds., *The Oxford Handbook of International Environmental Law*, 2nd ed (Oxford: Oxford University Press, 2021).

<sup>79</sup> *Ibid*, Bogojević, at 930-931; Sanja Bogojević, *Emissions Trading Schemes* (Oxford: Hart Publishing, 2013).

<sup>80</sup> D. Satz, *Why Some Things Should Not Be For Sale* (Oxford: Oxford University Press, 2010).

<sup>81</sup> *Ibid*, Bogojević, at 930; Paris Agreement, Article 6; Dan Bodansky, Jutta Brunnée & Lavanya Rajamani, *International Climate Change Law* (Oxford: Oxford University Press, 2017), at 236.

<sup>82</sup> *Air Transport Association of America and Others v Secretary of State for Energy and Climate Change*, C-366/10, Judgment of the Court (Grand Chamber) of 21 December 2011, ECLI:EU:C:2011:864, para 138-140 [ATAA]; *Société Arcelor Atlantique et Lorraine and Others v Premier ministre, Ministre de l'Écologie et du Développement durable and Ministre de l'Économie, des Finances et de l'Industrie*, C-127/07, Judgment of the Court (Grand Chamber) of 16 December 2008, ECLI:EU:C:2008:728, para 32.

through creation of a marketplace to foster environmental outcomes was differentiated from an obligatory levy, customs duty, tax, or fee, to be charged on market actors, based on the incentive provided by the availability of the market to influence the desired outcome.<sup>83</sup> Through the creation of a marketplace for the exchange of instruments based on environmentally sound outcomes an incentivisation is provided to practices with positive environmental knock-on effects.

For the purposes of this work, the analysis of market mechanism will be restricted to the following definition: application of market logic to the conservation and sustainable use of the natural environment. This can be observed in the creation of permit schemes under the climate change and biodiversity frameworks, and the influence this approach has on incentivising positive environmental and sustainable development outcomes through engagement with private actors. The market mechanisms under the climate change and biodiversity regime respectively, recognize and encapsulate a collection of rights and obligations that creates legal certainty, allows for mobilisation of finance, engages private actors, enables low-cost compliance, and can provide pathways for sustainable development outcomes if appropriately crafted.

Such a formulation of market mechanisms advances our understanding beyond the function of a cap-and-trade system to observe market logic in application more broadly under international environmental law. In examining ABS, we observe a market modality recognizing and protecting the property rights of IPLCs, grounding market exchanges in transparency, providing for negotiation of access and utilization of GRs and TK based on PIC, and equitable sharing of both monetary and non-monetary benefit sharing with the curators of these resources and Indigenous knowledge.

Exploration of the parallels across the market mechanisms found in the climate and biodiversity regimes informs our understanding of the application of market logic to build congruence of practice and advance sustainable development outcomes.

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<sup>83</sup> *Ibid*, ATAA, para 145-147; The market logic of the measure promoted achievement of an environmental outcome through an economically efficient and cost-effective modality allowing the Court to differentiate a market measure from other regulatory approaches. Market logic applied in biodiversity: OECD, "Harnessing Markets for Biodiversity: Towards Conservation and Sustainable Use" (OECD, 2003); OECD, "Handbook of Market Creation for Biodiversity: Issues in Implementation" (OECD, 2004); I Alvarado-Quesada, L Hein & HP Weikard, "Market-based mechanisms for biodiversity conservation: a review of existing schemes and an outline for a global mechanism," (2014) *Biodiversity and Conservation*, 1–21.

## Contribution to the Literature on Market Mechanisms

Market mechanisms play a unique role by engaging States and a variety of relevant actors to advance the achievement of international legal obligations through market pressures,<sup>84</sup> while complementing traditional enforcement channels.<sup>85</sup> This research critically evaluates the body of practice under each identified fora, with the aim to draw insights on the functional character of market mechanisms, their architecture under international law, and how they can be utilised to advance sustainable development objectives. In previous research, the relationship of environmental integrity and carbon offsetting was explored in relation to the achievement of the goals of the *Paris Agreement*.<sup>86</sup> In addition, the critical role of providing intellectual property (IP) protection over TK was emphasised as an enabler for sustainable development.<sup>87</sup> Both approaches delve into elements of market mechanisms, the former highlighting the role of high-quality offset credits and certifications in advancing climate ambition, while the latter discussing the role IP rights play in preserving TK, incentivising conservation and sustainable use of biodiversity, and creating pathways for actualisation of sustainable development. Other commentators have identified market mechanisms as modalities to advance human rights standards,<sup>88</sup> as informing a typology which helps identify policy levers to foster community development,<sup>89</sup> and as providing a critical tool to address these climatic shifts, including deforestation, through a wide range of support measures.<sup>90</sup> Despite the suggested importance, the characteristics which are foundational to the engagement of non-Party stakeholders to foster congruence of practice are underexplored.

As global climate ambition remains in the balance, with various Parties observed to be stifling or outright disengaging from negotiations at the international level,<sup>91</sup> and climate science providing an increasingly

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<sup>84</sup> Anne van Aaken, "Effectuating Public International Law through Market Mechanisms" (2009) *Journal of Institutional and Theoretical Economics* 165:1, 33-57.

<sup>85</sup> Anne van Aaken, "Trust, Verify or Incentivize? Effectuating Public International Law Regulating Public Goods Through Market Mechanisms" (2011) 104th Proceedings of the American Society of International Law, at 153-156.

<sup>86</sup> Markus Gehring & Freedom-Kai Phillips, "Intersections of the Paris Agreement and Carbon Offsetting: Legal and Functional Considerations" CIGI Policy Brief No.88 (CIGI, 2016).

<sup>87</sup> Freedom-Kai Phillips, "Intellectual Property Rights in Traditional Knowledge: Enabler of Sustainable Development" (2016) 32:83 *Utrecht Journal of International and European Law*, 1-18 [Phillips 2016].

<sup>88</sup> Damilola Olawuyi, *The Human Rights-Based Approach to Carbon Finance* (Cambridge: Cambridge University Press, 2016), at 383-396.

<sup>89</sup> David J Hendrickson et al., "Pushing the Envelope: Market Mechanisms for Sustainable Community Development" (2011) 4 *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*, 153-173.

<sup>90</sup> Simon West, "'Command Without Control:' Are Market Mechanisms Capable of Delivering Ecological Integrity to REDD?" (2010) 6:3 *Law, Environment and Development Journal*, 298-319.

<sup>91</sup> Matt McGrath, "Climate change: Major emitters accused of blocking progress at UN talks" *BBC News*, 11 December 2019; Chloé Farand, "Largest countries silent as world seeks action on climate" *Climate Home News*, 12 December 2019, online: <[www.climatechangenews.com/2019/12/12/largest-countries-silent-world-seeks-action-climate/](http://www.climatechangenews.com/2019/12/12/largest-countries-silent-world-seeks-action-climate/)>; Simon Evans & Josh Gabbatiss, "COP25: Key outcomes agreed at the UN climate talks in Madrid" *Carbon Brief*, 15 December 2019, online: <[www.carbonbrief.org/cop25-key-outcomes-agreed-at-the-un-climate-talks-in-madrid](http://www.carbonbrief.org/cop25-key-outcomes-agreed-at-the-un-climate-talks-in-madrid)>; US Department of State, "On the U.S. Withdrawal from the Paris Agreement" *Press Statement by Michael Pompeo, Secretary of State*, 4 November 2019, online: <[www.state.gov/on-the-u-s-withdrawal-from-the-paris-agreement/](http://www.state.gov/on-the-u-s-withdrawal-from-the-paris-agreement/)>.

troubling picture of the anthropogenic impact on ecosystems,<sup>92</sup> climate action must be both prudent and practical. This research suggests fostering sustainable development in the face of a changing climate requires both horizontal and vertical (inter-State and intra-State) knowledge-transfer, leadership, engagement, and action across all levels. Increased non-Party stakeholder participation in international fora is reflective of the expanding recognition that their experiences can inform policy prioritisation and identify modalities to localise multilateral obligations within their sphere of responsibilities.<sup>93</sup>

Beyond knowledge-transfer and localisation of policies, priorities, and practices derived at the international level, some critical aspects of adaptation and mitigation are supported through engagement with sub-national governments, the private sector, and IPLCs, with each non-Party stakeholder group providing unique benefits. Regional or sub-national governments translate international and national legal measures, where present, into the local context, or, where lacking, initiate policy responses that build capacity, mobilise engagement, and drive bottom-up pressure. Integrated institutional responses provide modalities to advance ambition on complex transboundary challenges with the EU providing the foremost example.<sup>94</sup> Sub-national governments have localised insight to gauge legal preparedness, develop policy solutions which are responsive to on the ground dynamics, and leverage collaboration to generate collective and cooperative initiatives,<sup>95</sup> even where national climate leadership is weak.<sup>96</sup>

Private sector organisations play a different but equally important role in driving both sectoral and supply chain ambition, developing innovative solutions to respond to climatic shifts, and mobilising finance flows for adaptation and mitigation efforts. While governments hold exclusivity in policymaking, the private sector plays a central role in facilitating a transition to a low carbon green economy given the significant socio-environmental externalities implicated by their activities, and the corollary that economic growth and responsible environmental management are mutually reinforcing.<sup>97</sup>

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<sup>92</sup> IPCC, “Global Warming of 1.5°C” (Incheon, South Korea: IPCC, 2018) [1.5°C Report]; IPCC, “AR6 Climate Change 2021: The Physical Science Basis” (Incheon, South Korea: IPCC, 2021) [AR6 Physical Science Basis 2021]; IPCC, “AR6 Climate Change 2022: Impacts, Adaptation and Vulnerability” (Incheon, South Korea: IPCC, 2022) [AR6 Impacts, Adaptation and Vulnerability 2022]; IPCC, “AR6 Climate Change 2022: Mitigation of Climate Change” (Incheon, South Korea: IPCC, 2022). [AR6 Mitigation of Climate Change 2022].

<sup>93</sup> Phillips 2018, *supra* note 98.

<sup>94</sup> Markus Gehring & Freedom-Kai Phillips, “The European Union” in Emma Lees & Jorge E Viñuales, eds. *The Oxford Handbook on Comparative Environmental Law* (Oxford: Oxford University Press, 2019).

<sup>95</sup> Thomas Hale, “The Role of Sub-state and Nonstate Actors in International Climate Processes” Chatham House Research Paper (2018), at 3-5.

<sup>96</sup> Climate Action Tracker, “USA Country Summary” 2 December 2019, online: <<https://climateactiontracker.org/countries/usa/>>; As of 2019, 22 States, 550 cities, and 900 companies with operations in the US have made climate commitments.

<sup>97</sup> UNEP, “Towards a green economy: Pathways to sustainable development and poverty eradication” (Nairobi: UNEP, 2011); International Chamber of Commerce, “Green economy roadmap 2012: A guide for business, policymakers and society” (Paris: ICC, 2012).

Decarbonisation industrial systems and value chains hold significant mitigation potential.<sup>98</sup> Scaling up of innovative solutions will be crucial to foster sustainable development. Technology transfer, be it direct or collaborative,<sup>99</sup> or through use of a patent pledge,<sup>100</sup> requires long-term private sector dedication and leadership in climate efforts across all aspects of the organisation. Lastly, there is an emerging awareness of the magnitude, financial risks and opportunities presented by climate change, which necessitate mobilisation of significant finance flows, be that to scale-up innovative solutions, or to support adaptation and mitigation activities.<sup>101</sup> Only with genuine, deep-rooted, and ongoing private sector can the sector-wide shifts needed to respond to anthropogenic climate change be realised. Fostering sustainable development and a climate-resilient economy lastly benefits from the localisation of governance, horizontal and vertical learning, partnership with IPLCs, and modalities to equitably integrate TK into developmental planning.<sup>102</sup> Governance solutions leveraging co-management approaches which engage local and Indigenous leadership, as well as ecosystem users, provide an important framework for participatory governance.<sup>103</sup> Effective engagement with private actors can advance all the aforementioned issue areas.

Despite private actors holding a range of protections under international law and gaining increasing integration into international fora both as observers and as actors in international frameworks, insufficient attention has been placed on exploring the architectural elements of market mechanisms which foster or frustrate uptake by private actors under international law.

This thesis sets out to analyse experiences derived from market measures under international law to inform an understanding of critical systemic requirements and functional modalities at the climate/biodiversity nexus, demonstrate genuine pathways for advancement of sustainable development principles, and foster

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<sup>98</sup> See generally: Joseph Sarkis, *Greening the Supply Chain* (Worcester, MA: Springer, 2006); Adrian Bullock & Meredith Walsh, "The Green Supply Chain" (2013) 24:2 LOGOS: Journal of the World Publishing Community, 16-23; Thomas K Dasaklis, Costas P. Pappis, "Supply Chain Management in View of Climate Change: An Overview of Possible Impacts and the Road Ahead" (2013) 6:4 Journal of Industrial Engineering and Management, 1139-1161.

<sup>99</sup> John H Barton, "Mitigating Climate Change Through Technology Transfer: Addressing the needs of Developing Countries" Chatham House, Energy, Environment and Development Programme: Programme Paper 08/02 (2008).

<sup>100</sup> Jorge L. Contreras, "The Evolving Patent Pledge Landscape" CIGI Paper No. 166 (CIGI, 2018); Bassem Awad, "Global Patent Pledges: A Collaborative Mechanism for Climate Change Technology" CIGI Paper No. 81 (CIGI, 2017).

<sup>101</sup> Alan Miller & Stacy Swann, "Climate Change and the Financial Sector: A Time of Risk and Opportunity" Georgetown Environmental Law Review, Vol 29 (2016), 69-108; Megan Bowman & Katrien Steenmans, "Legal Readiness for Climate Finance: Private Sector Opportunities" Report and Findings of Roundtable held at King's College London, 25 January 2019 (King's College/UN Environment, 2019); Virginie Fayolle et. al., "Engaging the private sector in financing adaptation to climate change: Learning from practice" Action on Climate Today/ Oxford Policy Management (February 2019).

<sup>102</sup> Marie-Claire Cordonier Segger & Freedom-Kai Phillips, "Indigenous Traditional Knowledge for Sustainable Development: The Biodiversity Convention and Plant Treaty Regimes" (2015) 20 Journal of Forest Research, 430-437. [Cordonier Segger & Phillips]; Phillips 2016, *supra* note 141.

<sup>103</sup> David Estrin, Freedom-Kai Phillips & Theodore Adimazoya, "Implementation of Obligations for Wetland and Waterfowl Conservation Under the Ramsar Convention: Lessons and Options at the Sakumo Lagoon, Ghana" in Elizabeth Kirk & Rose-Liza Eisma-Osorio, eds., *The Impact of Environmental Law: Stories of the World we Want* (London: Edward Elgar, 2020). [Estrin et al]

private actor engagement through horizontal and vertical knowledge transfer, and congruent practice at all levels.

## Chapter 2 | Critiques of Market Mechanisms

### Introduction

The utilisation of market mechanisms as a legal and policy tool has not been without criticism due to concerns over “additionality” – ensuring credits reflect actual emission reductions and the projects would not have occurred otherwise– an abundance of pre-existing CDM credits of varying if not questionable quality,<sup>104</sup> and concerns over equity.<sup>105</sup> While the majority of critical views are focused on early experiences, it is pertinent to define the parameters of this work in relation to preceding critiques, to emphasise its novelty, and to position its contribution to knowledge in the field of sustainable development.

This chapter explores critiques of market mechanisms under the climate and biodiversity regimes to illustrate the inherent tensions of aiming to achieve environmental outcomes through economic instruments. First, general concerns over the functionality, followed by specific discussions on the additionality, environmental integrity, and human rights implications of CERs/ITMOs under the climate framework are discussed. Second, issues related to the equity, effectiveness, and fragmentation of access and benefit sharing under the biodiversity framework are summarized. Finally, the way forward is mapped noting despite criticisms of market mechanisms, this research provides crucial insight into how and under what conditions sustainable development outcomes may be fostered.

### A Critical Survey of Market Mechanism under the Climate Framework

#### *Failure of the market*

Despite concerns being raised over the legitimacy, environmental benefit, and validity of promised outcomes of using market mechanisms to positively incentivise conservation-related activities, there is an increasing view among environmental law and governance scholars that climate change reflects a failure to effectively incorporate environmental externalities into the market.<sup>106</sup> Adopting such a perspective is somewhat disingenuous, as a failure to internalise the climate change costs within the market, it is argued, is more indicative of a failure to craft appropriate fora and mechanisms for the creation of shared

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<sup>104</sup> Robert N Stavins & Robert C. Stowe, eds. “Market Mechanisms and the Paris Agreement” (Cambridge Mass: Harvard Project on Climate Agreements, 2017), at 65; Carsten Warnecke et al., “Robust eligibility criteria essential for new global scheme to offset aviation emissions” (2019) 9 *Nature Climate Change*, 218–221.

<sup>105</sup> Sarah Laird et al., “Rethink the expansion of access and benefit sharing” (13 March 2020) *Science* 367:6483, 1200–1202.

<sup>106</sup> Robert Baldwin, Martin Cave & Martin Lodge, *Understanding Regulation: Theory, Strategy, and Practice* 2nd ed. (Oxford: Oxford University Press, 2012), 11–12; Johannes Ebeling, ‘Risks and Criticisms of Forestry-Based Climate Change Mitigation and Carbon Trading’, in Charlotte Streck, et al., eds., *Climate Change and Forests: Emerging Policy and Market Opportunities* (London: Chatham House, 2008), 53.

understanding and congruence of practice across all levels of actors, rather than a failure within the market itself. It also speaks more to the embeddedness of commanding heights industries and entrenched interests within economies that restrict market evolution than to a failure of market mechanisms per se.

Proponents have argued that leveraging market mechanisms in the climate space provides flexibility, cost-effectiveness, legal certainty, induces innovative thinking, and allows for decentralisation of governance, compared to traditional top-down regulation.<sup>107</sup> The practical scale of deforestation has been stressed within the larger climate context, with scholars emphasising that a failure to effectively respond to these pressures could undermine GHG reduction gains made in other sectors, and noting the need to incentivise the desired conduct and the importance international institutions play in this process.<sup>108</sup> Critiques provided in the literature note the suggested value but highlight a range of valid considerations including: (i) the need to ensure market demand coupled with complementary funding measures, clarification of land tenure, and enhanced monitoring and enforcement,<sup>109</sup> (ii) technical concerns over defining environmental integrity, ensuring additionality of projects, and concerns over the environmental veracity of early project types allowed under the CDM,<sup>110</sup> (iii) political, economic, and technological imbalances in the host jurisdiction which undermine influence over project priorities and jeopardise long-term positive impacts,<sup>111</sup> and (iv) concerns that these mechanisms have embedded neoliberal economic priorities shrouded by environmental outcomes.<sup>112</sup> An additional consideration raised by both scholars and industry is the concern of carbon leakage, where fear of a loss of global competitiveness in a highly regulated jurisdiction leads to offshoring of GHG-intensive industrial practices ultimately resulting in an exporting the emissions rather

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<sup>107</sup> Harro van Asselt, "The Design and Implementation of Greenhouse Gas Emissions Trading" in Kevin R. Gray, Richard Tarasofsky & Cinnamon Carlarne, eds., *The Oxford Handbook of International Climate Change Law* (Oxford: Oxford University Press, 2016) [van Asselt]; See also: Bruce A Ackerman & Richard B Stewart, "Comment: Reforming Environmental Law" (1985) *Stanford Law Review* 37:5, 1333–65; Robert W Hahn & Robert N Stavins, "Incentive-based Environmental Regulation: A New Ear for an Old Idea" (1991) *Ecology Law Quarterly* 18:1, 1–42; Ben Zhang, "Market-based solutions: An appropriate approach to resolve environmental problems" (2013) 11 *Chinese Journal of Population Resources and Environment*, 87-91.

<sup>108</sup> Charlotte Streck, et al., eds., *Climate Change and Forests: Emerging Policy and Market Opportunities* (London: Chatham House, 2008); Lucio Pedroni, et al., "Creating incentives for avoiding further deforestation: the nested approach" (2009) 9:2 *Climate Policy*, 207-220; Nicholas Stern, *Stern Review on the Economics of Climate Change* (London: HM Treasury, 2006); Bogojević, *supra* note 106, 927.

<sup>109</sup> Robert O'Sullivan & Rick Saines, "International Market Solutions to Protect Tropical Rainforests" in David Freestone & Charlotte Streck, eds., *Legal Aspects of Carbon Trading: Kyoto, Copenhagen, and Beyond* (Oxford: Oxford University Press, 2009), 583-605 [Freestone & Streck 2009]; Sanja Bogojević, "Environmental (Property) Rights in Market-based Management" in Sanja Bogojević & Rosemary Rayfuse, *Environmental Rights in Europe and Beyond: Swedish Studies in European Law* (Oxford: Hart Publishing, 2018), 105-132.

<sup>110</sup> Christina Voigt, "Is the Clean Development Mechanism Sustainable? Some Critical Aspects" (2008) 7:2 *Sustainable Development Law & Policy*, 15-21, at 15-21.

<sup>111</sup> Andriana Vlachou & C Konstantinidis, "Climate Change: The Political Economy of Kyoto Flexible Mechanisms" (2010) 42:1 *Review of Radical Political Economics*, 32-49; Lambert Schneider, "Is the CDM Fulfilling its Environmental and Sustainable Development Objectives? An Evaluation of the CDM and Options for Improvement" (Berlin: WWF/Öko-Institut e.V, 2007) [Schneider]; Michael Wara & David Victor, "A Realistic Policy on International Carbon Offsets" (2008) *Program on Energy and Sustainable Development Working Paper*, No. 74.

<sup>112</sup> James McCarthy, "Devolution in the Woods: Community Forestry as Hybrid Neoliberalism" (2005) 37(6) *Environment and Planning A*, 995-1014; Joanna Cabello, "The Politics of the Clean Development Mechanism: Hiding Capitalism under the Green Rug" in Steffen Böhm & Siddhartha Dabhi, eds., *Upsetting the Offset: The Political Economy of Carbon Markets* (Mayfly Books, 2009).

than actual reductions.<sup>113</sup> Notwithstanding these criticisms, which are valid yet speak more to the design of the measure than to its efficacy, market mechanisms have a distinctive role to play if climate-related challenges can be practically overcome.

### *Environmental integrity and human rights considerations*

Climate action has been noted to require a range of trade-offs in developing and implement mitigation and adaptation options.<sup>114</sup> A lack of environmental integrity of emission reductions sits at the core of critical views of global carbon market mechanisms. To be accredited under the CDM, CERs must provide “real, measurable and long-term [emission reductions]” that are “additional” or otherwise would not have occurred without the project.<sup>115</sup> Parties under the UNFCCC created the CDM Executive Board to establish and evaluate compliance with the technical requirements for project registration,<sup>116</sup> with significant latitude afforded to the body to approve project methodologies, among other things.<sup>117</sup> Critics have signalled ongoing concern that carbon markets do not represent genuine emission reductions,<sup>118</sup> arguing that actors across the carbon market – project proponents, certification bodies, and purchasing entities – are financially motivated to mitigate emissions at the lowest possible cost, leads to concerns over the baseline methodologies used and “additionality” of project outcomes.<sup>119</sup> Cames et al in a 2016 study assessed the additionality of 5,655 CDM projects and concluded 85% lacked additionality, with the predominant culprits being wind (42%) and hydro power generation (35%).<sup>120</sup> Utilization of CDM methodology ACM0002 for registration which requires explanation of “investment barriers” when compared to the relatively low rate of return provided by CER revenues, existence of support schemes for

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<sup>113</sup> van Asselt, *supra* note 162, 334; See also: Harro van Asselt & Frank Biermann, “European Emissions Trading and the International Competitiveness of Energy-intensive Industries: A Legal and Political Evaluation of Possible Supporting Measures” (2007) 35:1 Energy Policy, 497–506; Susanne Dröge et al., “Tackling Carbon Leakage in a World of Unequal Carbon Prices” Climate Strategies (1 July 2009).

<sup>114</sup> Joelle De Sepibus, “The Clean Development Mechanism - a Critique of Its Environmental Integrity” (2010) 4:22 Environmental Law and Management, 162–171. [De Sepibus]

<sup>115</sup> Kyoto Protocol, *supra* note 77, Article 12(5)(c); UNFCCC, Decision 17/CP.7, Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol (10 November 2001), Doc. FCCC/CP/2001/13/Add.2

<sup>116</sup> Axel Michaelowa, “Interpreting the Additionality of CDM Projects: Changes in Additionality Definitions and Regulatory Practices over Time,” in Freestone & Streck 2009, *supra* note 164, 251–252.

<sup>117</sup> Christina Voigt, “Responsibility for the Environmental Integrity of the CDM: Judicial Review of Executive Board Decisions” in Freestone & Streck 2009, *supra* note 164, 272–279 [Voigt 2009]; Joelle de Sepibus, “The Environmental Integrity of the CDM Mechanism – A Legal Analysis of Its Institutional and Procedural Shortcomings” Papers 10 (World Trade Institute, 2009), online: <[www.wti.org/media/filer\\_public/8f/19/8f1963f5-0817-49d7-b632-af407c575ef7/wp\\_2009\\_41\\_env\\_integrity\\_of\\_the\\_cdm.pdf](http://www.wti.org/media/filer_public/8f/19/8f1963f5-0817-49d7-b632-af407c575ef7/wp_2009_41_env_integrity_of_the_cdm.pdf)> [de Sepibus 2009]

<sup>118</sup> Larry Lohmann, Carbon Trading, Climate Justice and the Production of Ignorance: Ten Examples” (2008) 3 Development 359; Schneider, *supra* note 166. “.

<sup>119</sup> *Ibid*, Voigt 2009, 278–279, De Sepibus, *supra* note 169, 162; Baine P Kerr, “Mitigating the Risk of Failure: Legal Accountability for International Carbon Markets”. (2022) 2 *Utrecht Law Review* 18, 145–161.

<sup>120</sup> Martin Cames et al., “How additional is the Clean Development Mechanism? Analysis of the application of current tools and proposed alternatives” (Öko-Institut eV, 2016), at 152, online: <[https://climate.ec.europa.eu/system/files/2017-04/clean\\_dev\\_mechanism\\_en.pdf](https://climate.ec.europa.eu/system/files/2017-04/clean_dev_mechanism_en.pdf)>. [Cames et al. 2016]

renewable energy generation, the decreasing costs of technology in the case of wind and ubiquity of hydro, findings concluded a lack of “additionality” for projects of these classes among others.<sup>121</sup>

These observations raise important considerations related to the environmental integrity of the emission reduction projects, the procedural safeguards in operation, and the importance of robust verification, rather than directly implicating the market mechanism itself. Notwithstanding the disingenuous weighing of CDM accreditation as a market indicator used by proponents to secure broader project finance irrespective of the CER rate of return, on balance while identifying important substantive and procedural considerations the analysis provided in the report undervalued the broader sustainable development benefits underpinning the CDM. Technology transfer, observed to occur across in 64% of projects early on but declining to 39% of in 2015,<sup>122</sup> and capacity building are equally critical complementary priorities.

Inconsistency of project co-benefits has also been cited as a shortcoming of the CDM process. In reviewing over 84 peer-reviewed papers and reports, Hultman et al notes the international architecture presents three challenges to delivering sustainable development: (i) the diversity of sustainable development intersections under the CDM, (ii) developers may prioritise easily accredited projects for predictability and legal certainty, and (iii) there lacks monetary incentive within the CDM to prioritise projects with sustainable development co-benefits.<sup>123</sup> Noting the project specific nature of the CDM contributes to divergence across technology and project types, the literature identified four categories of positive sustainable development outcomes: better and diversified local livelihoods, improved natural resource management and ecosystem services, access to clean and affordable energy, and enhanced local infrastructure.<sup>124</sup> Watson and Fankhauser noted 82% of CDM projects surveyed provided positive livelihood impacts, stressed again the difficulty of qualifying many of the sustainable development benefits, and identified renewable energy and natural capital projects as providing the highest inherent co-benefits.<sup>125</sup>

Concerns of overstated emission reductions have also been levied against forest-based projects under REED+ in particular, with studies suggesting only a fraction of available credits represent genuine

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<sup>121</sup> *Ibid*, Cames et al. 2016, 105-114.

<sup>122</sup> Kevin Murphy, Grant A. Kirkman, Stephen Seres & Erik Haites (2015) Technology transfer in the CDM: an updated analysis, (2015) 15:1 Climate Policy, 127-145;

<sup>123</sup> Nate Hultman et al., “A review of community co-benefits of the clean development mechanism (CDM)” (2020) 15:5 Environmental Research Letters, online: <<https://iopscience.iop.org/article/10.1088/1748-9326/ab6396>>. [Hultman et al.]

<sup>124</sup> *Ibid*, Hultman et al., 6, 12-14.

<sup>125</sup> Charlene Watson & Samuel Fankhauser, “The Clean Development Mechanism: too flexible to produce sustainable development benefits?” (2009) Grantham Research Institute on Climate Change and the Environment Working Paper No. 2, online: <[www.lse.ac.uk/granthaminstitute/wp-content/uploads/2014/03/WorkingPaper2.pdf](http://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2014/03/WorkingPaper2.pdf)>.

sustainable conservation efforts and are emblematic of the difficulty of verifying environmental integrity across various project types.<sup>126</sup>

Finally, human rights-related considerations have been raised by scholars in the literature. Inequitable distribution of projects across the global has been stressed with 80% of all CDM projects hosted in Asia with the Americas and Caribbean hosting 12% and Africa representing only 3%.<sup>127</sup> Lack of project actualization across the African continent speaks to a lack of specific capacity, as well as a suggested prerequisite level of development to foster environmentally conducive implementation.<sup>128</sup> UN Special Rapporteur John Knox also raised human rights related concerns derived from CDM experiences to inform creation of the SDM calling from social an environmental project assessments, effective public participation and dispute settlement, institutional safeguards for environmental and social risks and protections for the most vulnerable.<sup>129</sup> Multiple projects have raised human rights concerns.<sup>130</sup> Barro Blanco, a Panamanian hydro-electric project, faced public backlash for lack of effective consultation with the Ngabe peoples who protested construction citing fears of flooding and impacts on livestock and livelihoods,<sup>131</sup> eventually leading to the project being deregistered.<sup>132</sup> Similarly, the Santa Rita hydro-electric project in Guatemala faced local opposition from communities concerned about access for water consumption and food supplies with the project left to expire in 2020.<sup>133</sup> Lastly, the Agua Zarca Dam in Honduras was spotlighted following the murder of an Indigenous environmental activist who actively challenges the project eventually leading to the pull out of the main funding bodies involved.<sup>134</sup> These examples illustrate human rights challenges

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<sup>126</sup> T West, et al., "Overstated carbon emission reductions from voluntary REDD+ projects in the Brazilian Amazon" (2020) 117 PNAS 39, online: <[www.pnas.org/doi/10.1073/pnas.2004334117](http://www.pnas.org/doi/10.1073/pnas.2004334117)>; Alejandro Guizar-Coutiño, et al., "A global evaluation of the effectiveness of voluntary REDD+ projects at reducing deforestation and degradation in the moist tropics" (2022) 36 Conservation Biology 6, online: <<https://onlinelibrary.wiley.com/doi/full/10.1111/cobi.13970>>; Patrick Greenfield, "Revealed: more than 90% of rainforest carbon offsets by biggest certifier are worthless, analysis shows" The Guardian (18 January 2023), online: <[www.theguardian.com/environment/2023/jan/18/revealed-forest-carbon-offsets-biggest-provider-worthless-verra-aoe](http://www.theguardian.com/environment/2023/jan/18/revealed-forest-carbon-offsets-biggest-provider-worthless-verra-aoe)>.

<sup>127</sup> UNFCCC, "Distribution of registered projects by UN region and subregion" (2021), online: <[https://cdm.unfccc.int/Statistics/Public/files/202109/proj\\_reg\\_bySubregion.pdf](https://cdm.unfccc.int/Statistics/Public/files/202109/proj_reg_bySubregion.pdf)>.

<sup>128</sup> Dirk Rottgers & Ulrike Grote "Africa and the Clean Development Mechanism: What determines project investments? (2014) 62 World Development 201; Market-based Incentives in Developing Countries: Geographical Dispersion, Antecedents and Implications of the Clean Development Mechanism" (2017) 9 Climate and Development 164.

<sup>129</sup> John H Knox, "Human Rights and Safeguards in the New Climate Mechanism established under Article 6, paragraph 4 of the Paris Agreement" (3 May 2016), online: <[www.ohchr.org/sites/default/files/Documents/Issues/Environment/Letter\\_to\\_SBSTA\\_UNFCCC\\_May2016.pdf](http://www.ohchr.org/sites/default/files/Documents/Issues/Environment/Letter_to_SBSTA_UNFCCC_May2016.pdf)>.

<sup>130</sup> Basil Ugochukwu, "Challenges of Integrating SDGs in Market-Based Climate Mitigation Projects Under the Paris Agreement." (2020) 16 McGill Journal of Sustainable Development Law 1.

<sup>131</sup> CDM, "Project 3237: Barro Blanco Hydro Electric Power Plant Project" (28 July 2015), online: <<https://cdm.unfccc.int/Projects/DB/AENOR1261468057.59/view>>.

<sup>132</sup> Miriam Vicente Marcos, "In landmark decision, Panama withdraws UN registration for Barro Blanco hydrodam project" Carbon Market Watch (10 November 2016), online: <<https://carbonmarketwatch.org/2016/11/10/press-statement-in-landmark-decision-panama-withdraws-un-registration-for-barro-blanco-hydrodam-project/>>.

<sup>133</sup> CDM, "Project 9713: Santa Rita Hydroelectric Plant" (January 2015), online: <<https://cdm.unfccc.int/Projects/DB/ICONTEC1375474606.31/view>>.

<sup>134</sup> Monti Aguirre, "Funders Exit Agua Zarca Dam, Now Time for Justice" International Rivers (6 July 2017), online: <<https://archive.internationalrivers.org/blogs/233/funders-exit-agua-zarca-dam-now-time-for-justice>>.

derived from emission reduction projects, with a 2020 study noting divergence remains across the industry with respect to effectively integrating human rights protections into organisational practices.<sup>135</sup>

While critical views bring forward important considerations, greater attention must be placed on understanding how market mechanisms can foster sustainable development outcomes to effectively harness their potential.

## A Critical Survey of Market Mechanism under the Biodiversity Framework

### *Issue Convergence Across Multiple Fora*

A similar, albeit less explored, market mechanism is embedded in the biodiversity regime. The access and benefit-sharing (ABS) modalities established by the CBD and the Nagoya Protocol related to genetic resources (GRs) and associated traditional knowledge (TK) leverage market logic to create a framework for recognition of the legality of access through a benefit-sharing agreement which once registered with the ABS clearinghouse provides an internationally recognized certificate of compliance (IRCC) which flows with the sample.<sup>136</sup> ABS is more generally recognised as contributing to conservation and sustainable use of biodiversity, grounded in an ongoing good-faith dialogue on equity and modalities for allocation of both monetary and non-monetary benefits.<sup>137</sup> In the decade following the adoption of the CBD, observers stressed the need for institutional responses which positioned bioprospecting as a tool for sustainable development,<sup>138</sup> while early experiences highlighted concerns over prior informed consent (PIC), the role of stakeholders, benefit-sharing mechanisms, interfaces with intellectual property, and challenges relating to compliance.<sup>139</sup>

Given the critical importance of GRs and associated TK to the global economy, emphasised for example by the suggestion that 47% of cancer treatments and 34% of small-molecule disease treatments between

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<sup>135</sup> Business & Human Rights Resource Centre, "Renewable Energy & Human Rights Benchmark: Key Findings from the Wind & Solar Sector" Business & Human Rights Resource Centre (June 2020), online: <[https://media.business-humanrights.org/media/documents/files/Renewable\\_Energy\\_Benchmark\\_Key\\_Findings\\_Report.pdf](https://media.business-humanrights.org/media/documents/files/Renewable_Energy_Benchmark_Key_Findings_Report.pdf)>.

<sup>136</sup> Nagoya Protocol, *supra* note 81, Article 5-7, 12, 17.

<sup>137</sup> United Nations, Outcome of the Conference: "The Future We Want" 19 June 2012, UN Doc. A/CONF.216/L.1\*, para 199. [Rio+20]; E Morgera, "Fair and Equitable Benefit-Sharing at the Cross-Roads of the Human Right to Science and International Biodiversity Law" (2015) 4:4 *Laws*, 803-831.

<sup>138</sup> Walter V Reid et al., *Biodiversity prospecting: Using genetic resources for sustainable development* (Washington: WRI, 1993).

<sup>139</sup> EPSW, "Access to genetic resources: An evaluation of the development and implementation of recent regulation and access agreements" (1999) Environmental Policy Studies Workshop, Working Paper #4, School of International and Public Affairs, Columbia University, USA; J.H. Vogel, *Genes for sale: Privatization as a conservation policy* (Oxford: Oxford University Press, 1994); Karry ten Kate & Sarah A Laird The commercial use of biodiversity: Access to genetic resources and benefit sharing (London: Earthscan, 1999); Tom Greaves, ed., *Intellectual property rights for indigenous peoples: A source book* (Oklahoma City, OK: Society for Applied Anthropology, 1994).

1981-2006 derived from natural products,<sup>140</sup> conservation of biodiversity resources plays a critical role.<sup>141</sup> Large-scale utilisation of GRs being a commercial reality raises questions regarding the practical effectiveness of the regime,<sup>142</sup> with commentators aptly drawing attention to concerns over biopiracy and misappropriation,<sup>143</sup> misalignment of the international system to effectively protect TK and rights of Indigenous peoples and local communities (IPLCs),<sup>144</sup> and the fact that limited monetary benefits have actualised as indicative of a system in need of reformulation to respond to the technological realities of research and development (R&D).<sup>145</sup>

Realising sustainable development requires operationalisation of Weeramantry's balancing of socioeconomic development and environmental protection priorities, with equitable governance of GRs and TK playing an essential role.<sup>146</sup> A key challenge to accomplishing this goal is the multiplicity of international instruments implicated by ABS, which has contributed to drawing out the achievement of a comprehensive solution.<sup>147</sup> As opposed to the climate regime where core instruments – the UNFCCC, *Kyoto Protocol*, and *Paris Agreement* – are found under a single institution, governance of GRs and TK have a foothold with the CBD and the Nagoya Protocol, but also find intersections with a range of other instruments depending on the type of resource, including: for food and agricultural crops the *International Treaty on Plant Genetic Resources for Food and Agriculture* (ITPGRFA),<sup>148</sup> for listed endangered species the

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<sup>140</sup> David J Newman & Gordon M Cragg, "Natural Products as Sources of New Drugs Over the Last 25 Years" (2007) 70:3 *Journal of Natural Products*, 461-477.

<sup>141</sup> Evanson Chege Kamau & Gerd Winter, *Common Pools of Genetic Resources: Equity and Innovation in International Biodiversity Law* (London and New York: Routledge, 2013).

<sup>142</sup> Santiago Carrizosa, et al., eds., *Accessing Biodiversity and Sharing the Benefits: Lessons from Implementation of the Convention on Biological Diversity* (Gland, Switzerland: IUCN, 2004). [Carrizosa et al]

<sup>143</sup> Vandana Shiva, *Biopiracy: The plunder of nature and knowledge* (Mass USA: South End Press, 1997); Hamdallah Zedan "Patents and Biopiracy: The Search for Appropriate Policy and Legal Responses" (2005) 12:1 *The Brown Journal of World Affairs*, 189-205; Winston P. Nagan, et al., "Misappropriation of Shuar Traditional Knowledge (TK) and Trade Secrets: A Case Study on Biopiracy in the Amazon" (2010) *Journal of Technology Law & Policy* 15, 9-63; Florian Rabitz, "Biopiracy after the Nagoya Protocol: Problem Structure, Regime Design and Implementation Challenges" (2015) 9:2 *Brazilian Political Science Review*, 30-53; Julie Micalizzi "Misappropriation of Genetic Resources in Africa" (2017) 8 *Journal of Law, Technology & the Internet*, 1-29.

<sup>144</sup> Christopher May & Susan K Sell, *Intellectual Property Rights: A Critical History* (Boulder, CO: Lynne Rienner, 2005); Kal Rustiala, "Density and Conflict in International Intellectual Property Law" (2007) 40 *UC Davis L Rev* 1021-1038; Chidi Oguamanam, "Local Knowledge as Trapped Knowledge: Intellectual Property, Culture, Power and Politics" (2008) 11:1 *Journal of World Intellectual Property*, 29-57; Chidi Oguamanam, *Intellectual Property in Global Governance* (New York: Routledge, 2012) [Oguamanam 2012]; CBD, Decision XII/12: Article 8(j) and Related Provisions" 13 October 2014, UNEP/CBD/COP/DEC/XII/12, at F Terminology: "indigenous peoples and local communities."

<sup>145</sup> Manuel Ruiz Muller, *Access to Genetic Resources and Benefit Sharing 25 Years on: Progress and Challenges* (Geneva: International Centre for Trade and Sustainable Development, 2018); Rachel Wynberg, "One Step Forward, Two Steps Back? Implementing Access and Benefit Sharing Legislation in South Africa" in Charles McManis & Burton Ong, eds., *Routledge Handbook of Biodiversity and the Law* (London: Routledge 2018).

<sup>146</sup> GabcikovoNagyymaros, Separate Opinion, CG Weeramantry, at 93-95 [Weeramantry Separate Opinion]; Cordonier Segger & Phillips, *supra* note 156.

<sup>147</sup> Chidi Oguamanam, "The ABS Canada Initiative: Scoping and Gauging Indigenous Responses to ABS" in Chidi Oguamanam, ed., *Genetic Resources, Justice and Reconciliation: Canada and Global Access and Benefit Sharing* (Cambridge: Cambridge University Press, 2019), at 4-6.

<sup>148</sup> *International Treaty on Plant Genetic Resources for Food and Agriculture*, 3 November 2001, FAO Res 3/2001, 2400 UNTS 303 (entered into force 29 June 2004) [ITPGRFA]; Jorge Cabrera Medaglia, et al. "The interface between the Nagoya Protocol on ABS and the ITPGRFA at the international level. Potential issues for consideration in supporting mutually supportive implementation" (2013) FNI Report 1/2013. [Cabrera et al]

*Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES),<sup>149</sup> and for TK the work of the World Intellectual Property Organization Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (WIPO-IGC) on the Draft Articles on TK,<sup>150</sup> and the United Nations Declaration on the Rights of Indigenous Peoples which rightfully vests rights over TK with IPLCs.<sup>151</sup> This fragmented landscape places increased strain on both users and providers to navigate a highly intertwined albeit mutually supportive set of legal requirements. Given the complexity of the ABS legal framework, the emphasis on ensuring clarity, functionality, and operationalisation to allow equitable benefits to flow and encourage the conservation biodiversity-rich regions is critical. Both market mechanisms under the climate and biodiversity frameworks provide insights applicable across fora on how to systemically advance the functional norm of sustainable development.

### *Critical Perspectives on ABS*

Grounded in the deep cultural connection of IPLCs to GRs and TK, the critical need for conservation, and the importance sustainable use plays in fostering innovative, establishment of a framework for facilitation of access implicates a broad set of critical concerns related to functionality, effectiveness and equity.

While grounded in an international architecture, a key feature is the jurisdiction-driven nature of ABS implementation which impacts both functionality and consistency of governance procedures. Jacur identifies three modalities for “grabbing” of GRs and TK through ABS: (i) misappropriation: access and utilization outside of the ABS regime, (ii) failure to effectively encompass utilization: where access procedures inadequately protect against commercial utilization outside of the terms of the ABS agreement, and (iii) *de facto* “grabbing:” where establishment and compliance with an ABS agreement notwithstanding results in inequitable outcomes.<sup>152</sup> Each speak to the difficulty of effectively governing, negotiating, and tracing utilization of GRs *ex situ*, as well as the systemic limitations embedded in a fragmented international system at the interface of IP and ABS.

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<sup>149</sup> *Convention on International Trade in Endangered Species of Wild Fauna and Flora*, 3 March 1973, 993 UNTS 243, 12 ILM 1085 (entered in force 1 July 1975). [CITES]

<sup>150</sup> WIPO, Matters Concerning Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, General Assembly Twenty-Sixth Session. 25 August 2000, WO/GA/26/6 [WIPO IGC 2000]; WIPO, “The Protection of Traditional Knowledge: Draft Articles (Facilitators’ Rev.)” Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, Fortieth Session (19 June 2019), WIPO/GRTKF/IC/40. [WIPO Draft Articles on TK 2019]

<sup>151</sup> *Declaration on the Rights of Indigenous Peoples*, UNGA Res. 61/295, 13 September 2007, UN Doc. A/61/295, Article 31; Freedom-Kai Phillips, “Access and Benefit-Sharing in Canada: Glimpses from the National Experiences of Brazil, Namibia and Australia to Inform Indigenous-Sensitive Policy” in Chidi Oguamanam, ed., *Genetic Resources, Justice and Reconciliation: Canada and Global Access and Benefit Sharing* (Cambridge: Cambridge University Press, 2019), at 158-161. [Phillips 2019]

<sup>152</sup> FR Jacur, “Tackling the Grabbing of Genetic Resources and of Associated Traditional Knowledge through the Nagoya Protocol” in FR Jacur et al., *Natural Resources Grabbing: An International Law Perspective. Legal Studies on Access and Benefit-sharing*, Volume 4. 2016. [Jacur]

Facilitation of bioprospecting was an important aspect underpinning the Nagoya Protocol. Nonetheless, divergence remains across the needs of users for efficiency and predictability, the adequacy of protections for the rights of providers, and the complexity of the process framed as a systemic barrier to R&D. Researchers have noted ABS systems create burdensome bottlenecks, inhibit collaboration, and have a chilling effect on sharing of samples and subsequently innovation.<sup>153</sup> Bilateral in nature, scholars have cited the complexity of obtaining national approval, the significant costs associated in both time and technical resources, an over emphasis on monetary benefits over collaborative value creation, and the concern approval will be withheld.<sup>154</sup> The EU in 2020 assessed the implications of compliance with their domestic ABS framework and noted significant systemic challenges including long-term concerns over competitiveness and potential of firm relocation, difficulties in tracking GRs to a single country of origin, redirection of funding away from burdensome or procedurally intensive projects, and misuse of the system to block related research.<sup>155</sup> Research organizations both commercial and non-commercial similarly see the complexities of ABS compliance as inhibiting collaboration, diverting funding from analysis to compliance, and undermining innovation.<sup>156</sup>

Significant questions have also been raised about the equity of the ABS regime and if it remains fit for purpose in the digital age. Many IPLCs view the ABS regime as written from a western ontology that enables assertions of ownership over elements of cultural heritage, which does not align with Indigenous perspectives on nature as a common resource for humanity.<sup>157</sup> Under a Party-driven process IPLCs lack direct participation in negotiations, and scholars have noted the Nagoya Protocol fails to adequately represent and protect Indigenous rights, focusing rather on facilitative access rather than equity.<sup>158</sup> Consideration around equity are further constrained by a lack of practical examples of ABS leading to

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<sup>153</sup> R Sara et al., “A need for recalibrating access and benefit sharing: How best to improve conservation, sustainable use of biodiversity, and equitable benefit sharing in a mutually reinforcing manner?: How best to improve conservation, sustainable use of biodiversity, and equitable benefit sharing in a mutually reinforcing manner?”. (2022) EMBO reports, 23(2), e53973 [Sara et al]; DJ Bertioli et al., “Legacy genetics of *Arachis cardenasii* in the peanut crop shows the profound benefits of international seed exchange,” (2021) Proc Natl Acad Sci USA 118: e2104899118.

<sup>154</sup> *Ibid*, Sara et al; RJV Alves et al, “Brazilian legislation on genetic heritage harms biodiversity convention goals and threatens basic biology research and education,” *An Acad Bras Cienc* 90: 1279–1284.

<sup>155</sup> Milieu, “Analysis of implications of compliance with the EU ABS Regulation for research organisations and private sector companies” (May 2023) Support services for implementing policy on access and benefit-sharing (ABS) in the EU, in particular the EU ABS Regulation – Lot 3, online: <<https://circabc.europa.eu/ui/group/3f466d71-92a7-49eb-9c63-6cb0fadf29dc/library/1c43b336-bddb-4482-9382-ed6ef9982131/details?download=true>>.

<sup>156</sup> F Michiels, et al., “Facing the Harsh Reality of Access and Benefit Sharing (ABS) Legislation: An Industry Perspective” *Sustainability* 2022, 14, 277; MF Rourke, “Access and benefit-sharing in practice: non-commercial research scientists face legal obstacles to accessing genetic resources” (2018) 13:1 *Journal of Science Policy and Governance*, online: <[www.sciencepolicyjournal.org/uploads/5/4/3/4/5434385/rourke.pdf](http://www.sciencepolicyjournal.org/uploads/5/4/3/4/5434385/rourke.pdf)>.

<sup>157</sup> MY Teran, “The Nagoya Protocol and Indigenous Peoples,” (2016) *The International Indigenous Policy Journal*, 7(2), at 9, online: <<https://learnnagoya.com/wp-content/uploads/2020/03/Teran-2016.pdf>>; Martin Fredriksson (2021) Dilemmas of protection: decolonising the regulation of genetic resources as cultural heritage, *International Journal of Heritage Studies*, 27:7, 720-733, online: <[www.tandfonline.com/doi/pdf/10.1080/13527258.2020.1852295](http://www.tandfonline.com/doi/pdf/10.1080/13527258.2020.1852295)>.

<sup>158</sup> H Arjjumend et al., “The Space for Indigenous Peoples and Local Communities: Participation in Policymaking and Benefit-Sharing Negotiations” (2017) 21 *World Affairs* 4, 56-73.

commercialization to shed light on procedural steps, how monetary and non-monetary benefits were structured and dispersed, and how equity was effectively realised.<sup>159</sup>

Increasingly sophisticated utilization of digital sequence information (DSI) by users also poses risks to the actualization of the equitable underpinnings of the Protocol. Scholars have noted perceived limitations to the application of the Protocol, remaining divergence on definition and scope and further challenges threatening the fragility of the global ABS system.<sup>160</sup> Negotiations remain ongoing under the CBD at the nexus of scientific advancements, DSI and synthetic biology, with unclear implications for Indigenous resources and knowledge systems. Finally, utilization is governed often by commercial contracts which further equity, power, and capacity imbalances across the ABS framework, and often are sealed as confidential further inhibiting assessments around equity.<sup>161</sup>

## Advancing the Dialogue Going Forward

Given the scale of ambition needed to address the joint challenges of climate change and biodiversity loss in a way that contributes to poverty eradication, promotes sustainable livelihoods, and fosters scalable innovative solutions, government-driven responses alone are insufficient and further leveraging of market innovations remains needed. Non-Party stakeholders, including sub-national governments, private sector and industrial entities, and IPLCs, are critical partners to advance climate ambition, assist in localising and internalising climate change responses, and identifying transferable practices and lessons learned.<sup>162</sup> Understanding the architectural components of market mechanisms under international law, the relationship to private actors, and more broadly, societal uptake, remains fundamental to enable effective achievement of international obligations. While criticisms have been levied against the use of market mechanisms to advance action on climate change and biodiversity conservation, this research contributes to our understanding of how and under what conditions market mechanisms successfully advance sustainable development outcomes.

Enabling multi-tiered congruence of practice is an essential component to climate readiness, resilience, and ambition across all levels of the economy, yet the factors underpinning this process at the nexus of

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<sup>159</sup> C Morrison et al., “A Regional Review of Genetic Resource Access and Benefit Sharing – Key Issues and Research Gaps” (2021) 51:5 Environmental Policy and Law, 273-296.

<sup>160</sup> Sylvain Aubry, et al., “Bringing access and benefit sharing into the digital age” (2022) 4:1 Plants People Planet: Special Issue: Access and benefit sharing of biodiversity data, 5-12, online: <<https://nph.onlinelibrary.wiley.com/doi/full/10.1002/ppp3.10186>>; PWB Phillips, et al., “Access and Benefit-Sharing in the Age of Digital Biology” in C Oguamanam, ed. Genetic Resources, Justice and Reconciliation *supra* note 202.

<sup>161</sup> Tomme Rosanne Young and Morten Walløe Tvedt, Drafting Successful Access and Benefit-sharing Contracts, (Leiden, The Netherlands: Brill Nijhoff, 2017); Aysegul Sirakaya, “Is the Nagoya Protocol designed to conserve biodiversity?” (2022) 4:1 Plants People Planet: Special Issue: Access and benefit sharing of biodiversity data, 68-75, online: <<https://nph.onlinelibrary.wiley.com/doi/full/10.1002/ppp3.10221>>.

<sup>162</sup> Phillips 2018, *supra* note 98.

international law, private actors, and sustainable development remain underexplored. Evaluation of experiences under international law relating to the design, characteristics, and ongoing refinement of market mechanisms explored through the interactional approach to normative development, are informative to ongoing climate negotiations, illustrate the importance of buttressing legal norms with systemic pillars to advance climate-related action, and provide insights for future refinements to accelerate climate ambition. Doctrinal and analytical analysis of the architecture of market mechanisms under international law can shed light more broadly on the role treaty design plays in empowering private actors to engage in the operation of environmental treaties.

This research aims to be both relevant and timely to our ongoing effort to address climate change and biodiversity loss. With the aim of fostering global uptake, as these mechanisms remain under development, research findings aim to directly inform operationalisation of Article 6 of the Paris Agreement, implementation of the Global Biodiversity Framework, and development of a multilateral benefit-sharing scheme for transboundary GRs or TK as part of Article 10 of the Nagoya Protocol. In addition, the examination of State practice under the global climate and biodiversity regimes provides insight into the meaning of sustainable development under international law and affords a substantive framework for evaluation of developing and emerging mechanisms. Most importantly, this research informs an understanding of the legal architecture of market mechanisms to enable uptake by private actors in advancing sustainable development outcomes.

## Chapter 3 | Analysis of the Legal Architecture of Market Mechanisms in Climate Change

### Introduction

Climate change is a critical challenge, our response to which will define our generation and generations that follow, and requires mobilisation across all levels of the economy.<sup>163</sup> This chapter explores the development and evolution of the international legal framework relating to climate change and the interface with the operationalisation of this regime as seen through the lens of dispute resolution. An important element of advancing effective responses to climate change is understanding the design of architectural approaches designed to engaged private actors across all levels of the economy and how to properly calibrate these mechanisms to maintain momentum.

First, the scientific basis of our climate challenge is outlined as background. Second, the international legal regime established through the adoption of the UNFCCC,<sup>164</sup> and the subsequent instruments – the Kyoto Protocol<sup>165</sup> and the Paris Agreement<sup>166</sup> – are summarised with a view to identification of core pillars of the international legal architecture of market mechanisms in the climate regime. Third, the market mechanisms under the Paris Agreement are dissected highlighting areas of opportunity and potential tensions. Fourth, disputes that have arisen out of the CDM are explored to highlight experiences with dispute settlement approaches elucidating pathways for operationalisation of market mechanisms under the Paris Agreement. Finally, insights derived from the *Montreal Protocol on Substances that Deplete the Ozone Layer* (Montreal Protocol),<sup>167</sup> the Kyoto Protocol, and the Paris Agreement are utilised to illustrate and inform functional modalities for private sector engagement and fostering of sustainable development outcomes. For the market logic of market mechanisms under the climate regime to effectively operate, the creation of clear and concise rules, procedures for facilitative compliance, and modalities for transparent dispute settlement are key.

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<sup>163</sup> Mark Carney, “Resolving the climate paradox” Arthur Burns Memorial Lecture, Berlin (22 September 2016).

<sup>164</sup> UNFCCC, *supra* note 76.

<sup>165</sup> Kyoto Protocol, *supra* note 77.

<sup>166</sup> Paris Agreement, *supra* note 78.

<sup>167</sup> Montreal Protocol, *supra* note 79.

## Understanding the Current Climate Challenge

### *Climate Change in Context: The Crescendo of the IPCC Findings*

Following creation of an ad-hoc intergovernmental mechanism by the UNEP Governing Council in 1987,<sup>168</sup> the Intergovernmental Panel on Climate Change (IPCC) in was created 1988 to consider gaps in scientific knowledge, identify policy-relevant information to evaluate the implication of climate responses, and to conduct scientific assessments of issue intersections to guide policy making and environmental programs.<sup>169</sup>

Since its inception, the IPCC has steadily increased global understanding of climate change and the potential impacts on society. The IPCC assessment report, which was first released in 1990 and has noted from the onset market measures as an integral response strategy,<sup>170</sup> has been followed by several special and supplemental reports, is now in its sixth iteration (AR6) with reports released in March 2022 encompassing the physical science basis (WG1), impacts, adaptation and vulnerabilities (WG2), and mitigation of climate change (WG3).<sup>171</sup> Their findings indicate the unequivocal deleterious impact human activity has had on the atmosphere, marine and terrestrial environment, and the cryosphere,<sup>172</sup> with recent changes noted as unprecedented over thousands of years and continuing to intensify.<sup>173</sup> Importantly, as emissions increase the ability of carbon sinks are projected to become less effective at sequestration.<sup>174</sup> The special reports on oceans,<sup>175</sup> land,<sup>176</sup> and what is needed to hold global temperatures at 1.5°C<sup>177</sup> paint a similarly troubling picture emphasising the necessity for systemic reforms towards a low carbon economy.

In the most recent scenarios outlined by the IPCC, humanity faces a 50% chance of exceeding 1.5°C by 2040 at the latest, with more central projections placing this threshold shortly after 2030.<sup>178</sup> Greater levels of ambition are needed to abate significant negative impacts as projected due to anthropogenic climate

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<sup>168</sup> UNEP, Report of the Governing Council on the Work of its Fourteenth Session, Decision 14/20 Global Climate Change, Official Records of the Forty-Second Session, Supplement No. 25 (A/42/25) (28 September 1987), at 71. [UNEP Report of the Governing Council 14 Session]

<sup>169</sup> WMO, Fortieth Session of the Executive Council, Resolution 4 (EX-XL) Intergovernmental Panel on Climate Change (7-16 June 1988), Abridged Report with Resolutions, WMO No. 707, 73-74.

<sup>170</sup> IPCC, "FAR Climate Change: The IPCC Response Strategies" (World Meteorological Organization/United Nations Environment Program/IPCC, 1990), 233-243.

<sup>171</sup> AR6 Physical Science Basis 2021, *supra* note 146; Impacts, Adaptation and Vulnerability 2022, *supra* note 146; Mitigation of Climate Change 2022, *supra* note 146.

<sup>172</sup> *Ibid* AR6 Physical Science Basis 2021, A.1.

<sup>173</sup> *Ibid* AR6 Physical Science Basis 2021, A.2, B.3.

<sup>174</sup> *Ibid* AR6 Physical Science Basis 2021, B.4.

<sup>175</sup> IPCC, "Special Report on the Ocean and Cryosphere in a Changing Climate" (Incheon, South Korea: IPCC, 2018).

<sup>176</sup> IPCC, "Special Report on Climate Change and Land" (Incheon, South Korea: IPCC, 2018).

<sup>177</sup> 1.5°C Report, *supra* note 146.

<sup>178</sup> AR6 Physical Science Basis 2021, *supra* note 146, B – SSP3-7.0, SSP5-8.5.

change coupled with incentivisation schemes to advance the dissemination of technology, mobilisation of financial resources, and integration of innovative solutions.

## The International Climate Regime: An Overview

### UNFCCC

Finding root in the early scientific consensus on the state of the global climate as articulated in the IPCC in 1990, and the growing momentum at the international level for a multilaterally agreed solution through endorsement by the UNGA,<sup>179</sup> the process initiated by the Intergovernmental Negotiating Committee culminated in the agreement of the UNFCCC being agreed as one of the three Rio treaties in 1992, and entered into force 21 March 1994.<sup>180</sup>

Noting ongoing changes to the global climate as a common concern to humankind, that historical emissions derive from economic activities in developed countries, the special difficulties of developing and emerging economies many of whom are climate-vulnerable, and the need for a coordinated and integrated response that supports sustainable development, the UNFCCC provides a framework response to catalyse efforts to protect our environment for present and future generations, to stabilise greenhouse gas (GHG) concentrations, and prevent anthropogenic interference with the climate system.<sup>181</sup> Several key definitions are integrated including “adverse effects of climate change” which recognises the deleterious changes to the environment which affects ecosystems and human health; “climate change” defined to encompass both direct and indirect human-induced atmospheric alterations; “climate system” which includes the atmosphere, hydrosphere and biosphere; and “sink” as a mechanism that acts as a reservoir for removal or sequestration of GHG emissions.<sup>182</sup>

Action under the Convention is grounded in the precautionary principle, recognition of the need to protect the climate for present and future generations, promotion of cooperative approaches, recognition of the vulnerability and disproportionate impact on developing countries, and the aim to enable sustainable development.<sup>183</sup> The Parties commit in light of “common but differentiated responsibilities” and special

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<sup>179</sup> United Nations, Resolution 44/206: on possible adverse effects of sea level rise on islands and coastal areas, particularly low-lying coastal areas UN Doc. A/44/25 (22 December 1989); United Nations, Resolution 44/207 on protection of global climate for present and future generations of mankind UN Doc. A/44/25 (22 December 1989); United Nations, Resolution 45/212: on protection of global climate for present and future generations of mankind, UN Doc. A/45/851 (21 December 1990).

<sup>180</sup> UNFCCC, *supra* note 76.

<sup>181</sup> *Ibid*, UNFCCC, Preamble, Article 2.

<sup>182</sup> *Ibid*, UNFCCC, Article 1.

<sup>183</sup> *Ibid*, UNFCCC, Article 3.

circumstances to develop national inventories, implement mitigation plans to reduce emissions to 1990 levels, collaborate to diffuse relevant technologies, promote sustainable management of ecosystems, and cooperate to share scientific knowledge, review and refine policy responses, and develop collective solutions based on the best scientific knowledge.<sup>184</sup> Recognising the unique circumstances of climate-vulnerable states, developed country Parties (listed in Annex I) are to provide “new and additional” financing, including technology transfer, to support fulfilment of the obligations under the Convention.<sup>185</sup> Cooperation among the Parties is encouraged relating to research, systemic observation, and building of capacity,<sup>186</sup> as well as the development of a financial mechanism to support the achievement of the purposes of the Convention by developing and emerging economies.<sup>187</sup>

Each Party in fulfilment of their obligations under the Convention must communicate information relating to their national inventory and steps taken relating to adaptation and mitigation.<sup>188</sup> Developing country Parties may also on a voluntary basis propose projects for financing for reduction of GHG emissions and outline the potential benefits.<sup>189</sup> While the Parties agreed to a consultative process to resolve questions around implementation, settlement of disputes was envisioned and undertaken through submission to the International Court of Justice (ICJ) or an appropriate arbitral tribunal for consideration.<sup>190</sup> Protocols to the Convention may also be agreed upon and approved through the COP.<sup>191</sup> Ground-breaking in both tone and scope, the UNFCCC established the architecture for the formulation of climate change response measures.

### *Kyoto Protocol*

Following early efforts to operationalise the UNFCCC and only three years after its entry into force, the Kyoto Protocol was passed at COP 3.<sup>192</sup> Annex I Parties agreed to cap emissions at a designated level per type as listed in Annex A, achieve qualified emissions reductions as outlined in Annex B achieving at minimum 5% reduction below 1990 levels over the commitment period of 2008-2012, and demonstrate progress towards commitments undertaken by 2005.<sup>193</sup> Achievement of reductions could be done individually or jointly through agreement with another Party, as the Kyoto Protocol introduced the novel

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<sup>184</sup> *Ibid*, UNFCCC, Article 4(1-2)

<sup>185</sup> *Ibid*, UNFCCC, Article 4(3-4).

<sup>186</sup> *Ibid*, UNFCCC, Article 5-6.

<sup>187</sup> *Ibid*, UNFCCC, Article 11.

<sup>188</sup> *Ibid*, UNFCCC, Article 12(1-2, 5)

<sup>189</sup> *Ibid*, UNFCCC, Article 12(4).

<sup>190</sup> *Ibid*, UNFCCC, Article 13-14.

<sup>191</sup> *Ibid*, UNFCCC, Article 17.

<sup>192</sup> Kyoto Protocol, *supra* note 77; David Freestone, “The United Nations Framework Convention on Climate Change—The Basis for the Climate Change Regime” in Kevin R. Gray, Richard Tarasofsky & Cinnamon Carlarne, eds., *The Oxford Handbook of International Climate Change Law* (Oxford: Oxford University Press, 2016) at 105. [Freestone 2016]

<sup>193</sup> *Ibid*, Kyoto Protocol, Article 3(1-2).

element approach to allow for Parties to trade emission reductions across jurisdictions to support fulfilment of their obligations.<sup>194</sup> While the attainment of an agreement was viewed as noteworthy, many in civil society raised fears over potential negative environmental outcomes.<sup>195</sup>

Three market mechanisms are established under the Protocol: Joint Implementation (JI) encompassed in Article 6, the CDM encompassed in Article 12 and modalities for trading emission amounts encompassed in Article 17. Building on experiences derived from early pilots, JI allows Annex I Parties to enter into an agreement to transfer to, or acquire from, another Party emission reduction units that are derived from projects that reduce emissions or enhance sinks provided emission reductions acquired are supplemental to domestic action, and the Party remains in compliance with the obligations relating to national communications and inventories.<sup>196</sup>

Under the CDM, Annex I Parties are provided a modality for investment in non-Annex I jurisdictions to enable sustainable development, and for the generation of Certified Emission Reductions (CER) for use in achieving compliance with their commitments under the Protocol.<sup>197</sup> Participation in the CDM is voluntary and must result in genuine and measurable emission reductions providing long-term mitigation to climate change and which are additional to those that would have occurred without the project commonly referred to as additionality.<sup>198</sup> Importantly, participation in the CDM is open to both public and private entities, with a share of the proceeds of CERs reserved for administrative overhead and to assist climate-vulnerable countries with the costs of adaptation.<sup>199</sup> Rules and modalities for emissions trading were finalised at COP 7 as a component of the Marrakech Accords.<sup>200</sup>

## *Paris Agreement*

The 2015 *Paris Agreement to the United Nations Framework Convention on Climate Change* (PA), adopted in December 2015 and entering into force in under a year on 4 November 2016, provides the most recent iteration of the global framework to address climate change including integration of market and non-market mechanisms to replace those in the Kyoto Protocol.<sup>201</sup> Recognising in the *Preamble* the importance

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<sup>194</sup> *Ibid*, Kyoto Protocol, Article 4; Freestone 2016, *supra* note 260.

<sup>195</sup> Amanda M. Rosen, "The Wrong Solution at the Right Time: The Failure of the Kyoto Protocol on Climate Change" (2015) 43:1 Politics & Policy, 30-58.

<sup>196</sup> *Ibid*, Kyoto Protocol, Article 6.

<sup>197</sup> *Ibid*, Kyoto Protocol, Article 12(1-3).

<sup>198</sup> *Ibid*, Kyoto Protocol, Article 12(5).

<sup>199</sup> *Ibid*, Kyoto Protocol, Article 12(8-9).

<sup>200</sup> *Ibid*, Kyoto Protocol, Article 17; UNFCCC, Decisions 15–19/CP 7: Report of the Conference of the Parties on its Seventeenth Session, 21 January 2002, FCCC/CP/2001/13/Add.2; David Freestone & Charlotte Streck, *Legal Aspects of Implementing the Kyoto Protocol: making Kyoto work* (Oxford: Oxford University Press, 2005), 567–622 [Freestone & Streck 2005].

<sup>201</sup> Paris Agreement, *supra* note 78.

of establishing sustainable consumption patterns, the Paris Agreement establishes the central goal of holding global average temperature rise to well below 2°C, pursuing towards 1.5°C,<sup>202</sup> and increasing adaptability, climate resilience, and climate-resilient development.<sup>203</sup> Building on the experience of the Kyoto Protocol, the Paris Agreement provides designated pathways for private actors to contribute to emission reduction activities.

Parties to the PA are obliged to submit nationally determined contributions (NDCs) and undertake continuous and ambitious efforts to peak emissions as soon as possible and to achieve the encapsulated temperature goals with the aim to support sustainable development and poverty eradication.<sup>204</sup> NDCs are to be communicated on five-year intervals and are intended to represent the highest possible ambition, with developed country Parties intended to undertake economy-wide reduction targets while developing country Parties are to enhance mitigation efforts and strive towards economy-wide targets based on national circumstances.<sup>205</sup> Developed country Parties are to provide financial resources to support both mitigation and adaptation, mobilised from various sources, and share biennial communications indicating both qualitative and quantitative information.<sup>206</sup> An enhanced transparency framework is established whereby Parties provide biennial reports including information on national inventory, progress made on the implementation of their NDC, and climate change impacts on adaptation, with developed country Parties to provide information on financial, technology transfer, and capacity building support provided, and developing country Parties outlining relevant needs.<sup>207</sup> A global stocktake is integrated that enables an assessment of progress towards achievement of implementation efforts on a five-year cycle, as well as a compliance framework that is facilitative, non-adversarial, and non-punitive in nature.<sup>208</sup>

Market mechanisms are integrated through Article 6 to support voluntary cooperation in the achievement of NDCs, including through cooperative approaches that involve use of internationally transferred mitigation outcomes (ITMOs) as found in Article 6.2 and mitigation of GHG emissions through engagement with both public and private entities while promoting sustainable development as found in Article 6.4.<sup>209</sup> A non-market mechanism is also included via Article 6.8 to integrate a holistic approach to the implementation of NDCs and enable sustainable development in a coordinated manner including through

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<sup>202</sup> *Ibid*, Paris Agreement, Article 2.1(a).

<sup>203</sup> *Ibid*, Paris Agreement, Article 2.1(b-c).

<sup>204</sup> *Ibid*, Paris Agreement, Article 3, 4(1-2).

<sup>205</sup> *Ibid*, Paris Agreement, Article 4(3-4, 9).

<sup>206</sup> *Ibid*, Paris Agreement, Article 9(1-5); Lavanya Rajamani, "The 2015 Paris Agreement: Interplay Between Hard, Soft and Non-Obligations" (2016) 28:2 *Journal of Environmental Law*, 337–358.

<sup>207</sup> *Ibid*, Paris Agreement, Article 13(1-4, 7-10).

<sup>208</sup> *Ibid*, Paris Agreement, Article 14-15.

<sup>209</sup> *Ibid*, Paris Agreement, Article 6(1-2, 4).

finance, technology transfer, and capacity building.<sup>210</sup> Specific details relating to implementation were agreed at COP 24 in Katowice as part of the Paris Agreement Work Programme (PAWP),<sup>211</sup> with the remaining aspects including Article 6 agreed at COP 26 in the Glasgow Climate Pact.<sup>212</sup>

## Market Mechanisms Under the Paris Agreement

Following a refocused mandate provided to SBSTA at COP 24,<sup>213</sup> the Parties at COP 26 forged consensus on critical aspects left unaddressed in the PAWP (Paris Rulebook). The central elements of the market mechanisms under the Paris Agreement that were agreed included guidance on cooperative approaches for the trading of ITMOs under Article 6.2,<sup>214</sup> rules, modalities and procedures for the operation of the mechanism for emission reductions (ERs) under Article 6.4,<sup>215</sup> and the work programme for non-market approaches under 6.8.<sup>216</sup> Agreement market and non-market approaches lay an important groundwork for the post-Kyoto framework available to Parties to support emission reductions and achievement of NDCs going forward.

### Article 6.2

Cooperative approaches under Article 6.2 provide a modality to import ITMOs derived from activities generated in another jurisdiction to enable compliance with the achievement of their NDC or obligations under another international framework based on an agreement between the jurisdictions of generation and purchase or utilisation.<sup>217</sup> ITMOs generated are “real, verified, and additional,” measured in accordance with methodologies provided by the IPCC and approved by the meeting of the Parties to the Paris Agreement (CMA), derived from mitigation efforts from 2021 onward, and Article 6.4 ER units when they are utilised towards the achievement of an NDC or other international mitigation obligations.<sup>218</sup> These “other international mitigation purposes” include sectoral approaches adopted under specialised regimes

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<sup>210</sup> *Ibid*, Paris Agreement, Article 6(8).

<sup>211</sup> UNFCCC, Report of the Conference of the Parties on its twenty-fourth session, held in Katowice from 2 to 15 December 2018 (19 March 2019), FCCC/CP/2018/10/Add.1.

<sup>212</sup> UNFCCC, Decision 1/CP.26: Glasgow Climate Pact, 8 March 2022, FCCC/CP/2021/12/Add.1. [Glasgow Climate Pact]

<sup>213</sup> UNFCCC, Decision 8/CMA.1: Matters relating to Article 6 of the Paris Agreement and paragraphs 36–40 of decision 1/CP.21, Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on the third part of its first session, held in Katowice from 2 to 15 December 2018, 19 March 2019, FCCC/PA/CMA/2018/3/Add.1.

<sup>214</sup> UNFCCC, Decision 2/CMA.3: Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement, 8 March 2022, FCCC/PA/CMA/2021/10/Add.1. [Guidance on Article 6.2]

<sup>215</sup> UNFCCC, Decision 3/CMA.3: Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement, 8 March 2022, FCCC/PA/CMA/2021/10/Add.1. [RMP on Article 6.4]

<sup>216</sup> UNFCCC, Decision 4/CMA.3: Work programme under the framework for non-market approaches referred to in Article 6, paragraph 8, of the Paris Agreement, 8 March 2022, FCCC/PA/CMA/2021/10/Add.1. [WP on Article 6.8]

<sup>217</sup> Aaron Cosby & Andrei Marcu, “The Paris Agreement’s Article 6 and the WTO: Points of Convergence” Centre for International Governance Innovation, Trade Intersections (CIGI), 2020).

<sup>218</sup> Guidance on Article 6.2, *supra* note 282, Annex, Section 1.

(ie. CORSIA under ICAO or any potential market-based measure under IMO) but could expand in the future. Compliance with relevant decisions of CMA is the responsibility of the participating Party ensuring an NDC has been communicated, arrangements for use of ITMOs are in place and consistent with relevant CMA decisions to enable effective tracking, the most recent national inventory has been provided in accordance with decision 18/CMA.1 and participation contributes to the achievement of their NDC and the long-term goals of the PA.<sup>219</sup>

To ensure environmental integrity (EI) and avoid double counting, all ITMOs require a corresponding adjustment applied in a manner that enables transparency, accuracy, and consistency across jurisdictions, negates a net increase in emissions across participating jurisdictions NDCs within or between reporting periods, and calculated in a reliable manner within the emission balance allowing for annual calculation of ITMOs transferred and utilised despite having a single-year or multi-year NDC.<sup>220</sup> Additions or reductions in emissions for an NDC period attained through ITMOs are considered final prior to submission of the first biennial report under the transparency framework, with a corresponding adjustment also required for emission reductions and removals not encompassed in an NDC, as well as utilisation of ITMOs for fulfilment of mitigation outcomes under other international frameworks.<sup>221</sup>

A range of reporting obligations are also in place. Parties are required to provide an initial report in conjunction with the biennial transparency process for the first NDC period containing the metrics and methods used to apply corresponding adjustments, quantified information on mitigation of GHG and non-GHG indicators and levels achieved as a result of domestic measures, a copy of authorisations for each cooperative approach undertaken (duration, expected annual mitigation and authorising entity), and outline approaches adopted to ensure environmental integrity, avoid negative environmental, economic and social factors, and aligns with the sustainable development objectives of the participating Party.<sup>222</sup> Annually, each Party must provide reporting on authorisation of ITMOs for use towards NDCs and other international mitigation outcomes, information on transfers, holdings, and cancellations, and the recipients, with international mitigation uses specifically outlining the sectors, activity types, and unique identifiers.<sup>223</sup>

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<sup>219</sup> *Ibid*, Guidance on Article 6.2, Annex, Section 3-4; See generally: Axel Michaelowa, et al., “Promoting transparency in Article 6: designing a coherent and robust reporting and review cycle in the context of operationalising Articles 6 and 13 of the Paris Agreement” (2020) Freiburg: Perspectives. [Michaelowa, et al]

<sup>220</sup> *Ibid*, Guidance on Article 6.2, Annex, Section 6-11, 17.

<sup>221</sup> *Ibid*, Guidance on Article 6.2, Annex, Section 12-14, 16.

<sup>222</sup> *Ibid*, Guidance on Article 6.2, Annex, Section 18-19.

<sup>223</sup> *Ibid*, Guidance on Article 6.2, Annex, Section 20.

Following submission of the initial report, ongoing reporting as an annex to the Party's biennial report must outline the national inventory in relation to authorised transfers and uses of ITMOs, corresponding adjustments undertaken to avoid double counting, measures taken to ensure ITMOs are used for their intended use (both for domestic and international mitigation purposes) and are not further transferred or cancelled.<sup>224</sup> In addition, measures taken to ensure transparency over the environmental integrity of ITMOs generated must also be provided including conservation and emissions baselines, methodologies used for calculation of tonnes of carbon dioxide equivalent (t CO<sub>2</sub> eq), descriptions of co-benefits, how actions taken reflect respect and promote human rights, the right to health, and rights of IPLCs, and contributes to sustainable development objectives.<sup>225</sup>

Reports submitted are to receive an expert technical review in accordance with guidelines adopted by CMA and includes recommendations to the Party on improving consistency and alignment with relevant CMA guidance.<sup>226</sup> All cooperative approaches and reporting will be compiled and listed on the Article 6 registry and centralised accounting platform to maintain publicly available information on ITMOs, with relevant confidential information redacted.<sup>227</sup> While Article 6.2 does not have a mandatory levy, participating Parties and stakeholders utilising cooperative approaches are “strongly encouraged” to make voluntary contributions to the Adaptation Fund integrating allocated sums as a component of regular reporting requirements, and to cancel any ITMOs not counted towards an NDC or international mitigation purpose.<sup>228</sup>

#### Article 6.4

Drawing inspiration from the CDM, the sustainable development mechanism (SDM) established in Article 6.4 provides a modality for the generation of Article 6.4 emission reductions (A6.4ER) derived from activities that comply with the rules, modalities, and procedures as set out by the CMA.<sup>229</sup> A Supervisory Body (SB) is created to regulate the functionality of the SDM.<sup>230</sup> The SB is comprised of twelve members (two from each UN regional group and one each from Least Developed Countries (LDCs) and Small Island Developing States (SIDS)) and alternates, each having specialist scientific, technical, socio-economic, or legal skills, and providing disclosure of conflicts of interest. Meeting publicly unless confidentially requires otherwise, the SB provides for accreditation of operational entities, process of registration and issuance of

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<sup>224</sup> *Ibid*, Guidance on Article 6.2, Annex, Section 21, 23.

<sup>225</sup> *Ibid*, Guidance on Article 6.2, Annex, Section 22.

<sup>226</sup> *Ibid*, Guidance on Article 6.2, Annex, Section 25-28.

<sup>227</sup> *Ibid*, Guidance on Article 6.2, Annex, Section 29-36.

<sup>228</sup> *Ibid*, Guidance on Article 6.2, Annex, Section 37-40.

<sup>229</sup> RMP on Article 6.4, *supra* note 283, Annex, Section 1.

<sup>230</sup> *Ibid*, RMP on Article 6.4, Annex, Section 3.

A6.4ERs, operate the registry, and approve and supervise the national arrangements of the host Party on a consensus basis, with the CMA empowered to take decisions on the rules of procedure (RoP), recommendations on the rules, modalities, and procedures (RMPs) and operational matters.<sup>231</sup>

Importantly, the SB shall establish relevant procedures, in accordance with the CMA, to operate the SDM including approval of “designated operational entities,” administration of the share of proceeds levied to support climate-vulnerable Parties in managing the costs of adaptation, the application of robust socio-environmental safeguards, operationalisation of modalities relating to the preservation of human rights, the right to health, rights of IPLCs, and empowerment of women and vulnerable populations in A6.4ER climate actions by the Parties, and development of tools to report on how activities are fostering sustainable development and meeting the long-term goals of the PA.<sup>232</sup> Designated operation entities are to support the implementation of the SDM through knowledge transfer, raising of public awareness, promotion of regional entities, facilitation of dialogue among Parties and stakeholders, implement capacity building activities, and report annually to the CMA on all A6.4ER activities hosted by the Party.<sup>233</sup>

Each host Party of A6.4ER activities must ensure that they have submitted an NDC, communicated its designated national competent authority to the secretariat, indicated to the SB how participation contributes to sustainable development and the types of activities it would consider and may specify prior to participation baseline approaches and methodologies including intended activities it looks to host and crediting periods while maintaining an ongoing NDC and alignment of activities with the national developmental strategy.<sup>234</sup> Both public and private entities may register as “participants” to carry out mitigation activities designed to reduce GHG emissions, be that project or program-level, as approved by the SB, to deliver measurable and long-term climate benefits, reduce the risk of leakage, and avoid negative socio-environmental impacts based on consultation with relevant stakeholders.<sup>235</sup> For A6.4ERs a crediting period for issuance is set with an allowance for renewal, and use of an approved methodology that demonstrates additionality, sets a baseline for calculation, and ensures an accurate accounting and monitoring of emission reductions.<sup>236</sup>

Appropriate methodologies are to be applied that encourage increased ambition, broad participation, transparent and credible reductions that are beyond business as usual, contribute to the equitable sharing

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<sup>231</sup> *Ibid*, RMP on Article 6.4, Annex, Section 2, 4-24.

<sup>232</sup> *Ibid*, RMP on Article 6.4, Annex, Section 24(a)(i-xii).

<sup>233</sup> *Ibid*, RMP on Article 6.4, Annex, Section 24(b-d).

<sup>234</sup> *Ibid*, RMP on Article 6.4, Annex, Section 26-28.

<sup>235</sup> *Ibid*, RMP on Article 6.4, Annex, Section 30-31(a-e).

<sup>236</sup> *Ibid*, RMP on Article 6.4, Annex, Section 31(f), 32, 56-57.

of mitigation benefits across Parties, and support the long-term achievement of the goals of the PA in the host jurisdiction.<sup>237</sup> Integration of parameters, data sources, and key factors to account for uncertainties, leakage and relevant circumstances at the regional or local level, including socio-environmental and technological limitations, is required.<sup>238</sup> Parties, participating entities, and relevant stakeholders may develop methodologies for application based on approval by the SB, with each taking into account standardised baselines, performance-based approach, and grounded in historical emissions modelling.<sup>239</sup> Each applied methodology must specify how the approach achieves additionality of emission reductions including demonstrating that the proposed reductions would not have occurred in the absence of the incentivisation provided by the mechanisms, with the SB empowered to apply simplified approaches for demonstration of additionality in cases of LDCs or SIDS.<sup>240</sup>

The host Party provides the SB with authorisation of participating public and private entities, approval of the activity which includes confirmation on how sustainable development is being supported, authorisation for the crediting period, an explanation of how this approach supports the achievement of the NDC, prior to registration as an A6.4ER, and a determination of if the intended use is to be towards an NDC and/or international mitigation purpose.<sup>241</sup> Only approved A6.4ERs are able to be utilised domestically or internationally and done so once, followed by a corresponding adjustment and relevant share of proceeds levied at the time of first transfer, with participants mandated to ensure emission reductions are attained during the monitoring period.<sup>242</sup> Upon submission of an appropriately validated submission, the SB may approve the request for registration and apply a share of proceeds to cover the costs of administration at a scale determined by CMA.<sup>243</sup> Verification of emission reductions is to be carried out by an independent appropriately registered entity based on the RMPs approved by CMA, allowing for submission to the SB of a request for certification and issuance of A6.4ERs on the registry with a specific designation for those to be applied to NDCs or other international mitigation purposes.<sup>244</sup>

Upon issuance to a participant, a first transfer levy of 5% of the A6.4ER and a monetary contribution – to be set by CMA – related to the scale of the activity will be held by the Adaptation Fund, with cancellation similarly incurring a first transfer of a minimum of 2% of the issued A6.4ER.<sup>245</sup> To enhance the delivery of

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<sup>237</sup> *Ibid*, RMP on Article 6.4, Annex, Section 33.

<sup>238</sup> *Ibid*, RMP on Article 6.4, Annex, Section 34.

<sup>239</sup> *Ibid*, RMP on Article 6.4, Annex, Section 35-37.

<sup>240</sup> *Ibid*, RMP on Article 6.4, Annex, Section 38-39.

<sup>241</sup> *Ibid*, RMP on Article 6.4, Annex, Section 40-42.

<sup>242</sup> *Ibid*, RMP on Article 6.4, Annex, Section 43-45, 50, 71-72.

<sup>243</sup> *Ibid*, RMP on Article 6.4, Annex, Section 47-49.

<sup>244</sup> *Ibid*, RMP on Article 6.4, Annex, Section 51-55.

<sup>245</sup> *Ibid*, RMP on Article 6.4, Annex, Section 58-60, 66-68.

overall emission reductions cancellation will occur at the end of the activity cycle, or may be voluntarily requested by Parties, stakeholders, and activity participants, with the cancellation levy and appropriate corresponding adjustment applied and the A6.4ER subsequently restricted from being transferred.<sup>246</sup> An independent grievance procedure is also in place whereby participating Parties, stakeholders, and activity participants may appeal decisions made by the SB through request.<sup>247</sup>

Activities and programs registered under the CDM (or listed as provisional by the CDM Executive Board) may transition to be registered as an A6.4ER activity upon request to the Secretariat and host Party, by or on behalf of the proponent, provided the CDM activity was approved prior to 31 December 2023 and transition approval was provided by the SB prior to 31 December 2025.<sup>248</sup> Previously approved activities may apply the CDM methodology until either the end of the first crediting period or 31 December 2025, whichever is earliest, followed by application of the SDM methodology going forward.<sup>249</sup> Small-scale CDM activities and programs are provided an expedited procedure for transition through prioritisation of the approval by the SB.<sup>250</sup> CDM-issued CERs may be used towards achievement of the first NDC period provided they were registered after 1 January 2013 and identified as “pre-2021 ERs.”<sup>251</sup> Such pre-2021 ERs are exempted from the requirements for corresponding adjustments, application of the mandatory levy, and administrative share of proceeds, with those registered prior to 2013 currently ineligible for utilisation – barring a future decision of the CMA.<sup>252</sup>

### *Non-Market Approach Under Article 6.8*

To complement the market-based mechanisms, non-market approaches (NMAs) are integrated through the work programme on Article 6.8. The framework enables the coordination and utilisation of NMAs in the achievement of NDCs focused on poverty eradication and sustainable development by enhancing synergies across mitigation, adaptation, finance, technology (both development and transfer), and capacity building.<sup>253</sup> Under the framework NMAs are voluntary actions aimed at transformative actions, improved participation of public, private, and civil society actors, and promotion of opportunities for cross-instrument

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<sup>246</sup> *Ibid*, RMP on Article 6.4, Annex, Section 61, 69-70.

<sup>247</sup> *Ibid*, RMP on Article 6.4, Annex, Section 62.

<sup>248</sup> *Ibid*, RMP on Article 6.4, Annex, Section 73(a-c).

<sup>249</sup> *Ibid*, RMP on Article 6.4, Annex, Section 73(d).

<sup>250</sup> *Ibid*, RMP on Article 6.4, Annex, Section 74.

<sup>251</sup> *Ibid*, RMP on Article 6.4, Annex, Section 75(a-c).

<sup>252</sup> *Ibid*, RMP on Article 6.4, Annex, Section 75(d-f).

<sup>253</sup> WP on Article 6.8, *supra* note 284, Annex, Section 1(a), 2(b).

coordination in a manner that may drive enhanced ambition, and support NDC achievement in the host Party jurisdiction.<sup>254</sup>

Either bilateral or multilateral in nature, NMAs facilitate implementation of NDCs without transfer of mitigation outcomes, minimise negative environmental, economic and social impacts, and are conducted in a manner that respects human rights, the right to health, rights of IPLCs, migrants, children, women, and disabled and climate-vulnerable people.<sup>255</sup> The framework is supported through the creation of the Glasgow Committee on Non-market Approaches that will be convened under SBSTA starting in the summer of 2022 and will consider if further institutional arrangements are needed with recommendations to be provided to CMA in 2027.<sup>256</sup> Activities under the work programme include workshops, consultations with public and private sector stakeholders encompassing technical experts, civil society and financial institutions, submissions from non-Party stakeholders, technical papers and reports, and collaboration with relevant bodies and institutional arrangements to advance the work of the Committee.<sup>257</sup> Initiated in 2022, the work programme focuses on identification and enhancement of existing linkages, taking stock of NMAs and desired areas of focus, evaluation of experiences with existing interlinkages, and prioritisation of areas of exploration at the local, subnational, national and global level.<sup>258</sup> Implementing measures to be explored include a web platform to compile experiences and best practices, replication of successful NMAs across levels of government, facilitation of enabling environments, promotion of cooperation across Parties, advancement of engagement through work with the private sector, civil society and impacted sectors and communities, generation of co-benefits from adaptation actions, and production of report on impacts of NMAs identifying actions that enhance ambition.<sup>259</sup> Progress and outcomes are to be reported to CMA annually focused on results of implementation, recommendations on modalities to enhance existing linkages and facilitate support for NMAs, and additional pathways for implementation of the framework, with a review of the work programme set for fall 2025 at CMA 7.<sup>260</sup>

### *Early Observations of Market Mechanisms under the Paris Agreement*

The market-based framework created through Article 6.2 and 6.4 of the PA, complemented through modalities in support of NMAs under Article 6.8 provides an architectural evolution to engage private actors

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<sup>254</sup> *Ibid*, WP on Article 6.8, Annex, Section 1(b-c), 2(a).

<sup>255</sup> *Ibid*, WP on Article 6.8, Annex, Section 3.

<sup>256</sup> *Ibid*, WP on Article 6.8, Annex, Section 4-7.

<sup>257</sup> *Ibid*, WP on Article 6.8, Annex, Section 7.

<sup>258</sup> *Ibid*, WP on Article 6.8, Annex, Section 8(a).

<sup>259</sup> *Ibid*, WP on Article 6.8, Annex, Section 8(b).

<sup>260</sup> *Ibid*, WP on Article 6.8, Annex, Section 9.

and incentivise innovation enabling climate action. Under the post-Kyoto framework, sustainable development is prioritised, and private actors are provided an important pathway to act as catalysts for climate ambition. Despite the significant strides made at COP 26, several potential challenges in operationalisation remain.

Given the need under Article 6.2 to maintain a high level of environmental integrity and report through biennial transparency submissions on how the cooperative approaches adopted provide no net increase to global emissions based on a robust approach to transparency and permanence of emission reductions over multiple NDC periods, a potential exists for multilateral arrangements or unilateral restrictions being placed on ITMOs of a particular type, character, or vintage may occur.<sup>261</sup> While the PA does not restrict the actions of Parties resulting in preferences favouring one type of ITMOs over another such actions be them unilateral or multilateral for instance within a carbon club remain an open question.

A further set of questions arise when considering how ITMOs are classified and treated in relation to the obligations established under the General Agreement on Tariffs and Trade (GATT), and more broadly through the World Trade Organisation (WTO) covered agreements.<sup>262</sup> While the prevailing view of emission credits generated under the Kyoto Protocol was these units were debt instruments or equivalent to legal tender,<sup>263</sup> an inquiry has been made into the treatment as products or services and the potential legal implications under the WTO.<sup>264</sup> Were ITMOs to be classified as either of the later categories, preferential treatment of a particular type could raise questions as to potential breaches of the principles of Most-Favoured Nation (MFN) – an advantage afforded to one Party must be provided to other Parties for “like” products or services --- and national treatment (NT) – requiring equity in competitive conditions.<sup>265</sup>

Such an inquiry would require a determination of “likeness,” comparing ITMOs with high versus low EI considerations through the lens of competitive relationship,<sup>266</sup> with A6.4ERs expected to be both of higher EI and greater homogeneity through the approval process of the SB, as opposed to Article 6.2 ITMOs which

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<sup>261</sup> Géraud de Lassus St-Geniès, “Might Cooperative Approaches Not Be So Cooperative? Exploring the Potential of Article 6.2 of the Paris Agreement to Generate Legal Disputes” (2021) 11 *Climate Law*, 265–278; Susanne Droege, Harro van Asselt, Kasturi Das & Michael Mehling, “The Trade System and Climate Action: Ways Forward under the Paris Agreement” Working Paper, *Climate Strategies* (2016), 27.

<sup>262</sup> *General Agreement on Tariffs and Trade*, 30 October 1947, 61 Stat. A-11, 55 UNTS 194 (entry into force provisionally 1 January 1948) [GATT]; *General Agreement on Tariffs and Trade 1994*, 15 April 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1867 UNTS. 187, 33 ILM 1153 (1994) (entry into force 1 January 1995). [GATT 1994]

<sup>263</sup> Jacob Werksman, “Greenhouse Gas Emissions Trading and the WTO” (1999) 8(3) *Review of European Community and International Environmental Law* 251; Annie Petsonk, “The Kyoto Protocol and the WTO: Integrating Greenhouse Gas Emission Allowance Trading into the Global Marketplace” (1999) 10 *Duke Environmental Law and Policy Forum* 185, 200, 201.

<sup>264</sup> Gillian Moon & Christoph Schwarte, “The Paris Agreement’s Article 6 Market Mechanisms and WTO Law” (2021) 11 *Climate Law*, 279–297.

<sup>265</sup> GATT, *supra* note 330, Article I:1, III:2, 4; *General Agreement on Trade in Services*, 15 April 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1B, 1869 UNTS 183, 33 ILM 1167 (1994), Article II, XVII(1) [GATS]:See chapter 5 for further discussion of the WTO obligations and relevant jurisprudence.

<sup>266</sup> WTO, *Philippines: Taxes on Distilled Spirits*—Report of the Appellate Body (2011) WT/DS403/ AB/R paras 125, 148-149. [Philippines-Distilled Spirits]

will see greater variability in EI and overall project quality. Any trade-restrictive measure would need to fall within an exception under GATT Article XX(b) to protect the health of humans, plants, or animals, or Article XX(g) to conserve an exhaustible natural resource, be applied in a least-trade restrictive manner, and not be considered an arbitrary, unjustified, or disguised restriction on trade.<sup>267</sup> Presumably, a transparent set of EI criteria fairly applied individually or collectively by participating States restricting the use of low EI CERs could be justifiable under WTO jurisprudence, but clarity on this question remains outstanding.

While the modalities under Article 6.8 and potentially the forum on response measures could provide vehicles for strategic dialogue and establishment of a multilaterally agreed approach, inquiry into the types of disputes that arose under the Kyoto framework involving private actors could also be informative to the effective operationalisation of the market mechanisms under PA Article 6.

## Potential Disputes Arising Under the Paris Agreement

Several types of disputes could arise under the market mechanisms of the Paris Agreement that engage private actors. Drawing on previous experience potential dispute types that engage private actors include: (i) Decisions of the Supervisory Body; (ii) Operation of an emission trading scheme or decisions of authorities; and (iii) Contractual disputes for failure to deliver emission reductions. Experiences under the Kyoto Protocol are informative and elucidate potential challenges. This section maps and explores the tensions and discusses pathways for ensuring sustainable development-focused outcomes.

### *Decisions of the Supervisory Body*

Potential disputes that could arise may come by way of the SB determining a designated operational entity (DOE) has acted in violation of the Rules, Modalities and Procedures (RMPs) of Article 6.4, failing to accredit a DOE, A6.4 activity or issuance of CERs, withdrawal or revocation of CERs from a registry, or contention over the accuracy of carbon accounting.<sup>268</sup> These types of conflicts could manifest through perceived or actual contravention of the RMPs by the DOE, as identified by the accrediting entity (a certified verification body), or through misrepresentation on the part of the private entity as to components of the project – the

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<sup>267</sup> WTO, *United States: Import Prohibition of Certain Shrimp and Shrimp Products*—Report of the Appellate Body (1998) WT/DS58/AB/R, para 158-159, 161 [US-Shrimp-Turtle]; WTO, *United States: Standards for Reformulated and Conventional Gasoline*—Report of the Appellate Body (1996) WT/DS2/AB/R. [US-Reformulated Gas]

<sup>268</sup> Ernestine E Meijer, “The International Institutions of the Clean Development Mechanism Brought Before National Courts: Limiting Jurisdictional Immunity to Achieve Access to Justice” (2007) 39 N.Y.U. J. Int’l L. & Pol. 873, 896; Peggy Rodgers Kalas & Alexia Herwig, “Dispute Resolution Under the Kyoto Protocol” (2000) 27:53 Ecology L.Q., 111.

additionality, EI, totality of emissions, etc. Under the Kyoto Protocol decisions of the Executive Board were not able to be contested drawing attention to the imbalance of power within the relationship,<sup>269</sup> and prompting calls for the creation of an independent panel to review claims,<sup>270</sup> or an appeals procedure by, among others, the Gold Standard Foundation who operate as a best-in-class third-party certification scheme.<sup>271</sup>

Under the RMPs for Article 6.4 a grievance procedure has been established whereby Parties, activity participants, and stakeholders may file a request to appeal a decision provided by the SB or request a grievance be addressed through an independent procedure.<sup>272</sup> A parallel institutional procedure is absent in the guidance on cooperative approaches under Article 6.2, yet as an example, Gold Standard provides an internal grievance procedure for consideration of all allegations, grievances, and application of the standard.<sup>273</sup> The procedure adopted by Gold Standard and SustainCERT – provider of Gold Standard certifications among other SDG-related assessments – could be informative to the type of procedure to be adopted by CMA. Complaints (an expression of dissatisfaction of performance) and grievances (non-compliance of a project with the Gold Standard rules and procedures) are treated on similar but different tracks, provided an initial review within 10 days to consider the sufficiency of information, and within 20 days provided an overview of the proposed resolution including identification of the independent personnel who conducted the assessment, with a procedure for appeals also provided.<sup>274</sup> The conclusions of the initial processes are published to maintain transparency, with appeals addressed confidentially.<sup>275</sup>

Enabling confidence in the system through an appropriately designed architecture underpins uptake, and subsequently is a prerequisite to sustainable development outcomes both in terms of overall emission reductions, and generation of capital to support adaptation efforts. One aspect of this is a balanced grievance procedure. Findings show the role of mutually supportive institutions and approaches demonstrate congruence and industry internalisation while reinforcing the environmental integrity of the system.

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<sup>269</sup> *Ibid*, Meijer at 891-92.

<sup>270</sup> Charlotte Streck & Jolene Lin, “Making Markets Work: A Review of CDM Performance and the Need for Reform” (2008) 19 Eur. J. Int. 409, 417.

<sup>271</sup> Kylie Wilson, “Access to Justice for Victims of the International Carbon Offset Industry” (2011) 38 Ecology L.Q. 4, 984-985.

<sup>272</sup> RMP on Article 6.4, *supra* note 283, Annex, Article 62.

<sup>273</sup> Gold Standard, Technical Governance: Guiding Principles, Version 2.0 (13 September 2021), online: <<https://globalgoals.goldstandard.org/000-2-gov-technical-governance-guiding-principles/>>; Gold Standard, Grievance Procedure, Version 3.0 (03 July 2020), online: <<https://globalgoals.goldstandard.org/000-8-gov-grievance-approval-procedure/>>. [GS Grievance Procedure]

<sup>274</sup> *Ibid*, GS Grievance Procedure, 4.1.2-10; SustainCERT, “Complaints and Grievances” (2019), online: <[www.sustain-cert.com/home/complaints-appeals/](http://www.sustain-cert.com/home/complaints-appeals/)>.

<sup>275</sup> *Ibid*.

## *Operation of an Emission Trading Scheme or Decisions of Authorities*

As generation and transfer of ERs will predominantly be occurring within a domestic or regional emission trading scheme (ETS), consideration of contentious issues within these relationships is informative to matters private actors may raise engaging in climate adaptation and mitigation efforts.

The question of the operative scope of the scheme was raised in *Arcelor Atlantique and Lorraine and Others* whereby the claimants as steel producers raised contention in the context of unequal sectoral treatment in comparable situations in relation to other excluded industries such as plastics or aluminium.<sup>276</sup> Noting the economic logic of the ETS was to reduce GHGs at the lowest cost and that the industries were for the purposes of the legislation in comparable situations, the Court noted differential treatment could nonetheless be justified.<sup>277</sup> Citing the comparative scale of different emissions footprints across the respective industries with steel being significantly higher in comparison, the novelty and complexity of the scheme, and the step-wise approach adopted, the Court upheld the validity of the scheme.<sup>278</sup> The Court considered a similar scenario in *Arcelor SA* stressing the freedom of economic activity was not absolute but must be viewed in light of the societal function, that purchase of emission allowances was not an encumbrance, the cost of which could not be passed on to consumers, and ultimately the framework provided an area of opportunity with the facts ultimately illustrating a substantial profit made the year prior from sale of surplus credits on the exchange market.<sup>279</sup> Quoting the holding in *Arcelor Atlantique and Lorraine and Others* the Court upheld the legality of inclusion of the sector in the ETS despite other sectors' exclusion.<sup>280</sup>

In *Arcelor Mittal Rodange et Schiffflange SA* the Court was challenged with considering the validity of a measure allowing the government to request the surrender of unused emission allowances without providing adequate compensation. Operator of an installation, the organisation was allocated a designated allowance for the term (2008-2012) but had ceased operations indefinitely at the end of 2011, provided notification to the competent authority in April 2012, and was subsequently requested in June 2013 to surrender a portion of the allotment due to the suspension of activities.<sup>281</sup> Noting the ETS operates on a strict accounting system with accuracy at the heart of the framework, failure to remedy the irregularly

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<sup>276</sup> Case C-127/07, *Arcelor Atlantique and Lorraine and Others*, Judgment of the Court (Grand Chamber) of 16 December 2008, ECR 2008 I-09895, at 23-25. [Arcelor Atlantique and Lorraine and Others]

<sup>277</sup> *Ibid*, Arcelor Atlantique and Lorraine and Others, at 31, 38, 46

<sup>278</sup> *Ibid*, Arcelor Atlantique and Lorraine and Others, at 61-62, 73-74.

<sup>279</sup> Case T-16/04, *Arcelor SA v European Parliament and Council of the European Union*, Judgment of the General Court (Third Chamber) of 2 March 2010, ECR 2010 II-00211, at 153, 155. [Arcelor SA]

<sup>280</sup> *Ibid*, Arcelor SA at 168-169.

<sup>281</sup> Case C-321/15, *ArcelorMittal Rodange et Schiffflange SA v. State of the Grand Duchy of Luxembourg*, Judgment of the Court (Fifth Chamber) of 8 March 2017, ECLI:EU:C:2017:179, at 15-17. [ArcelorMittal Rodange et Schiffflange SA]

would undermine the system and create a distortion in the market.<sup>282</sup> The Court subsequently stressed the need for flexibility to allow regulators to pull back allowances that had been improperly issued for a period where operations had been halted and clarified that this action was not expropriation of an asset as the allowance in question was no longer valid under the framework.<sup>283</sup> Similarly, in *Trinseo* the Court was challenged to determine if a polymer-production facility that obtained steam from a plant operated on the same site by a different operator was entitled to an emission allowance.<sup>284</sup> As the framework aims to incentivise emission reductions, and the facility obtains the requisite heat for production from a third-party installation in itself not producing emissions GHG emissions from that process, the facility does not warrant an allocation to encourage GHG reduction.<sup>285</sup> As was also seen in *Plantanol* removal of a support scheme, in that case a tax exemption for blended biofuels, may be justified to respond to changes in external circumstances as there is no certainty schemes of this nature will be maintained indefinitely.<sup>286</sup>

To effectively foster sustainable development outcomes, the integrity of the system is critical in terms of scope, accounting, and allocations to ensure the proper balance of incentives resulting in a drive for emission reductions. My conclusions suggest the creation of the appropriate architectural approach at the international level is crucial to creating an enabling environment for congruence of practice across all levels.

### *Contractual Disputes for Failure to Deliver Emission Reductions*

Failure to deliver CERs on the part of a private actor could give rise to a range of potential conflicts. Under the project guidelines for the Kyoto Protocol, Parties that authorise the participation of operational entities to engage in emission reduction activities hold responsibility for ensuring these actors remain in compliance,<sup>287</sup> with the operational entity required to provide written assurance or certification that the project has achieved the proposed reductions over the specific period.<sup>288</sup> These obligations were addressed through a range of contractual structures, with early versions governed by the CDM Executive Board who could upon decision nullify a potential investment leaving no further recourse for project proponents.<sup>289</sup>

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<sup>282</sup> *Ibid*, ArcelorMittal Rodange et Schifflange SA, at 33.

<sup>283</sup> *Ibid*, ArcelorMittal Rodange et Schifflange SA, at 36, 38-40.

<sup>284</sup> Case C-577/16, *Trinseo Deutschland Anlagengesellschaft mbH v Bundesrepublik Deutschland*, Judgment of the Court (First Chamber) of 28 February 2018, ECLI:EU:C:2018:127, at 2. [Trinseo Deutschland]

<sup>285</sup> *Ibid*, Trinseo Deutschland at 41, 49-52.

<sup>286</sup> Case C-201/08, *Plantanol GmbH & Co. KG v. Hauptzollamt Darmstadt*, Judgment of the Court (Third Chamber) of 10 September 2009, ECLI:EU:C:2009:539, at 62.

<sup>287</sup> UNFCCC, Decision 9/CMP.1: Guidelines for the implementation of Article 6 of the Kyoto Protocol, FCCC/KP/CMP/2005/8/Add.2 (30 March 2006), Annex I, Section 29; UNFCCC, Decision 11/CMP.1: Modalities, rules and guidelines for emissions trading under Article 17 of the Kyoto Protocol, FCCC/KP/CMP/2005/8/Add.2 (30 March 2006), Annex I, Section 5.

<sup>288</sup> CDM, "Validation and Verification Standard for Project Activities" Version 3.0 (2021) CDM-EB93-A05-STAN; UNCTAD, "An Implementation Guide to the Clean Development Mechanism" (2003) UNCTAD/DITC/TED/2003/1.

<sup>289</sup> Martijn Wilder, "Overview of Private Contractual Obligations Relating to Environmental Protection in International Investment Contracts" in Wendy Miles, ed., *Dispute Resolution and Climate Change* (Paris: International Chamber of Commerce, 2017), 50-51. [Wilder]

Future iterations utilised binding arbitration as the means of dispute resolution, with the safeguards for project fulfilment and adherence to environmental standards provided by the institution itself or an accredited operational entity.<sup>290</sup>

An important forum for dispute settlement in these matters is the Permanent Court of Arbitration (PCA), administering as of 2017 nine confidential contract-based disputes related to CDM and JI projects.<sup>291</sup> Of those addressed three CDM disputes were considered under UNCITRAL Arbitration Rules (one in 2010 and two in 2014), and the remaining six were conducted under the PCA's Optional Rules for Arbitration of Disputes Relating to Natural Resources and/or the Environmental including a CDM dispute in 2015, disputes relating to emission reduction units (one in 2014, two in 2013 and one in 2009), and a dispute related to a JI project in 2009, with the specifics of all cases held confidentially at the request of the Parties.<sup>292</sup> The International Emissions Trading Association (IETA) Code of CDM Terms also integrates dispute settlement under the PCA Optional Rules as a model agreement for the transfer of CERs from CDM projects as an option,<sup>293</sup> with English law identified under their Master Agreement as the governing law.<sup>294</sup>

An additional example, the Certified Emission Reduction Purchase Agreement utilised by Norway requires the seller to cooperate in aspects of due diligence, commits to deliver all contracted CERs by the designated date(s) transferring legal title, maintain a monitoring plan, and with the seller responsible for all costs on monitoring, compliance, and certification.<sup>295</sup> In cases where the seller fails to comply, or it appears likely, notice may be provided activating a step-in right appointing a designated operational entity to conduct a validation assessment, register the project, or perform the contractual obligations with all costs to be borne by the seller.<sup>296</sup> The seller is also obliged to provide written notice for any delivery shortfall and disruption events, with termination provisions included for cases of failure to deliver, fraud, negligence, or wilful misconduct.<sup>297</sup> Modalities are also included for initiation of discussions to determine good faith alternative arrangements under existing agreements for ITMOs under A6.2ERs through the Paris Agreement.<sup>298</sup>

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<sup>290</sup> *Ibid*, Wilder.

<sup>291</sup> Judith Levine, "Adopting and Adapting Arbitration for Climate Change Related Disputes: The Experience of the Permanent Court of Arbitration" in Wendy Miles, ed., *Dispute Resolution and Climate Change* (Paris: International Chamber of Commerce, 2017), at 26.

<sup>292</sup> *Ibid*.

<sup>293</sup> IETA, "Code of CDM Terms," Version 1.0 (2006).

<sup>294</sup> IETA, "International Emissions Trading Master Agreement," Version 1.0 (16 April 2012).

<sup>295</sup> Norwegian Ministry of Climate and Environment, Certified Emission Reduction Purchase Agreement (26 November 2015), Section 2.6, 4.6, 5.1, 5.8, 7.1, 8.1-8.8, 9. [CER Purchase Agreement]

<sup>296</sup> *Ibid*, CER Purchase Agreement, Section 8.9.

<sup>297</sup> *Ibid*, CER Purchase Agreement, Section 14-16.

<sup>298</sup> *Ibid*, CER Purchase Agreement, Section 13.10-13.11.

Resolution of disputes is conducted by a three-person arbitral tribunal under the rules of the London Court of International Arbitration.<sup>299</sup>

Parties must be cautious in the creation and operation of market mechanisms not to undermine the integrity of the marketplace with effective dispute resolution a core component. For this consistency and predictability are key factors, along with confidentiality, which speaks to the use of arbitration and the limited material knowledge available relating to disputes under the CDM and JI. As engagement with market mechanisms under the Paris Agreement advances, the experience gained under the Kyoto Protocol will be highly informative, insomuch as many of the growing pains have been worked out. Research findings illustrate the need to provide for clear dispute settlement procedures to support private sector engagement.

## Market Mechanism Experiences in Advancing Sustainable Development

A critical question that remains is how market mechanism in the climate space have fostered sustainable development outcomes and what can be learned, from both past experiences and the current pilot schemes of the Paris Agreement, to inform climate change market mechanisms going forward. This section explores the approach adopted under the Montreal Protocol, as well as progress made through the Kyoto Protocol, and the pilot schemes established under the A6.4 system of the Paris Agreement, to consider the validity of transferable practices.

### *Experience from Governance of Ozone Depleting Substances (ODS)*

Recognising the harmful impact that Chlorofluorocarbons (CFCs) and “other ozone depleting substances” (ODS) had on the stratospheric ozone layer, in 1985 the global community adopted the *Vienna Convention for the Protection of the Ozone Layer*,<sup>300</sup> and in 1987 the *Montreal Protocol on Substances that Deplete the Ozone Layer* was adopted as well.<sup>301</sup> With the aim of utilising precautionary measures to control and phase-out ODS, and taking into account technical, economic and developmental considerations of developing countries,<sup>302</sup> the *Montreal Protocol* established a framework approach grounded in control measures,<sup>303</sup>

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<sup>299</sup> *Ibid*, CER Purchase Agreement, Section 19.

<sup>300</sup> Ozone Convention, *supra* note 79.

<sup>301</sup> Montreal Protocol, *supra* note 79.

<sup>302</sup> *Ibid*, Montreal Protocol, Preamble.

<sup>303</sup> *Ibid*, Montreal Protocol, Article 2, 2A-J.

positive incentivisation through trade,<sup>304</sup> special modalities to support developing countries,<sup>305</sup> and facilitative compliance.<sup>306</sup>

Central to the framework are control measures which originally were applied to specific CFCs and halons initially requiring a freeze in production and consumption at 1986 levels, and, over time, progressively increased reductions in non-essential use by key milestone dates.<sup>307</sup> These control measures began in 1990 and are reviewed on four-year cycles based on the inputs of convened expert panels<sup>308</sup>. As scientific evidence relating to the scale and severity of damage caused by ODS increased, the Parties adopted a number of amendments, accelerated phase-out schedules, and increased both the significance of reductions as well as the list of “controlled substances.”<sup>309</sup> Levels for “production,” which is defined as the amount of controlled substances produced reduced by the amount destroyed by approved technology, or used as feedstock in the manufacture of other chemicals, and “consumption,” which encompasses production plus imports minus exports, are calculated by multiplying annual amounts by the ozone depleting potential of the controlled substance.<sup>310</sup> The multiplying factor is baselined at 1 with CFC-11, with other ODS rated as having a high or lower ozone depleting potential such as Halon which depending upon its composition Halon-1211, Halon-2402, or Halon-1301, is 3, 6 or 10 times more damaging than CFC-11 respectively, with these potentials adjusted regularly based on scientific advancement.<sup>311</sup>

A set of processes are provided to facilitate compliance with the *Montreal Protocol*. To encourage identification of cleaner alternatives, the import and export of controlled substances was restricted to Parties, import of certain products containing listed substances was prohibited, and export of technology and tools for manufacture to non-Parties was discouraged.<sup>312</sup> The special circumstances of developing country Parties are recognised in Article 5 through delayed requirements for compliance with the control measures for ten years to meet basic domestic needs, as well as through the recognition that domestic capacity to comply with obligations is dependent upon the effective implementation of financial

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<sup>304</sup> *Ibid*, Montreal Protocol, Article 4, 4A-B.

<sup>305</sup> *Ibid*, Montreal Protocol, Article 5, 10, 10A.

<sup>306</sup> *Ibid*, Montreal Protocol, Article 8; Montreal Protocol, Decision IV/5: Non-Compliance Procedure, Report of the Fourth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, UNEP/OzL.Pro.4/15 (25 November 1992), Annex V; Montreal Protocol, Decision X/10: Review of the Non-Compliance Procedure, Report of the Tenth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, UNEP/OzL.Pro.10/9 (3 December 1998), Annex II.

<sup>307</sup> Montreal Protocol, *supra* note 79, Article 2A-B.

<sup>308</sup> *Ibid*, Montreal Protocol, Article 6, 2(9).

<sup>309</sup> *Ibid*, Montreal Protocol, Article 2C-J, Annex A-F; J; Pierre-Marie Dupuy & Jorge E Viñuales, *International Environmental Law* (Cambridge: Cambridge University Press, 2015), at 135-137. [Dupuy & Viñuales]

<sup>310</sup> Montreal Protocol, *supra* note 79, Article 1(5-6), 3

<sup>311</sup> *Ibid*, Montreal Protocol, Annex A; Dupuy & Viñuales, *supra* note 377, at 136.

<sup>312</sup> *Ibid*, Montreal Protocol, Article 4

cooperation and technology transfer as envisioned under the *Montreal Protocol*.<sup>313</sup> While not providing a carte blanche opportunity to circumvent compliance, but instead the recognition of financial and technological limitations, provides capacity-constrained Parties the opportunity to request assistance in achieving compliance without losing access to the privileges of compliant Parties.<sup>314</sup> Flexibility is also provided to support ongoing compliance. Parties are provided modalities to transfer portions of their production capacity as set out in Article 2A-2F to another Party, with industrialised nations able to transfer consumption levels of Hydrochlorofluorocarbons (HCFCs) provided they do not exceed designated thresholds for the period.<sup>315</sup> Additionally, Parties who are members of a regional economic integration organisation are provided the opportunity to collectively fulfil their consumption obligations, provided all members are Parties to the Protocol.<sup>316</sup> Reporting requirements under Article 7 and 9 provides an overview of national performance, and while the scale and scope of capacity transfers are collected by the Secretariat, they are held confidential.<sup>317</sup>

Compliance is further facilitated through the Multilateral Fund established under the *Montreal Protocol*. The Multilateral Fund assists non-industrialised nations in managing the incremental costs of compliance with the control measures.<sup>318</sup> Formal compliance procedures, which may be initiated by any Party (including the non-compliant Party) or the Secretariat, are non-punitive in nature focusing rather on identification of possible contributing factors and facilitation of financial and technical assistance to enable enhanced compliance.<sup>319</sup> Incentivised through the production capacity trading mechanism, private actors have been noted as playing a vital role in innovating and diffusing alternative technologies.<sup>320</sup>

Adjusted or amended on several occasions,<sup>321</sup> the Kigali Amendment, which entered into force 1 January 2019, extended the phase-down schedule for hydrofluorocarbons (HFCs), and intermediary alternatives which allowed for the timely reduction of CFCs and HCFCs, providing four-year reduction milestones from

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<sup>313</sup> *Ibid*, Montreal Protocol, Article 5(1), 5; Article 5(5).

<sup>314</sup> Dupuy & Viñuales, *supra* note 377, at 139.

<sup>315</sup> Montreal Protocol, *supra* note 79, Article 2(5-6).

<sup>316</sup> *Ibid*, Montreal Protocol, Article 2(8).

<sup>317</sup> Vienna Convention, Decision I/11: Report and confidentiality of data (1989); Montreal Protocol, "Information provided by parties in accordance with Articles 7 and 9 of the Montreal Protocol on Substances that Deplete the Ozone Layer" Report of the Secretariat, Thirty-First Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (15 September 2019), UNEP/OzL.Pro.31/7– UNEP/OzL.Pro/ImpCom/63/2\*.

<sup>318</sup> Montreal Protocol, *supra* note 79, Article 10(1-3), 10(6), 10A.

<sup>319</sup> Decision IV/5, *supra* note 374, Annex V; Decision X/10, *supra* note 374, Annex II.

<sup>320</sup> UNEP, "The Montreal Protocol and the Green Economy: Assessing the contributions and co-benefits of a Multilateral Environmental Agreement" (UNEP DTIE OzonAction, 2012), 26-27, 59.

<sup>321</sup> UNEP, "Handbook for the International Treaties for the Protection of the Ozone Layer," 6th ed (Nairobi: UNEP, 2003), 337-382; See notably: Second Meeting of the Parties London, 27–29 June 1990; Fourth Meeting of the Parties Copenhagen, 23–25 November 1992; Seventh Meeting of the Parties Vienna, 5–7 December 1995; Ninth Meeting of the Parties Montreal, 15–17 September 1997; Eleventh Meeting of the Parties Beijing, 29 November–3 December 1999; Nineteenth Meeting of the Parties Montreal, 17–21 September 2007; Twenty-Eighth Meeting of the Parties Kigali, 10-15 October 2016; Thirtieth Meeting of the Parties Quito, 5-9 November 2018.

2019-2036 and updating a number of the Ozone Depleting Potential values.<sup>322</sup> On the whole, the flexibility built into the agreement and the ongoing commitment of the Parties to refine the operationalisation of the Protocol provide valuable insights into potential crucial factors for successful use of market mechanisms in international law.

As of September 2021, over the course of the Montreal Protocol the Multilateral Fund has supported 8,943 projects phasing out 289,634 consumption tonnes and 205,377 production tonnes of ODS, supported by US\$ 3.8 billion of funding approved by the Executive Committee.<sup>323</sup> Of the US\$ 3.4 billion received, 5% came from bilateral contributions and the other 95% from multilateral agencies (UNDP, UNEP, UNIDO, World Bank),<sup>324</sup> with the status of bilateral contributions declining from 2018-2021.<sup>325</sup> Given the exclusive focus of the approved projects, the scope has resulted in aspects which have supported SDG 12 on Sustainable Consumption and Production (SCP), including SDG 12.1 on implementation of programs for SCP, SDG 12.4 sound management of chemicals and wastes, SDG 12.5 reduction of waste generation, SDG 12.6 encouraging companies to integrate sustainability into their reporting cycle, and SDG 12.7 promotion of public procurement practices that are sustainable.

While distinct in comparison to the climate change regime, in that GHG emitting processes cannot be simply substituted, the experience under the Montreal Protocol illustrate how market logic can be leveraged to create incentives for private actors to create alternative solutions and reduce overall environmental impacts. However, due to the design limitations in the framework broader sustainable development outcomes were observed to be limited.

### *Experiences Under the CDM and Issuance of CERs*

As of September 2021, since its inception the CDM has had 8,217 activities registered, 3,401 of which issued CERs with 1.48 billion CERs issued for the first commitment period (2008-2012) and 676.4 million for the second commitment period (2013-2020).<sup>326</sup> A total of 11,488 transactions, encompassing 2.16 billion CERs

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<sup>322</sup> Montreal Protocol, *supra* note 79, Article 2J; Montreal Protocol, Decision XXVIII/1: Further Amendment of the Montreal Protocol, UNTS No.26369 (entered into force 1 January 2019); Montreal Protocol, Decision XXVIII/2: Decision related to the amendment phasing down hydrofluorocarbons (15 November 2016) UNEP/OzL.Pro.28/12. [Kigali Amendment]

<sup>323</sup> UNEP, "Report of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol to the Thirty-Third Meeting of the Parties" UNEP/OzL.Pro.33/7 (21 September 2021), at 15 [ExCom Report 2021]; Of the total (US\$3,803,278,924) approved since 1991, regions accounted for: Asia/Pacific: 62%, Latin America/Caribbean: 17%, Africa: 9%, Global: 8%, Europe: 3%.

<sup>324</sup> *Ibid*, ExCom Report 2021; Bilateral: 5%, UNDP: 25%, UNEP: 11%, UNIDO: 25%, World Bank: 34%.

<sup>325</sup> UNEP, "Report of the Intersessional Approval Process and Online Meetings for the 87<sup>th</sup> Meeting, Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol" Eighty-Seventh Meeting, UNEP/OzL.Pro/ExCom/87/IAP/3\* (30 July 2021), at Annex I, 4-10.

<sup>326</sup> UNFCCC, "Annual report of the Executive Board of the clean development mechanism to the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol" 16<sup>th</sup> Session of the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol, FCCC/KP/CMP/2021/4 (21 September 2021), at 4. [CDM Annual Report 2021]

have occurred seeing 41.9 million units sold with a share of proceeds transferred to the Adaptation Fund, and 86.5 million units voluntarily cancelled through purchase by public and private entities.<sup>327</sup> Voluntary cancellations have also been steadily increasing annually from 40,049 units (2015-2016) to 1.7 million units (2020-2021).<sup>328</sup> In 2020, the share of proceeds totalled US\$ 10.2 million while in 2021 this increased to US\$ 12.4 million, with a cumulated contribution to the Adaptation Fund over time totalling US\$ 41,840,328.<sup>329</sup> In total, the UNFCCC notes the CDM has mobilised nearly US\$ 304 billion for climate and sustainable development projects.<sup>330</sup>

Some criticisms of early CDM projects have been levied against the shutdown of HFC plants generating emission units with dubious environmental integrity and additionality.<sup>331</sup> Of the 30 largest projects by total emission units generated nearly half are in China,<sup>332</sup> 22 are for HFC or N<sub>2</sub>O emission reduction, and all are highly industrialised processes.<sup>333</sup> Nonetheless the majority of CDM projects aim to foster sustainable development outcomes with the forthcoming examples selected for type and regional balance. Those surveyed below were identified based on the following criteria in an effort to illustrate the scale of CDM engagement with sustainable development including: size (projects above 15,000 units/annum and 100,000 units over the course of the lifecycle), project lifecycle length (above 5 years), SDG impacts (diversity of SDGs engaged and different types of impacts), approved before 2015, engagement with private actors, regional diversity, and project type diversity with a focus on avoiding largescale industrial examples.

Given these projects are ongoing, CDM documentation is used to outline the scale, scope and timeline, with project outcomes to be validated and audited following completion of the crediting period and prior to issuance. In addition, projects supported by highly innovative institutional approaches have been omitted with a dedicated discussion provided in Chapter 7.<sup>334</sup> The following case studies are structured with a summary of the facts and results followed by analysis which positions the outcomes in the context of contributions toward sustainable development.

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<sup>327</sup> *Ibid*, CDM Annual Report 2021, at 6.

<sup>328</sup> *Ibid*, CDM Annual Report 2021, at 8.

<sup>329</sup> *Ibid*, CDM Annual Report 2021, at 17; UNFCCC, "The share of proceeds from the clean development mechanism project activities for the Adaptation Fund" (Dec 2021), online: <<https://cdm.unfccc.int/Issuance/SOPByProjectsTable.html>>; Share of proceeds is calculated at US\$ 0.10/CER on the first 15,000 units and US\$ 0.20/CER for anything additional in a calendar year, with projects below 15,000 tonnes exempt.

<sup>330</sup> UNFCCC, "Achievements of the Clean Development Mechanism: Harnessing Incentive or Climate Action (2001-2018)" (2019), at 5, online: <[https://unfccc.int/sites/default/files/resource/UNFCCC\\_CDM\\_report\\_2018.pdf](https://unfccc.int/sites/default/files/resource/UNFCCC_CDM_report_2018.pdf)>.

<sup>331</sup> Michael Szabo, "World Bank defends controversial HFC carbon-cut plants" Reuters (23 August 2010), online: <[www.reuters.com/article/us-hfc-bank-hfc-idINTRE67M2CK20100823](http://www.reuters.com/article/us-hfc-bank-hfc-idINTRE67M2CK20100823)>.

<sup>332</sup> UNFCCC, "CDM Project Database" (15 December 2021), online:

<<https://cdm.unfccc.int/Statistics/Public/files/Database%20for%20PAs%20and%20PoAs.xlsx>> [CDM Project Database]; Location of the top 30 projects by size: 14 in China, 4 in Korea, 4 in India, 2 in Brazil, with 1 each in Equatorial Guinea, Qatar, Mexico, Bangladesh, Indonesia, Vietnam.

<sup>333</sup> *Ibid*, CDM Project Database; top 30 projects by project type: HFC emission reduction 16, N<sub>2</sub>O emission reduction 6, fugitive gas capture 3, landfill gas capture 2, blended cement 1, coal bed mining 1, and fossil fuel to natural gas switch 1.

<sup>334</sup> For a further discussion of highly innovative institutional approaches see Livelihoods Fund in Chapter 6 on Congruence of Practice.

## Bhutan | Project 10057: Rural Electrification Project for Clean Energy, Better Living and Sustainable Growth in Bhutan

A 2014 registered JI project hosted in Bhutan through Bhutan Power Corporation Limited with the support of Japan through Mitsubishi UFJ generates 18,833 units per annum (131,831 tCO<sub>2</sub>e over the 7-year lifecycle) through the delivery of rural electrification among 29,338 households as an alternative to stand-alone fossil fuel generators or lack of access to electricity.<sup>335</sup> With strong hydro power potential, the project extends the low carbon electricity grid and distribution lines 1,500 km from the current grid operation under a 7 year crediting period and 30 year operational lifetime drastically transforming the quality of life, employment opportunities and livelihoods of local communities.<sup>336</sup> Deployment of renewable energy to rural areas will negate traditional use of firewood or fossil fuels for daily needs (cooking, heating, lighting), increasing economic opportunities, alleviating poverty through a narrowing of the living standards gap, reducing deforestation, lowering overall emissions, and increasing household health, while preserving the unique culture of the region through deployment of minimally intrusive technology options.<sup>337</sup>

Once fully deployed, 24,644 MWh/yr will be provided to 20 rural communities fully eliminating fossil fuel dependence within the regions at no net increase of emissions supporting both gross national happiness and sustainable development priorities as outlined in the Twelfth Five Year Plan.<sup>338</sup> The project supports achievement of SDG 7.1 on increasing access to affordable and modern energy services, SDG 7.2 on increasing deployment renewable energy, SDG 7.a through enhanced cooperation to facilitate access to clean energy, SDG 9.1 and 9.2 through development of sustainable infrastructure to support economic development and human wellbeing, SDG 1.1 and 1.2 on reducing the proportion of people in poverty and extreme poverty, and SDG 15.2 through reduction of deforestation.

## Lao PDR | Project 10128: Mitigation of GHG: Rubber based agroforestry system for sustainable development and poverty reduction in Pakkading, Bolikhamsay Province, Lao PDR

A large project registered in 2015 by Lao Thai Hua Rubber Co. Ltd and hosted by Lao PDR, the Mitigation of GHG: Rubber based agroforestry system for sustainable development and poverty reduction in Pakkading, Bolikhamsay Province generates 36,916 units per annum (1,107,495 tCO<sub>2</sub>-e over 30-year project cycle)

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<sup>335</sup> TUV NORD Cert, "Rural Electrification Project for Clean Energy, Better Living and Sustainable Growth in Bhutan" Validation Report No: 53800113 – 13/004 (10 September 2014), at 6-9, online: <<https://cdm.unfccc.int/Projects/DB/RWTUV1413875823.04/view>> [Bhutan Project Validation]; CDM, "Project 10057: Rural Electrification Project for Clean Energy, Better Living and Sustainable Growth in Bhutan" Project Design Form (28 August 2014), at 2, online: <<https://cdm.unfccc.int/Projects/DB/RWTUV1413875823.04/view>>. [Bhutan Project Design Form]

<sup>336</sup> *Ibid*, Bhutan Project Validation, at 46; *Ibid*, Bhutan Project Design Form, at 5.

<sup>337</sup> *Ibid*, Bhutan Project Design Form, at 3.

<sup>338</sup> *Ibid*, Bhutan Project Design Form, at 3-4, 6-7; Royal Government of Bhutan, "Twelfth Five Year Plan (2018-2023) Vol. 1" (Gross National Happiness Commission, 2019), at 26, online: <[www.gnhc.gov.bt/en/wp-content/uploads/2019/05/12FYP\\_VOL1\\_12JUN19.pdf](http://www.gnhc.gov.bt/en/wp-content/uploads/2019/05/12FYP_VOL1_12JUN19.pdf)>.

through a process of reforestation of over 969.20 ha.<sup>339</sup> Prioritising sustainable rubber plantations as a means of rural development and poverty alleviation as identified in the Forest Strategy, the project aimed to reforest degraded or abandoned grassland areas with traditional species found in Thailand and Malaysia that are adapted to dry weather conditions through an agroforestry model coupled with food crops and sustainable organic agriculture.<sup>340</sup> Designed as a joint venture among three companies – the principal being Lao Thai Hua leasing the land and providing labour while the others (ChenShan Group and NCX Holding) providing technical services and knowhow – the project aims to replenish degraded areas, replace eroded soil, and utilise intercropping and organic techniques to increase soil health, food production, and improve local ecosystem conditions, while positively impacting local livelihoods through engagement and creation of alternative income streams.<sup>341</sup>

Through increased capacity building involvement of local communities, the project aims to increase soil conditions and prevent erosion, enable reforestation of degraded landscapes, promote sustainable business in the area, protect watersheds and freshwater ecosystems, increase biodiversity, and provide positive impacts on climate change adaptation and mitigation.<sup>342</sup> This project supports the achievement of SDG 1.1 and 1.2 on eradication of poverty, SDG 2.1 through the increase of access to nutritious food sources, SDG 2.3 through the application of agroforestry aimed at doubling small-scale food production, SDG 4.4 by increasing the prevalence of vocational skills, SDG 6.6 on protection and restoration of freshwater ecosystems, SDG 8.3 through the adoption of development-oriented policies that promote decent work, and SDG 15.1 and 15.2 through support for reforestation and ecosystem rehabilitation.

Peru | Project 2715: Reforestation, sustainable production and carbon sequestration project in José Ignacio Távara's dry forest, Piura, Peru

Grounded in a longstanding relationship between the *Asociación para la Investigación y el Desarrollo Integral* (AIDER) (“Association for Research and Integral Development”) and local community *Comunidad Campesina José Ignacio Távara Pasapera, Piura, Peru* (“José Ignacio Távara Pasapera Rural Community”) an agreement was made with Fondo Nacional del Ambiente (FONAM) (“National Environmental Fund”) to implement a large project to reforest 8,980.52 ha of degraded equatorial dry-forest with native species to

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<sup>339</sup> CDM, “Project 10128: Mitigation of GHG: Rubber based agro-forestry system for sustainable development and poverty reduction in Pakkading, Bolikhamsay Province, Lao PDR” Project Design Form (18 June 2015), at 2, online: <<https://cdm.unfccc.int/Projects/DB/TUEV-SUED1424864873.61/view>> [Lao Project Design Form]; TÜV SÜD South Asia, “Validation of the CDM Project: Mitigation of GHG: Rubber based agro-forestry system for sustainable development and poverty reduction in Pakkading, Bolikhamsay Province, Lao PDR” Validation Report No. 000092 (01 June 2015), at 12, online: <<https://cdm.unfccc.int/Projects/DB/TUEV-SUED1424864873.61/view>>. [Lao Project Validation]

<sup>340</sup> *Ibid*; Lao PDR, “Forestry Strategy to the Year 2020” (July 2005), online:

<[https://forestlegality.org/sites/default/files/country\\_documents/Forestry%20Strategy%202020%20of%20the%20LAO%20PDR\\_0.pdf](https://forestlegality.org/sites/default/files/country_documents/Forestry%20Strategy%202020%20of%20the%20LAO%20PDR_0.pdf)>.

<sup>341</sup> *Ibid*, Lao Project Design Form, at 3-4.

<sup>342</sup> *Ibid*, Lao Project Design Form, at 73-74.

support production of raw materials for non-timber products (arts and crafts, agriculture).<sup>343</sup> The project is also consistent with domestic legal priorities as outlined in the legal instruments for conservation and sustainable use of biodiversity and natural resources.<sup>344</sup> Registered in 2009, and generating 48,689 units per annum (973,788 tCO<sub>2</sub>e over the 30-year crediting lifecycle with the project scoped for 44 years), the project is directed by the local community engaging 2,397 families who live in extreme poverty with the planning and sustainable management of the ecosystem activity contributing to the development of local capacity and job creation among community men and women – 83 direct jobs conducting reforestation and 92 indirect (first 6 years), 16 direct and 477 indirect (years 7-39), 10 direct and 495 indirect (years 40-44).<sup>345</sup> Additional priorities include capacity building to support management and administration of the area, development of non-timber forest products, and improvement on the pre-existing well system to alleviate members of the community traveling great distances to gather water.<sup>346</sup>

Over the course of this project, key SDGs will be supported including SDG 1.1 and 1.2 eradicating extreme poverty and reducing those living in conditions of poverty, SDG 4.4 and 4.7 through the development and dissemination of technical and vocational skills to promote sustainable development, SDG 5.5 providing full and effective participation of women in the project roles, SDG 6.1 by improving access to clean drinking water, SDG 8.2 and 8.3 through expansion of long-term development-oriented economic opportunities, SDG 13.1 and 13.3 by strengthening resilience and adaptive capacity through education, and SDG 15.1, 15.2, and 15.3 through restoration and sustainable management of forest ecosystems with a focus on combatting desertification.

#### Zambia | Project 2969: CDM Lusaka Sustainable Energy Project 1

Registered in 2010, the Lusaka Sustainable Energy Project hosted in Zambia and supported by Germany and RWE Power AG has provided 130,032 units per annum (1,300,320 tCO<sub>2</sub>e over the 10-year lifecycle) while offering positive socio-economic and environmental benefits.<sup>347</sup> Designed to improve the livelihoods

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<sup>343</sup> CDM, “Project 2715: Reforestation, sustainable production and carbon sequestration project in José Ignacio Távara’s dry forest, Piura, Peru” Project Design Form (16 November 2009), at 2-3, online: <<https://cdm.unfccc.int/filestorage/G/S/D/GSDO0M74QFXZK5RV8I2EWJUHPAYT6C/Validation%20Report.pdf?t=Qkt8cjQzbyQxfDCghloAdSaKiQ8OU2hynNH>> [Peru Project Design Form]; TÜV SÜD Industrie Service GmbH, “Validation of the CDM Project: Reforestation, sustainable production and carbon sequestration project in José Ignacio Távara’s dry forest, Piura, Peru” Validation Report No. 1252903 (20 June 2009), at 12-13, online: <<https://cdm.unfccc.int/Projects/DB/TUEV-SUED1245856381.67/view>>. [Peru Project Validation]

<sup>344</sup> *Ibid*, Peru Project Design Form, at 46; Peru, Ley N° 26839 Ley sobre la conservación y aprovechamiento sostenible de la diversidad biológica (8 July 1997), online: <<https://sinia.minam.gob.pe/normas/ley-conservacion-aprovechamiento-sostenible-diversidad-biologica>>; Peru, Ley N° 26821 Ley Orgánica para el aprovechamiento sostenible de los recursos naturales (25 June 1997), online: <<http://sial.segat.gob.pe/normas/ley-organica-aprovechamiento-sostenible-recursos-naturales>>.

<sup>345</sup> *Ibid*, Peru Project Design Form, at 85; *Ibid*, Peru Project Validation, at A-1, A-30.

<sup>346</sup> *Ibid*, Peru Project Design Form, at 3, 86.

<sup>347</sup> Climate InterChange AG, “Validation of the CDM Project: CDM Lusaka Sustainable Energy Project 1” Validation Report No. 1224992 (27 August 2009), at 11, online: <<https://cdm.unfccc.int/Projects/DB/TUEV-SUED1252930846.25/view>>. [Lusaka Project Validation]

of up to 30,000 families, the project provided Save80 cooking systems that replace the use of charcoal, optimise the combustion of easily available fuelwood, reduces deforestation, and increase household health and household income.<sup>348</sup> While the goal of addressing deforestation was pervasive, without technological and cost-effective alternatives it proved unrealistic with charcoal as the only viable option for the community.<sup>349</sup>

Project benefits included: avoiding deforestation resulting from negative land use practices, enhancing local capacity through educational programs, enabling sustainable forest management practices, creating alternative livelihoods through collection and conversion of forest debris into a local commodity, avoiding carbon monoxide in households, reducing transportation costs and associated emissions, and avoiding GHG emissions through production and combustion of charcoal.<sup>350</sup> The project aligns with the sustainable development priorities as outlined in the 7<sup>th</sup> National Development Plan (2017-2021),<sup>351</sup> with outcomes supporting the achievement of SDG 7.3 on improved energy efficiency, SDG 15.2 on reducing deforestation, and SDG 3.9 on reducing deaths due to air pollution.

These case study findings illustrate how appropriate architectural design can leverage private sector engagement to foster tangible sustainable development outcomes across a range of project types, technologies, scales, and domestic circumstances. Deployment of clean energy sources both largescale as seen in Bhutan and more localised as seen in Zambia provided environmental outcomes in conjunction with widespread livelihood and lifestyle benefits. Ecosystem restoration and sustainable use of forestry products as seen in Lao and Peru demonstrate contributions towards poverty eradication, generation of ecosystem services, support for water and food security, and community capacity building. More importantly, experiences emphasise the breadth of positive developmental benefits (access to clean energy, water, education, biodiversity conservation, and livelihoods) market measures can manifest when properly crafted beyond climate adaptation and mitigation efforts.

### *Early Experiences Under the Pilot Schemes for Article 6*

Despite the finalisation of the PAWP providing an architectural framework for Article 6 being only agreed at COP 26 many countries and institutions have already begun to engage in bilateral or multilateral

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<sup>348</sup> CDM, "Project 2969: CDM Lusaka Sustainable Energy Project 1" Project Design Form (28 July 2009), at 4, online: <<https://cdm.unfccc.int/Projects/DB/TUEV-SUED1252930846.25/view>>. [Lusaka Project Design Form]

<sup>349</sup> *Ibid*, Lusaka Project Design Form, at 11-12.

<sup>350</sup> *Ibid*, Lusaka Project Design Form, at 49-50; Lusaka Project Validation, *supra* note 354, 18.

<sup>351</sup> Government of Zambia, "7<sup>th</sup> National Development Plan (2017-2021): Accelerating Development Efforts towards Vision 2030 without Leaving Anyone Behind" (Ministry of National Development Planning, 2017), online: <[www.sdgphilanthropy.org/system/files/2019-02/7th-National-Development-Plan-Zambia.pdf](http://www.sdgphilanthropy.org/system/files/2019-02/7th-National-Development-Plan-Zambia.pdf)>.

discussions to advance efforts in preparation. As of COP 26 a total of 50 pilot programs had been registered to be transferred to Article 6, with these funded by Sweden, Switzerland, Germany, Canada, Japan, NEFCO (Nordic Green Bank), Asian Development Bank (ADB), African Development Bank (AfDB), and the World Bank (WB).<sup>352</sup> The following provides a survey of the initiatives currently in the pipeline and intersections with the SDGs to offer a preliminary assessment of how Article 6 will be engaged going forward.

#### World Bank | Carbon Initiative for Development (Ci-Dev)

With the aim to mobilise private finance towards increasing access to clean energy, the Carbon Initiative for Development (Ci-Dev) is a trust fund administered by the World Bank committing to invest approximately US\$ 76 million to support projects in least-developed countries that generate ITMOs while assisting vulnerable communities.<sup>353</sup> Applying the CDM methodologies and its newly created Standardized Crediting Framework (SCF) to transition the portfolio into the Paris Agreement framework, Ci-Dev aims to mobilise US\$ 250 million by 2025 to provide low-carbon energy to over 10 million people increasing gender equality, economic opportunities, health, and environmental outcomes.<sup>354</sup>

As of December 2021, Ci-Dev has 12 programs in its portfolio many of which are renewals of successful CDM projects or applications of a similar approach in a different jurisdiction, with all implemented in partnership with private entities and most on a long-term lifecycle (15-20 years). Programs include improved cookstoves deployed in Rwanda, Lao, and Madagascar,<sup>355</sup> dissemination of biogas digesters and ethanol stoves in Ethiopia, Kenya, and Burkina Faso,<sup>356</sup> solar-based lighting for off-grid families in Ethiopia

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<sup>352</sup> UNEP DTU, Article 6 Pipeline (1 December 2021), online: <<https://article6pipeline.org/Publications/Article6Pipeline.xlsx>>.

<sup>353</sup> World Bank Group, “Carbon Initiative for Development” (2020), online: <[www.ci-dev.org/sites/cidev/files/inline-files/Ci\\_Dev\\_Brochure\\_general\\_SPREADS\\_WEB.pdf](http://www.ci-dev.org/sites/cidev/files/inline-files/Ci_Dev_Brochure_general_SPREADS_WEB.pdf)>; Carbon Initiative for Development, “Who we are” online: <[www.ci-dev.org/who-we-are](http://www.ci-dev.org/who-we-are)>.

<sup>354</sup> *Ibid.*

<sup>355</sup> CDM, “PoA 9626: DelAgua Public Health Program in Eastern Africa” (1 April 2021), online: <[https://cdm.unfccc.int/ProgrammeOfActivities/poa\\_db/RVUJL2DMZ7HBKC1PEG4O8NA0WSI6TX/view](https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/RVUJL2DMZ7HBKC1PEG4O8NA0WSI6TX/view)>; Program renewed until: 20 November 2027; CDM, “PoA 7359: PoA for the Reduction of emission from non-renewable fuel from cooking at household level” (6 May 2021), online: <[https://cdm.unfccc.int/ProgrammeOfActivities/poa\\_db/2XJUR5NOWHY7T8BDAFM4613CIG9VS0/view](https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/2XJUR5NOWHY7T8BDAFM4613CIG9VS0/view)>; Program renewed until: 29 November 2026; Ci-Dev, “Lao: Clean and Improved Cooking” online: <[www.ci-dev.org/programs/lao-clean-and-improved-cooking](http://www.ci-dev.org/programs/lao-clean-and-improved-cooking)>.

<sup>356</sup> CDM, “PoA 10268: Ethiopia – Clean Cooking Energy Program” (18 March 2016), online: <[https://cdm.unfccc.int/ProgrammeOfActivities/poa\\_db/UOK2Q9S5GP34L7CMBRADHWZ6FITEVY/view](https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/UOK2Q9S5GP34L7CMBRADHWZ6FITEVY/view)>; Program renewed until 22 December 2042; CDM, “PoA 7734: Kenya – SimGas Biogas Programme of Activities” (20 December 2019), online: <[https://cdm.unfccc.int/ProgrammeOfActivities/poa\\_db/BZVSOCK5G9WDEQF3A7TRMYJ2IPHUON/view](https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/BZVSOCK5G9WDEQF3A7TRMYJ2IPHUON/view)>; Program renewed until 23 December 2039; World Bank, “Carbon Credits Serve up Clean Cooking Options for West African Farmers” (6 March 2018), online: <[www.worldbank.org/en/news/feature/2018/03/06/carbon-credits-serve-up-clean-cooking-options-for-west-african-farmers](http://www.worldbank.org/en/news/feature/2018/03/06/carbon-credits-serve-up-clean-cooking-options-for-west-african-farmers)>.

and Kenya,<sup>357</sup> rural electrification for Senegal, Mali, and Uganda,<sup>358</sup> and small-scale hydro in Kenya.<sup>359</sup> In addition to reducing emissions, similar to those profiled above, these programs increase the quality of life of participating communities improving health, reducing pollution, decreasing natural resource exploitation, and providing access to clean electricity in support of SDG 3, SDG 15, and SDG 7.

#### Japan | Joint Crediting Mechanism (JCM)-

Aimed at facilitating the diffusion of advanced climate-focused technologies, the Joint Crediting Mechanism (JCM) was created by Japan as a prime modality to meet their commitments under the Paris Agreement and operationalise their emission reduction targets as set out in The Plan for Global Warming Countermeasures.<sup>360</sup> Through relationships established with 17 countries, JCM private sector participants (responsible for project management and MRV) are paired with partner-country entities (responsible for installation, maintenance of equipment and MRV) based on a proposal selection process and provided up to half of the cost of investment from the Government of Japan and Global Environmental Centre Foundation in return for ITMOs.<sup>361</sup> As of December 2021, the JCM has 205 projects listed, split with the majority for the deployment of renewable energy (105) or energy efficiency (87) related projects, and others including waste handling and disposal (4), fluorocarbon gas (f-gas) capture and destruction (4), transport (3), and REDD+ (2).<sup>362</sup> The projects are predominantly structured as JCM Model Projects (194), covering f-gas (4), and REDD+ (2), with the remaining structured as partnerships with ADB (5).<sup>363</sup>

Of the projects currently active 60,264 credits have been generated per annum, with the totality of the portfolio able to generate 2,241,915 units per annum once fully online.<sup>364</sup> Deployment of renewable energy

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<sup>357</sup> CDM, “PoA 10285: Ethiopia Off-Grid Renewable Energy Program” (1 July 2016), online:

<[https://cdm.unfccc.int/ProgrammeOfActivities/poa\\_db/3M6910RNTCWLHSPJE24BKDXVYQ5Z7F/view](https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/3M6910RNTCWLHSPJE24BKDXVYQ5Z7F/view)>; Program renewed until 22 December 2042; CDM, “PoA 10515: Kenya Solar Lighting CDM Programme of Activities” (22 November 2019), online:

<[https://cdm.unfccc.int/ProgrammeOfActivities/poa\\_db/F9KCZPN8J3E1YHG0Q57XR4LUB2ODMS/view](https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/F9KCZPN8J3E1YHG0Q57XR4LUB2ODMS/view)>; Program renewed until 21 May 2046.

<sup>358</sup> CDM, “PoA 10186: Accelerating Electrification through Grid Extension and Off-Grid Electrification in Rural Areas of Uganda” (28 August 2015), online: <[https://cdm.unfccc.int/ProgrammeOfActivities/poa\\_db/COMRQ5GSBJV034ID2P6W8LYZFE9UNA/view](https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/COMRQ5GSBJV034ID2P6W8LYZFE9UNA/view)>; Program renewed until 11 August 2042; Ci-Dev, “Mali: Rural Electrification” online: <[www.ci-dev.org/programs/mali-rural-electrification](http://www.ci-dev.org/programs/mali-rural-electrification)>; Kirtan Chandra Sahoo, “Senegal pilots carbon finance to connect people to power” World Bank Blog (20 December 2016), online:

<<https://blogs.worldbank.org/climatechange/senegal-pilots-carbon-finance-connect-people-power>>.

<sup>359</sup> CDM, “PoA 6606: KTDA Small Hydro Programme of Activities” (2 December 2020), online:

<[https://cdm.unfccc.int/ProgrammeOfActivities/poa\\_db/VOJZFA4576LNQEWHU1K3XG09M2RSYT/view](https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/VOJZFA4576LNQEWHU1K3XG09M2RSYT/view)>; Program renewed until 12 September 2026.

<sup>360</sup> Government of Japan, “The Plan for Global Warming Countermeasures” (2016) (unofficial translation), online: <[https://climate-laws.org/rails/active\\_storage/blobs/eyJfcmFpbHMiOnsibWVzc2FnZSI6IkJBaHBBbzBliiwZlXhwlpudWxsLjCjwdXliOiibG9iX2lkn19--d76ba6eb07212363acd03d8cd888dce5648687c/f](https://climate-laws.org/rails/active_storage/blobs/eyJfcmFpbHMiOnsibWVzc2FnZSI6IkJBaHBBbzBliiwZlXhwlpudWxsLjCjwdXliOiibG9iX2lkn19--d76ba6eb07212363acd03d8cd888dce5648687c/f)>; Government of Japan, “Japan’s Fourth Biennial Report under the United Nations Framework Convention on Climate Change” (December 2019), at 48, online:

<[www4.unfccc.int/sites/SubmissionsStaging/NationalReports/Documents/48529371\\_Japan-BR4-1-BR4\\_JPN\\_v1.1.pdf](http://www4.unfccc.int/sites/SubmissionsStaging/NationalReports/Documents/48529371_Japan-BR4-1-BR4_JPN_v1.1.pdf)>.

<sup>361</sup> JCM, “Introduction of the Joint Crediting Mechanism & Financing Programme for JCM Model Projects” (October 2021), online:

<[http://gec.jp/jcm/jp/publication/JCM2021Oct\\_En\\_Web.pdf](http://gec.jp/jcm/jp/publication/JCM2021Oct_En_Web.pdf)>; Partner countries include: Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Vietnam, Laos, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar, Philippines and Thailand.

<sup>362</sup> JCM, “Projects” (December 2021), online: <<http://gec.jp/jcm/projects/>>.

<sup>363</sup> *Ibid.*

<sup>364</sup> *Ibid.*

and energy-efficient technologies are the significant focus of the JCM in support of SDG 7, with additional areas of investment advancing sustainable transport systems in support of SDG 11.2, and the prevention of deforestation through REDD+ advancing SDG 15.1 and 15.2. An interesting example is provided by a project that aims to improve access to health services for disadvantaged groups in Mongolia co-funded by ADB,<sup>365</sup> which integrates renewable energy and high efficiency technologies into the three new healthcare facilities reducing overall energy consumption while advancing access to healthcare services in support of SDG 3.8.

### World Bank | Climate Warehouse

To generate trust in international carbon markets and enable the scalability sufficient to address the climate crisis, the World Bank initiated a pilot program in 2019 to explore the creation of a reliable supply of verified mitigation outcomes (MOs) and linkage of international carbon markets through the Climate Warehouse.<sup>366</sup> Leveraging Ci-Dev and the WB Transformative Carbon Asset Facility (TCAF), significant investments will be directed into the generation of MOs, verified through third-party assessors utilising the Mitigation Action Assessment Protocol, and banked in collective warehouse utilising blockchain technology to facilitate effective accounting and enable trading.<sup>367</sup> In 2019, a simulation of the Climate Warehouse was conducted linking the registries of participating partners from the Ministry of Energy in Chile, the Ministry of the Environment in Japan, the Gold Standard Foundation, Verra, and the World Bank as a proof of concept and marking a first step in advancing a reliable governance framework for ITMOs.<sup>368</sup> Coupled with the development of specialist materials on ensuring environmental integrity,<sup>369</sup> institutional arrangements for transactions under Article 6,<sup>370</sup> and carbon market readiness,<sup>371</sup> the WB Climate Warehouse is an important initiative to mobilise private investment in carbon mitigation and adaptation projects, enable trusted trade in ITMOs, and drive largescale climate ambition.

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<sup>365</sup> JCM, “Improving Access to Health Services for Disadvantaged Groups Investment Program (Mongolia)” (2019), online: <[http://jec.jp/jcm/projects/19jfcjcm\\_mgl\\_01/](http://jec.jp/jcm/projects/19jfcjcm_mgl_01/)>; ADB, “Sovereign Project | 49173-003 Mongolia: Improving Access to Health Services for Disadvantaged Groups Investment Program” (2019), online: <[www.adb.org/projects/49173-003/main](http://www.adb.org/projects/49173-003/main)>.

<sup>366</sup> World Bank, “Climate Warehouse: Overview” online: <[www.worldbank.org/en/programs/climate-warehouse/overview](http://www.worldbank.org/en/programs/climate-warehouse/overview)> [Overview of WB Warehouse]; World Bank, “Creating Climate Markets: Operationalizing Article 6” Presentation (6 March 2019), online: <<https://ercst.org/wp-content/uploads/2019/02/World-Bank-Article-6-pilots.pdf>>. [WB Warehouse Presentation]

<sup>367</sup> *Ibid*, WB Warehouse Presentation, 2-3.

<sup>368</sup> World Bank, “The World Bank Group Climate Warehouse” Video (2 December 2019), online: <[www.worldbank.org/en/news/video/2019/12/02/the-world-bank-group-climate-warehouse](http://www.worldbank.org/en/news/video/2019/12/02/the-world-bank-group-climate-warehouse)>.

<sup>369</sup> World Bank, “Ensuring Environmental Integrity under Article 6 Mechanisms” Article 6 Approach Paper Series No. 1 (World Bank, 2021), online: <<https://openknowledge.worldbank.org/handle/10986/35393>>.

<sup>370</sup> World Bank, “Country Processes and Institutional Arrangements for Article 6 Transactions” Article 6 Approach Paper Series No. 2. (World Bank, 2021), online: <<https://openknowledge.worldbank.org/handle/10986/35392>>.

<sup>371</sup> Partnership for Market Readiness, “Enhancing Carbon Pricing and International Carbon Market Readiness Through the Mitigation Action Assessment Protocol: Summary Report” (World Bank, 2021), online: <<https://openknowledge.worldbank.org/handle/10986/36022>>.

## Concluding Thoughts: Legal Architecture of Market Mechanisms in Climate Change

As scientific consensus continues to build emphasising the significant and destabilising impacts on the globe we must utilise all options that remain at our disposal to accelerate climate action.<sup>372</sup> Climate change responses place a genuine dependence on the international legal architecture with the challenge of how the system may be leveraged to engage private actors to advance ambition, driver climate-focused innovation, and enable sustainable development outcomes with greater levels of urgency. Market mechanisms, first under the Kyoto Protocol and now under the Paris Agreement, play an essential role in using market logic to incentivise engagement among private actors, development and dissemination of climate-conscious technologies, and mobilisation of resources both human and financial at the scale necessary to drive global emission reductions.

Agreement in Glasgow at COP 26 placed the final component in the Paris framework – consensus on the modalities, rules, and procedures for operation of Article 6 – enabling the principal engine for transfer of ITMOs, generation of climate-centric investment, and contributions to the Adaptation Fund to be realised. Established consensus among the Parties on the importance of maintaining environmental integrity, avoiding double counting, ensuring additionality of mitigation activities, requiring corresponding adjustments for utilisation of ITMOs domestically or in related international instruments such as CORSIA, and clarifying a time-limited pathway for the role of previously generated CDM credits goes a long way in establishing the integrity of the system. The real challenge of building trust and enhancing ambition now starts in earnest.

While potential disputes under the Paris framework remain possible, the creation of a grievance procedure under Article 6.4 albeit underdeveloped and the existence of appeal procedures under certification bodies assists in providing legal certainty; as does the long standing and robust body of jurisprudence derived from experiences of the EU ETS, and the development of Certified Emission Reduction Purchase Agreement models at the national and sectoral level. Lessons learned from the CDM in terms of the scale of usage in industrial contexts with questionable environmental benefits, development of sound methodologies, and more importantly how to actualise genuine climate mitigation efforts in collaboration with private actors

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<sup>372</sup> Impacts, Adaptation and Vulnerability 2022, *supra* note 146.

that foster significant sustainable development outcomes have laid the groundwork for a post-Paris market that can truly galvanise private sector action.

All the surveyed aspects of the international legal architecture of market mechanisms provide important components to enable ambitious climate responses, but it is truly the synergy across these modular elements which provide the precision needed for the market mechanism to function. It is the interaction across the breadth of instruments – the Article 6 framework, the approval, verification, and MRV procedures, institutional grievance procedures, the CER Purchase Agreements, and the SDGs as a common framework for development– that truly provides a breath of life into the legal architecture of market mechanisms related to climate change. Research findings show engagement with private sector can foster innovative solutions, disseminates knowledge transfer, and builds capacity to the scale necessary to give humanity hope of reversing our collective anthropogenic impact on the globe. Sustainable development is effectively realised when the appropriate mutually supportive elements are in place across all levels to allow local SDG priorities to be synergistically realised.

## Chapter 4 | Analysis of the Legal Architecture of Market Mechanisms in Biodiversity

### Introduction

This chapter examines the development and evolution of the global framework for the governance of biodiversity with a focus on market mechanisms created by the CBD and the Nagoya Protocol. First, the background leading to the creation of the CBD is summarised and discussed, followed by an examination of the core provisions of the Convention. Second, the background leading to the creation of the Nagoya Protocol is summarised, with a survey of core provisions of this specialised instrument to ABS under the CBD. Third, intersections with other international regimes are highlighted to identify connections, with an emphasis on exploring specialised instruments relating to food and agriculture, trade in endangered species, and intellectual property. Finally, the interface of biodiversity governance, access and benefit-sharing, and sustainable development is explored through case studies from ABS and regional fisheries experiences to unpack the role played by market mechanisms in biodiversity governance, and to extrapolate lessons learned. Through the positive incentivisation of conservation and sustainable use of biodiversity, ecosystem preservation receives greater prioritisation, in turn increasing opportunities for biodiscovery to provide benefits for humanity and foster sustainable livelihoods.

Leveraging a market logic, modalities to incentivise effective governance and conservation of biodiversity through clarification of rights coupled with the promise of fair and equitable sharing of benefits are highly relevant to promote sustainable development and support adaptation to climate change.<sup>373</sup> Recent studies provided by intergovernmental bodies illustrate the deleterious effects and continued pressure human-induced impacts are having on the natural environment. Findings by the IPCC stress the unprecedented nature of human-induced climatic shifts, additionally documenting observable increases in severity and frequency of extreme weather events. The IPCC strongly emphasises the need for deep emission reductions in the attempt to hold global warming at 2°C, otherwise adverse outcomes are expected to increase in magnitude and negatively impact biodiversity, amongst other environmental and social factors.<sup>374</sup> In a follow-up to the 2019 report by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), which highlighted the alarming damage human activity has had on global

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<sup>373</sup> CBD Decision XIII/4: Biodiversity and Climate Change (10 December 2016), CBD/COP/DEC/XIII/4.

<sup>374</sup> AR6 Physical Science Basis 2021, *supra* note 146, A.2-3, B.1, D.1.4.

biodiversity,<sup>375</sup> IPBES and IPCC in 2021 provided an in-depth review of the inextricable scientific link between climate and biodiversity health. The report called on Member States globally to develop and implement integrated solutions across governance institutions to respond to pressures at the climate-biodiversity-society nexus, solutions which include mapping of synergies, management of trade-offs, promotion of nature-based solutions, and creation of enabling conditions for transformative governance arrangements.<sup>376</sup> Importantly, the report stressed the need to enhance positive, while removing negative, incentive schemes, while including regulatory refinement and deployment of market-based mechanisms.<sup>377</sup>

Through the comprehensive recognition and protection of rights of IPLCs and sharing of benefits for access and utilisation of GRs and Indigenous TK, conservation of biodiversity can be incentivised, alternative livelihoods generated, and sustainable development manifested.

## International Cooperation on Biological Diversity

### *Background*

Citing concerns over the rapid rate of biodiversity loss as well as recommendations of the Report on the World Commission on Environment and Development (WCED), global efforts to foster cooperative action on the governance of biodiversity were formally initiated in 1987 through Decision 14/26 of the Governing Council of the UN Environment (UNEP) that formed an Ad Hoc Working Group of Legal and Technical Experts to explore the formation of an international instrument.<sup>378</sup> In its first meeting, the Working Group identified the need to broaden participation through an international instrument, a precursor to universal participation, that provides for ecosystem protection, facilitates an inventory of biodiversity as well as access to GRs, and contemplates ways to assign an economic value to biodiversity.<sup>379</sup> Early on the role of market mechanisms was identified to promote synergistically *in situ* conservation and research development (R&D) by the user community,<sup>380</sup> the concept for which remained relevant in the first draft of the legal instrument considered by the Intergovernmental Negotiating Committee. Meeting five times

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<sup>375</sup> IPBES, “Global Assessment Report on Biodiversity and Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services” (IPBES, 2019) IPBES/7/10/Add.1.

<sup>376</sup> IPBES/IPCC, “Scientific outcome of the IPBES-IPCC co-sponsored workshop on biodiversity and climate change” (IPBES/IPCC, 2021) at 146-163 [IPBES/IPCC]

<sup>377</sup> *Ibid.*, IPBES/IPCC, at 170-171.

<sup>378</sup> UNEP Report of the Governing Council 14 Session, *supra* note 236, at 78-79, 121-122, 130-134; World Commission on Environment and Development, Report of the World Commission on Environment and Development: “Our Common Future” 4 August 1987, UN Doc. A/42/427 (Oxford: Oxford University Press, 1987), Chapter 1, 7, 11 (footnotes), Chapter 2, para 68-69. [*Brundtland Report*]

<sup>379</sup> UNEP, “Report of the Ad Hoc Working Group on It First Session” (9 November 1989), UNEP/Bio.Div.1/3, online: <<https://www.cbd.int/doc/meetings/iccbd/bdewg-01/official/bdewg-01-03-en.pdf>>.

<sup>380</sup> UNEP, “Report of the Ad Hoc Working Group on the Work of Its Second Session in Preparation for a Legal Instrument on Biological Diversity of the Planet” (23 February 1990), UNEP/Bio.Div.2/3, online: <[www.cbd.int/doc/meetings/iccbd/bdewg-02/official/bdewg-02-03-en.pdf](http://www.cbd.int/doc/meetings/iccbd/bdewg-02/official/bdewg-02-03-en.pdf)>.

over 1991-1992, the final text for the Convention on Biological Diversity was agreed 22 May 1992, opened for signature at the Rio Earth Summit in 1992,<sup>381</sup> and entered into force 29 December 1993, currently with 196 Party signatories.<sup>382</sup>

### *Overview of the CBD and ABS Obligations*

With the objective of furthering cooperation on “conservation of biodiversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources,” the CBD established the internationally agreed legal architecture governing biodiversity.<sup>383</sup> The *Preamble* identifies conservation of biodiversity as a “common concern of humankind,” highlights the economic, socio-cultural and ecological importance biodiversity plays in maintaining natural systems, recognises the traditional dependence IPLCs have on the environment, and stresses the links sustainable use of biodiversity has with food security, friendly international relations, and benefits to present and future generations.<sup>384</sup> Additionally, the ABS aspects supported by the constituent elements found in the objectives, definitions and operative provisions provide the basis of the market mechanism under the CBD.

Several critical terms are defined in Article 2 of the Convention including: “biological resource” which encompasses GRs, or any component part of an ecosystem, with actual or potential value; “biotechnology” which covers the integration of any biological component, including derivatives, into a technological application; “country of origin” where the GRs are found naturally propagating *in situ* as opposed to “country providing genetic resources” where the GRs are held in an *ex situ* collection; and “sustainable use” which involves utilisation of biodiversity in a manner which maintains the resource, preventing long-term decline, and ensuring it may serve the needs of present and future generations.<sup>385</sup>

Importantly, the Convention affirms that States enjoy the sovereign right to govern and exploit their resources within their territory in accordance with domestic environmental policies, with the reciprocal responsibility to ensure activities do not cause environmental damage or transboundary harm.<sup>386</sup> Architectural underpinnings for ABS derived from the interaction across provisions found in Articles 8(j),

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<sup>381</sup> CBD, *supra* note 80; Marie-Claire Cordonier Segger & Ashfaq Khalfan, *Sustainable Development Law: Principles, Practices and Prospects* (Oxford: Oxford University Press, 2004), at 341. [Cordonier Segger & Khalfan]

<sup>382</sup> *Ibid.*

<sup>383</sup> *Ibid.*, CBD; Lyle Glowka et al., *A Guide to the Convention on Biological Diversity*, Environmental Policy and Law Paper No. 30 (Cambridge: IUCN, 1994) at 15 [Glowka et al]; CBD has 196 Parties: CBD Secretariat, “Parties to the Convention on Biological Diversity,” online: <[www.cbd.int/information/parties.shtml](http://www.cbd.int/information/parties.shtml)>.

<sup>384</sup> CBD, *supra* note 80, *Preamble*.

<sup>385</sup> *Ibid.*, CBD, Article 2; Glowka et al., *supra* note 455 at 16-25.

<sup>386</sup> *Ibid.*, CBD, Article 3; *Ibid.*, Glowka et al., at 26.

15, 16, and 19 of the CBD, with additional provisions found in Articles 8(f) and 10(c-d), help support the incentivisation of broader ecosystem restoration.

For example, Article 8(j) introduces obligations that govern TK. Defined as “knowledge, innovations and practices” of IPLCs embodying traditional lifestyles, Parties are required, subject to national legislation, to “respect, preserve, and maintain” TK when relevant for the conservation and sustainable use of biodiversity, and promote its application when grounded in the equitable sharing of benefits arising from biodiversity utilisation.<sup>387</sup> Held by IPLCs and developed through their custodial guidance and handed down intergenerationally, TK is often refined to respond to the unique conditions of the inhabited ecosystem.<sup>388</sup> While inherently broad, TK holds an immeasurable value embodying the cultural fabric of IPLCs who commonly inhabit megadiverse ecosystems and provides important insights on the effective utilisation of GRs for biodiscovery.<sup>389</sup> Related to TK obligations outlined in 8(j), Article 8(f) stresses the importance of ecosystem restoration, Article 10(c) provides for the protection of customary use of biodiversity in traditional cultural practices and Article 10(d) encourages the support of local remedial measures to address degraded ecosystems.<sup>390</sup> Collectively, these provisions provide pathways for the protection, preservation, and application of TK to conservation and sustainable use of biodiversity.

Specific to ABS, Article 15 facilitates access to GRs subject to national legislation,<sup>391</sup> ensuring each jurisdiction establishes conditions to enable access for environmentally sound utilisation,<sup>392</sup> and limiting access to *in situ* resources where the provider is the country of origin, or where the resources were obtained in accordance with the Convention.<sup>393</sup> Access to GRs is additionally grounded in two fundamental principles, the establishment of prior informed consent (PIC) and formation of mutually agreed terms (MAT) with the providing Party. The user provides adequate disclosure encompassing the extent and application of utilisation and an agreement is approved which provides for fair and equitable benefit-sharing.<sup>394</sup> In addition, Parties are to carry out scientific research on GRs received with the participation of

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<sup>387</sup> *Ibid*, CBD, Article 8(j); *Ibid*, Glowka et al., at 47-49.

<sup>388</sup> Evanson Chege Kamau, “Protecting TK and Disseminated Knowledge: A New Task for ABS Regimes? A Kenya Legal View” in E. Kamau & G. Winter, eds., *Genetic Resources, Traditional Knowledge & the Law: Solutions for Access and Benefit Sharing* (Earthscan: London, 2009) at 160-61. [Kamau]

<sup>389</sup> Cordonier Segger & Phillips, *supra* note 156, at 431; Oguamanam 2012, *supra* note 199, at 37-42, 80-88, 149-156.

<sup>390</sup> CBD, *supra* note 80, Article 8(f), 10(c-d); Glowka et al., *supra* note 455, at 44-45, 60-61.

<sup>391</sup> *Ibid*, CBD, Article 15(1).

<sup>392</sup> *Ibid*, CBD, Article 15(2); Glowka et al., *supra* note 455, at 76.

<sup>393</sup> *Ibid*, CBD, Article 15(3); *Ibid*, Glowka et al., at 77-79.

<sup>394</sup> *Ibid*, CBD, Article 15(4-5); *Ibid*, Glowka et al., at 80-81.

the providing jurisdiction where possible, and sharing the results of such research and any subsequent commercialisation with the providing Party in a fair and equitable manner.<sup>395</sup>

Access and transfer of technology, including biotechnology, is also recognised by the Parties as key to the attainment of the goals of the Convention. Such transfers are to be facilitated on fair and equitable terms including concessional or preferential terms, and providers of GRs, in particular in developing countries, are to be given access to technology that utilises those resources based on MAT. Transfers are also to be made in a manner which respects established intellectual property (IP) rights,<sup>396</sup> with Parties endeavouring to develop a legislative framework that enables joint development and cooperation with private actors to ensure IP rights foster, and do not frustrate, the objectives of the Convention.<sup>397</sup> In this regard, Article 19 on technology transfer provides for the effective involvement of providers of GRs in R&D activities relating to biotechnology and promotes priority access on fair and equitable terms to the results and benefits arising from biotechnology for provider jurisdictions.<sup>398</sup>

### *Evolution of ABS and Governance GRs and TK*

Following the passage of the CBD, Parties nearly immediately began to advance the implementation of the third pillar of the Convention and refined elements in the furtherance of sustainable development. Beginning at COP 2, Parties initiated a process to explore legislative options to govern access to GRs,<sup>399</sup> identify interlinkages with other international systems,<sup>400</sup> and called for the Executive Secretary to liaise with the Secretariat of the WTO and consult private sector stakeholders and IPLCs to understand needs, concerns and the intersections of GRs and IP rights.<sup>401</sup> Parties were subsequently urged at COP 3 to work collaboratively with relevant stakeholders and international institutions, including the Food and Agriculture Organization (FAO) and the WTO, to develop guidelines for access measures<sup>402</sup> and explore critical issues related to TK and IP rights.<sup>403</sup>

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<sup>395</sup> *Ibid*, CBD, Article 15(6-7).

<sup>396</sup> *Ibid*, CBD, Article 16(1-2); Glowka et al., *supra* note 455, at 84-87.

<sup>397</sup> *Ibid*, CBD, Article 16(3-5); *Ibid*, Glowka et al., at 89-91.

<sup>398</sup> *Ibid*, CBD, Article 19(1-2); *Ibid*, Glowka et al., at 96-97.

<sup>399</sup> CBD, Decision II/11: Access to Genetic Resources (6-18 November 1995), online: <[www.cbd.int/decision/cop/?id=7084](http://www.cbd.int/decision/cop/?id=7084)>; T Greiber et al., *An Explanatory Guide to the Nagoya Protocol on Access and Benefit-sharing*, IUCN Environmental Policy and Law Paper No.83 (Bonn, Germany: IUCN, 2012) at 17-18, online: <<https://portals.iucn.org/library/efiles/documents/EPLP-083.pdf>> [Greiber et al.]

<sup>400</sup> CBD, Decision II/15: FAO Global System or the Conservation and Utilization of Plant Genetic Resources for Food and Agriculture (6-18 November 1995), online: <[www.cbd.int/decision/cop/?id=7088](http://www.cbd.int/decision/cop/?id=7088)>.

<sup>401</sup> CBD, Decision II/12: Intellectual Property Rights (6-18 November 1995), online: <[www.cbd.int/decision/cop/?id=7085](http://www.cbd.int/decision/cop/?id=7085)>.

<sup>402</sup> CBD, Decision III/15: Access to Genetic Resources (4-15 November 1996), online: <[www.cbd.int/decision/cop/?id=7111](http://www.cbd.int/decision/cop/?id=7111)>.

<sup>403</sup> CBD, Decision III/17: Intellectual Property Rights (4-15 November 1996), online: <[www.cbd.int/decision/cop/?id=7113](http://www.cbd.int/decision/cop/?id=7113)>.

Recognising the close relationship of IP rights and TK, at COP 4 an Ad Hoc Open-ended Working Group was created for Article 8(j) to engage stakeholders, in particular IPLC, in advancing protections under the CBD and related fora.<sup>404</sup> In addition, an expert group was established to survey legislative, policy and administrative measures for ABS to advance lessons learned.<sup>405</sup> Noting the ongoing efforts under FAO relating to plant genetic resources for food and agriculture (PGRFA) and noting the critical role a comprehensive framework will play in facilitating equitable benefit sharing, COP 5 established an Ad Hoc Open-ended Working Group on ABS (WG). Their aim was to consider the potential formulation of a legal instrument for ABS,<sup>406</sup> and align with ongoing discussions relating to TK governance under Article 8(j).<sup>407</sup>

Building upon the work of previous meetings, COP 6 saw the adoption of the Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization.<sup>408</sup> The Bonn Guidelines, grounded in recommendations from the WG on ABS,<sup>409</sup> provided a voluntary ABS framework that included the following components: the designation of national focal points and competent national authorities, a description of the responsibilities of Parties, clarification on the role of stakeholders, an outline basic principles underpinning reporting, accountability and the establishment of PIC and MAT.<sup>410</sup> In addition, Appendix I provided substantive and procedural suggestions for inclusion in material transfer agreements (MTAs), and Appendix II offered a non-exhaustive list of monetary and non-monetary benefits.<sup>411</sup> COP 6 also created a draft action plan for capacity building,<sup>412</sup> and recognised the establishment of the ITPGRFA under the FAO and committed to working closely on mutually supportive implementation.<sup>413</sup>

Following the establishment of the Bonn Guidelines, COP 7 recalled the mandate to take appropriate actions in supporting the outcomes of the WSSD including delivery of fair and equitable benefit-sharing in line with the Guidelines.<sup>414</sup> It was noted that there was a need for a collection of measures to address the

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<sup>404</sup> CBD, Decision IV/10: Implementation of Article 8(j) and related provisions (4-15 May 1998), online: <[www.cbd.int/decision/cop/?id=7132](http://www.cbd.int/decision/cop/?id=7132)>.

<sup>405</sup> CBD, Decision IV/8: Access and benefit-sharing (4-15 May 1998), online: <[www.cbd.int/decision/cop/?id=7131](http://www.cbd.int/decision/cop/?id=7131)>.

<sup>406</sup> CBD, Decision V/26: Access and genetic resources (15-26 May 2000), online: <[www.cbd.int/decision/cop/?id=7168](http://www.cbd.int/decision/cop/?id=7168)>; See generally: CBD, "Working Group on Access and Benefit Sharing" (12 September 2010), online: <[www.cbd.int/abs/wgabs/](http://www.cbd.int/abs/wgabs/)>.

<sup>407</sup> CBD, Decision V/16: Article 8(j) and related provisions (15-26 May 2000), online: <[www.cbd.int/decision/cop/?id=7158](http://www.cbd.int/decision/cop/?id=7158)>.

<sup>408</sup> CBD, Decision VI/24: Access and benefit-sharing as related to genetic resources, Annex: Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization (7-19 April 2002), online: <[www.cbd.int/decision/cop/?id=7198](http://www.cbd.int/decision/cop/?id=7198)>. [Bonn Guidelines]

<sup>409</sup> CBD, Report of the Ad Hoc Open-ended Working Group on Access and Benefit-Sharing (31 October 2001), UNEP/CBD/COP/6/6., online: <[www.cbd.int/doc/meetings/cop/cop-06/official/cop-06-06-en.pdf](http://www.cbd.int/doc/meetings/cop/cop-06/official/cop-06-06-en.pdf)>.

<sup>410</sup> Bonn Guidelines, *supra* note 480, para 1-56.

<sup>411</sup> *Ibid*, Bonn Guidelines, Appendix I-II.

<sup>412</sup> *Ibid*, Bonn Guidelines, Annex.

<sup>413</sup> CBD, Decision VI/6: The International Treaty on Plant Genetic Resources for Food and Agriculture (7-19 April 2002), online: <[www.cbd.int/decision/cop/?id=7180](http://www.cbd.int/decision/cop/?id=7180)>.

<sup>414</sup> United Nations, Resolution 57/260: Convention on Biological Diversity (30 January 2003), A/RES/57/260, online: <<https://undocs.org/en/A/RES/57/260>>.

different concerns raised by Parties, stakeholders and IPLCs, which empowered the WG on Article 8(j) to expand and negotiate the scope and functional components of an international regime on ABS.<sup>415</sup> Over the course of 2005-2010 the WG held nine formal meetings to advance negotiations,<sup>416</sup> with the COP monitoring its progress.<sup>417</sup> The aim was to develop a binding instrument that provided sufficient legal certainty to allow the user community to advance bioprospecting and biodiscovery activities and establish a clear framework for the dissemination of benefits to provider countries.

## Governance of Access and Benefit-Sharing

### *Obligations under the Nagoya Protocol*

The Nagoya Protocol was created through COP 10 in 2010 with the adoption of Decision X/1, which also included the creation of an Ad Hoc Intergovernmental Committee for the Nagoya Protocol (ICNP) to advance its implementation.<sup>418</sup> Entry into force and operationalisation of the Protocol were listed in the Strategic Plan for Biodiversity 2011-2020 as Aichi Target 16.<sup>419</sup> Over 2011-2014, the ICNP held three meetings to advance the work of the Protocol prior to its entry into force. The meetings included the establishment of an ABS Clearing House (ABS-CH), measures related to capacity building, cooperative procedures and institutional mechanisms to promote compliance, consideration of a global multilateral

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<sup>415</sup> CBD, Decision VII/19: Access and benefit-sharing as related to genetic resources (Article 15) (13 April 2004), UNEP/CBD/COP/DEC/VII/19, online: <[www.cbd.int/doc/decisions/cop-07/cop-07-dec-19-en.pdf](http://www.cbd.int/doc/decisions/cop-07/cop-07-dec-19-en.pdf)>.

<sup>416</sup> CBD, Report of the Ad Hoc Open-Ended Working Group on Access and Benefit-Sharing on the Work of its Third Meeting (3 March 2005), UNEP/CBD/WG-ABS/3/7, online: <[www.cbd.int/doc/meetings/abs/abswg-03/official/abswg-03-07-en.pdf](http://www.cbd.int/doc/meetings/abs/abswg-03/official/abswg-03-07-en.pdf)>; CBD, Report of the Ad Hoc Open-Ended Working Group on Access and Benefit-Sharing on the Work of its Fourth Meeting (15 February 2006), UNEP/CBD/COP/8/6, online: <[www.cbd.int/doc/meetings/cop/cop-08/official/cop-08-06-en.pdf](http://www.cbd.int/doc/meetings/cop/cop-08/official/cop-08-06-en.pdf)>; CBD, Report of the Ad Hoc Open-Ended Working Group on Access and Benefit-Sharing on the Work of its Fifth Meeting (15 October 2007), UNEP/CBD/WG-ABS/5/8, online: <[www.cbd.int/doc/meetings/abs/abswg-05/official/abswg-05-08-en.pdf](http://www.cbd.int/doc/meetings/abs/abswg-05/official/abswg-05-08-en.pdf)>; CBD, Report of the Ad Hoc Open-Ended Working Group on Access and Benefit-Sharing on the Work of its Sixth Meeting (31 January 2008), UNEP/CBD/COP/9/6, online: <[www.cbd.int/doc/meetings/cop/cop-09/official/cop-09-06-en.pdf](http://www.cbd.int/doc/meetings/cop/cop-09/official/cop-09-06-en.pdf)>; CBD, Report of the Seventh Meeting of the Ad Hoc Open-Ended Working Group on Access and Benefit-Sharing (5 May 2009), UNEP/CBD/WG-ABS/7/8, online: <[www.cbd.int/doc/meetings/abs/abswg-07/official/abswg-07-08-en.pdf](http://www.cbd.int/doc/meetings/abs/abswg-07/official/abswg-07-08-en.pdf)>; CBD, Report of the Eighth Meeting of the Ad Hoc Open-Ended Working Group on Access and Benefit-Sharing (20 November 2009), UNEP/CBD/WG-ABS/8/8, online: <[www.cbd.int/doc/meetings/abs/abswg-08/official/abswg-08-08-en.pdf](http://www.cbd.int/doc/meetings/abs/abswg-08/official/abswg-08-08-en.pdf)>; CBD, Report of the First Part of the Ninth Meeting of the Ad Hoc Open Ended Working Group on Access and Benefit-Sharing (26 April 2010), UNEP/CBD/WG-ABS/9/3, online: <[www.cbd.int/doc/meetings/abs/abswg-09/official/abswg-09-03-en.pdf](http://www.cbd.int/doc/meetings/abs/abswg-09/official/abswg-09-03-en.pdf)>; CBD, Report of the Second Part of the Ninth Meeting of the Ad Hoc Open Ended Working Group on Access and Benefit-Sharing (28 July 2010), UNEP/CBD/COP/10/5/ADD4, online: <[www.cbd.int/doc/meetings/cop/cop-10/official/cop-10-05-add4-en.pdf](http://www.cbd.int/doc/meetings/cop/cop-10/official/cop-10-05-add4-en.pdf)>; CBD, Report of the Third Part of the Ninth Meeting of the Ad Hoc Open-ended Working Group on Access and Benefit-Sharing (18-29 October 2010), UNEP/CBD/COP/10/5/Add.5\*, online: <[www.cbd.int/doc/meetings/cop/cop-10/official/cop-10-05-add5-en.pdf](http://www.cbd.int/doc/meetings/cop/cop-10/official/cop-10-05-add5-en.pdf)>; See generally Greiber et al , *supra* note 471, at 19-22.

<sup>417</sup> CBD, Decision VIII/4: Access and benefit-sharing (15 June 2006), UNEP/CBD/COP/DEC/VIII/4, online: <[www.cbd.int/doc/decisions/cop-08/cop-08-dec-04-en.pdf](http://www.cbd.int/doc/decisions/cop-08/cop-08-dec-04-en.pdf)>; CBD, Decision IX/12: Access and benefit-sharing (9 October 2008), UNEP/CBD/COP/DEC/IX/12, online: <[www.cbd.int/doc/decisions/cop-09/cop-09-dec-12-en.pdf](http://www.cbd.int/doc/decisions/cop-09/cop-09-dec-12-en.pdf)>.

<sup>418</sup> CBD, Decision X/1: Access to genetic resources and the fair and equitable sharing of benefits arising from their utilization (29 October 2010), UNEP/CBD/COP/DEC/X/1, online: <[www.cbd.int/doc/decisions/cop-10/cop-10-dec-01-en.pdf](http://www.cbd.int/doc/decisions/cop-10/cop-10-dec-01-en.pdf)>.

<sup>419</sup> CBD, Decision X/2: The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets (29 October 2010), UNEP/CBD/COP/DEC/X/2, online: <[www.cbd.int/doc/decisions/cop-10/cop-10-dec-02-en.pdf](http://www.cbd.int/doc/decisions/cop-10/cop-10-dec-02-en.pdf)>.

benefit-sharing mechanism, sectoral and cross-sectoral codes of conduct and rules of procedure for the first meeting of the Parties.<sup>420</sup>

Entering into force on 12 October 2014, and having 130 Party signatories as of April 2021,<sup>421</sup> the Nagoya Protocol provides the designated architecture to operationalise ABS to enable conservation and sustainable use of biodiversity.<sup>422</sup> Directly connected to these objectives are efforts for fostering sustainable development, promoting equity, and providing justice in the process of utilisation of GRs and TK.<sup>423</sup> Terms of the scope of the Protocol are outlined in Article 2, with those of note including “utilisation of genetic resources” encompassing R&D on the genetic or biochemical makeup of GRs both directly or through integration into biotechnical applications and “derivatives.”<sup>424</sup> “Derivatives” here includes “naturally occurring biochemical compounds” which are a result of “genetic expression or metabolism” even where DNA is omitted.<sup>425</sup> Inclusion of the terms “utilisation” and “derivatives,” which were not previously defined in the Convention, were used to encompass the lifecycle of R&D and the various commercial applications of GRs with broad implications for equity of IPLCs.<sup>426</sup> The operative scope of the Protocol encompasses utilisation of GRs as described in Article 15 of the Convention, as well as in association with TK.<sup>427</sup> Taken in concert, these innovations calibrated the Protocol to capture biochemical systems even where genetic material itself is not utilised.<sup>428</sup> One shortcoming is the lack of definition of “utilisation of TK,”<sup>429</sup> however, is that this matter would have inevitably been addressed through interaction with applicable IP regimes. Article 4 attempts to remedy this by defining the relationship of the Protocol to other agreements, highlighting that it is intended to be implemented in a mutually supportive manner with other specialised instruments.<sup>430</sup> Additionally in the ABS context, the ITPGRFA is of importance as it provides for access to

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<sup>420</sup> Greiber et al, *supra* note 471, at 23; CBD, Report of the First Meeting of the Open-Ended Ad Hoc Intergovernmental Committee for the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (21 July 2011), UNEP/CBD/ICNP/1/8, online: <[www.cbd.int/doc/meetings/abs/icnp-01/official/icnp-01-08-en.pdf](http://www.cbd.int/doc/meetings/abs/icnp-01/official/icnp-01-08-en.pdf)>; CBD, Report of the Second Meeting of the Open-Ended Ad Hoc Intergovernmental Committee for the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization (26 July 2012), UNEP/CBD/COP/11/6, online: <[www.cbd.int/doc/meetings/abs/icnp-02/official/icnp-02-cop-11-06-en.pdf](http://www.cbd.int/doc/meetings/abs/icnp-02/official/icnp-02-cop-11-06-en.pdf)>; CBD, Report of the Third Meeting of the Open-Ended Ad Hoc Intergovernmental Committee for the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization (14 April 2014), UNEP/CBD/COP/12/6, online: .

<sup>421</sup> CBD Secretariat, “Parties to Nagoya Protocol” online: <[www.cbd.int/abs/nagoya-protocol/signatories/](http://www.cbd.int/abs/nagoya-protocol/signatories/)>.

<sup>422</sup> Nagoya Protocol, *supra* note 81, Article 1.

<sup>423</sup> E Morgera, M Buck & E Tsioumani, *Unraveling the Nagoya Protocol: A Commentary on the Nagoya Protocol on Access and Benefit Sharing to the Convention on Biological Diversity* (Leiden: Brill, 2014), at 1-2. [Morgera et al. 2014]

<sup>424</sup> Nagoya Protocol, *supra* note 81, Article 2.

<sup>425</sup> Morgera et al. 2014, *supra* note 495 at 59-63; Phillips 2019, *supra* note 206, at 159.

<sup>426</sup> Greiber et al, *supra* note 471, at 62-68; Chidi Oguamanam, “ABS: Big Data, Data Sovereignty and Digitization A New Indigenous Research Landscape” in Chidi Oguamanam, ed., *supra* note 131, 196-211.

<sup>427</sup> Nagoya Protocol, *supra* note 81, Article 3.

<sup>428</sup> L Glowka & V Normand, “The Nagoya Protocol on Access and Benefit-Sharing: Innovations in International Environmental Law” in Morgera, Buck and Tsioumani, eds, *Nagoya Protocol on Access and Benefit-Sharing in Perspective* (Leiden: Martinus Nijhoff, 2013) at 27-28 [Glowka & Normand]; Morgera et al. 2014, *supra* note 495, at 59-61.

<sup>429</sup> *Ibid*, Morgera et al. 2014, at 62.

<sup>430</sup> Nagoya Protocol, *supra* note 81, Article 4(1-3); Greiber et al., *supra* note 471, at 77-80.

resources under the multilateral system,<sup>431</sup> with other *sui generis* systems potentially to be developed in the future.

The Protocol additionally requires Parties to put in place domestic measures which facilitate access to GRs and TK based on the establishment of PIC, or the approval and involvement of IPLCs.<sup>432</sup> That utilisation is grounded in an agreement on MAT which includes fair and equitable benefit-sharing consisting of monetary and/or non-monetary benefits.<sup>433</sup> When developing national legislation regarding TK, Parties to the Protocol are also obliged to take into consideration the customary governance approaches of IPLCs, promote the development of “community protocols” relating to access of GRs and TK, put in place measures to support users including through model contractual clauses, and endeavour to respect customary use by IPLCs.<sup>434</sup> Parties are also to consider the need for the development of a multilateral benefit-sharing mechanism to address the utilisation of GRs and TK which are transboundary in nature.<sup>435</sup>

At the national level, each Party must identify a National Focal Point (NFP) and designate a minimum of one Competent National Authority (CNA) to regulate ABS legislative requirements, including the review and evaluation of permits, administration of benefit-sharing, and governance of user activities.<sup>436</sup> Parties must also establish appropriate measures for monitoring of utilisation of GRs and TK, verifying that both access and utilisation are in accordance with PIC and MAT,<sup>437</sup> developing compliance measures including designation of checkpoints to authenticate compliance, and process the issuance of an internationally recognised certificate of compliance (IRCC).<sup>438</sup> Permits issued in compliance with domestic access procedures and registered with the ABS-CH are IRCC outlining information on the provider and resource(s), a unique identifier for the certificate, the recipient of PIC, the type of use (commercial/non-commercial), and confirmation of conformity with both PIC and MAT.<sup>439</sup> IRCCs represent the outcome of negotiations within the market mechanism for equitable access and utilization of GRs and TK. While not commercially tradable as an open market would omit the holders and IPLCs from providing PIC to the proposed utilization (or more importantly object), users must establish new MAT within the market for each new utilization and with updated benefit sharing terms based on the new application.

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<sup>431</sup> *Ibid*, Nagoya Protocol, Article 4(4); *Ibid*, Greiber et al., at 80-81; J Cabrera et al., *supra* note 203.

<sup>432</sup> *Ibid*, Nagoya Protocol, Article 6-7; *Ibid*, Greiber et al., at 95-116.

<sup>433</sup> *Ibid*, Nagoya Protocol, Article 5; *Ibid*, Greiber et al., at 83-91.

<sup>434</sup> *Ibid*, Nagoya Protocol, Article 12.

<sup>435</sup> *Ibid*, Nagoya Protocol, Article 10.

<sup>436</sup> *Ibid*, Nagoya Protocol, Article 13.

<sup>437</sup> *Ibid*, Nagoya Protocol, Article 15-16.

<sup>438</sup> *Ibid*, Nagoya Protocol, Article 17(1).

<sup>439</sup> *Ibid*, Nagoya Protocol, Article 17(2-4).

The access and utilisation provisions of the Protocol are intended to provide legal clarity and a cohesive framework across both provider and user jurisdictions to the procedures underpinning R&D in bio-based industries, thus providing a basis for trade and investment. Compliance is facilitated at the national level with each Party required to put in place appropriate measures to ensure GRs utilised within the jurisdiction are legally accessed based on PIC and MAT, designate effective checkpoints across the R&D lifecycle to confirm compliance, and address situations of non-compliance including through cooperation with provider jurisdiction.<sup>440</sup> Parties are encouraged to develop, update and use sectoral and cross-sectoral model contractual clauses, and include in MAT compliance provisions containing dispute settlement options, applicable law, and mutual recognition and enforcement of foreign judgements and arbitral awards.<sup>441</sup> Use of voluntary codes of conduct, guidelines, best practices and sectoral standards are also encouraged.<sup>442</sup> The creation of model contractual clauses, sectoral guidelines and codes of conduct, used in conjunction with checkpoints provides a basis for compliance across jurisdictions, nurtures confidence and advances trade and investment flows.

Enhancing awareness, building capacity, and enabling for transfer of technology and cooperation in R&D are central pillars laying the groundwork for increased trade and investment. Parties are required to increase awareness to the ABS framework among all relevant stakeholders domestically including through dissemination of codes of conduct, guidelines, best practices, and development of educational materials on the importance of GRs and TK.<sup>443</sup> Cooperation among Parties to increase capacity, in particular in developing and emerging economies, among IPLCs, and relevant stakeholders is envisioned including building capacity to negotiate MAT, developing domestic traceability and compliance measures, conduct R&D, and provide for effective valuation of biodiversity.<sup>444</sup> Further cooperative action across Parties is envisioned including technology transfer to support R&D activities in developing and emerging economies to enable a sound technical and scientific basis for strengthening domestic capacity for collaboration.<sup>445</sup> Building of awareness and capacity domestically supports engagement with the principles of the Protocol, increases informed involvement of IPLCs, stakeholders and industry during the bioprospecting, R&D phases, and provides a robust basis for further collaboration and investment.

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<sup>440</sup> *Ibid*, Nagoya Protocol, Article 15-17; Greiber et al., *supra* note 471, at 159-182.

<sup>441</sup> *Ibid*, Nagoya Protocol, Article 18-19.

<sup>442</sup> *Ibid*, Nagoya Protocol, Article 20.

<sup>443</sup> *Ibid*, Nagoya Protocol, Article 21.

<sup>444</sup> *Ibid*, Nagoya Protocol, Article 22.

<sup>445</sup> *Ibid*, Nagoya Protocol, Article 23.

The Nagoya Protocol provided the legal architecture to solidify ABS and allow the market for R&D in GRs and TK to advance. Substantive and procedural aspects of ABS are outlined empowering both users and providers to collaborate on biobased innovations, grounding the conservation bargain inherent in the CBD, and creating a channel for benefits to flow towards sustainable development outcomes.

## Intersections with other international regimes

Dependent upon the type and character of the resource utilised by private actors a range of international instruments could be implicated. This section will explore key legal obligations and intersections relating to GRs and TK found in *International Treaty on Plant Genetic Resources for Food and Agriculture* (ITPGRFA),<sup>446</sup> the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES),<sup>447</sup> the *Agreement on Trade-Related Aspects of Intellectual Property Rights* (TRIPS),<sup>448</sup> and the work of the World Intellectual Property Organization Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (WIPO-IGC) on the Draft Articles on TK.<sup>449</sup> Each provide specialised procedures, requirements, and considerations that are mutually supportive and collectively contribute to the legal landscape underpinning ABS.

### *International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)*

Having entered into force 29 June 2004, and as of November 2020 having 140 Parties,<sup>450</sup> the ITPGRFA is considered a “specialised instrument” under the Nagoya Protocol.<sup>451</sup> Facilitating conservation and sustainable use of PGRFA based on fair and equitable benefit-sharing,<sup>452</sup> Parties cooperate to share samples of Annex I listed crop varieties housed *in situ* and *ex situ* in International Agricultural Research Centres through the multilateral system of access and benefit-sharing (MLS) for R&D purposes.<sup>453</sup> Access is facilitated through a standard material transfer agreement (SMTA) and benefits shared through a dedicated farmers trust fund, with a particular focus on developing and emerging economies.<sup>454</sup> In recognition of the historical and ongoing contributions of IPLCs to crop diversity, Farmers’ Rights are established in Article 9

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<sup>446</sup> ITPGRFA, *supra* note 203.

<sup>447</sup> CITES, *supra* note 204.

<sup>448</sup> TRIPS, *supra* note 101.

<sup>449</sup> WIPO IGC 2000, *supra* note 205, at para 13-24, WIPO Draft Articles on TK, 2019, *supra* note 205.

<sup>450</sup> ITPGRFA Secretariat, “Official List of Contracting Parties” online: <[www.fao.org/plant-treaty/countries/membership/en/](http://www.fao.org/plant-treaty/countries/membership/en/)>.

<sup>451</sup> Nagoya Protocol, *supra* note 81, Article 4(4); Morgera et al. 2014, *supra* note 495, 97-98.

<sup>452</sup> ITPGRFA, *supra* note 203, Article 1, 3, 6.

<sup>453</sup> *Ibid*, ITPGRFA, Article 5-7, 10, 15.

<sup>454</sup> *Ibid*, ITPGRFA, Article 11-13, 19.3f; ITPGRFA, “Standard Material Transfer Agreement” FAO Conference Resolution 1/2006 of 16 June 2006, online: <[www.fao.org/3/bc083e/bc083e.pdf](http://www.fao.org/3/bc083e/bc083e.pdf)>. [SMTA]

with Parties committing to protect TK, facilitate benefit-sharing, and provide for participation in decision making in accordance with national legislation.<sup>455</sup>

Providing the groundwork for access under the MLS in line with Article 12.4, the SMTA provides rights and obligations for both providers and users of genetic material. Providers are obliged to provide samples expeditiously with all relevant passport data, must comply with applicable international and national instruments where the accessed resource is protected by IP protection, and needs to periodically inform the Secretariat of the status of samples accessed through the MLS.<sup>456</sup> Users must: (i) limit use of material for food and agriculture related research and breeding purposes, and excluding any non-food related industrial uses (chemical, pharmaceutical or other); (ii) abstain from filing IP protections over samples that would restrict facilitated access under the MLS; (iii) follow the terms of the SMTA when transferring conserved material obtained through the MLS; (iv) contribute benefits by way of a royalty – established in Annex II as 1.1% of total annual sales excluding 30%– to the multilateral fund in cases of commercialisation where access to the product for research or breeding is restricted; (v) provide voluntary contributions in cases of commercialisation where the product is available through the MLS; and (vi) share all non-confidential information pertaining to the sample through the MLS.<sup>457</sup> All non-food-related utilisation of Annex I listed GRs and associated TK are under the remit of the Nagoya Protocol, and national ABS legislation.<sup>458</sup> Notwithstanding, gaps have been identified in the SMTA including unclear triggers and lack of an enforcement mechanism for breach of obligations, refinement of which could strengthen the MLS and the contractual elements of the SMTA.<sup>459</sup>

### *Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)*

Entering into force 1 July 1975, CITES is an early biodiversity-related instrument with 183 Parties,<sup>460</sup> and remains an important mechanism for combating illegal trade of rare and endangered species.<sup>461</sup> Sitting at the nexus of trade and conservation, CITES encompasses over 38,000 species (around 5,950 animals and

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<sup>455</sup> *Ibid*, ITPGRFA, Article 9; G Moore & W Tymowski, Explanatory Guide to the International Treaty on Plant Genetic Resources for Food and Agriculture, IUCN Environmental Policy and Law Paper No.57 (Bonn, Germany: IUCN, 2005) at 67-78. [Moore & Tymowski]

<sup>456</sup> SMTA, Article 5.

<sup>457</sup> SMTA, Article 6, Annex II.

<sup>458</sup> Michael Halewood, “Mutually supportive implementation of the Plant Treaty and the Nagoya Protocol: A primer for national focal points and other stakeholders” Discussion Paper (Rome: Biodiversity International, 2015) at 37; Jorge Cabrera Medaglia, “The International Treaty on Plant Genetic Resources for Food and Agriculture and the Nagoya Protocol: Options for a synergistic implementation of international law regimes” Discussion Paper (2016).

<sup>459</sup> Morten Walløe Tvedt, “A contract-law analyses of the SMTA of the Plant Treaty: Can it work as a binding contract?” (2021) 24:1-2 The Journal of World Intellectual Property, 83-99.

<sup>460</sup> CITES Secretariat, “List of Contracting Parties” online < [www.cites.org/eng/disc/parties/chronolo.php](http://www.cites.org/eng/disc/parties/chronolo.php)>.

<sup>461</sup> CITES, *supra* note 204, *preamble*; M. Bowman et al., *Lyster’s International Wildlife Law* (Cambridge: Cambridge University Press, 2010) at 484. [Bowman et al.]

32,800 plants),<sup>462</sup> prohibiting international trade in Appendix I listed threatened species, but for limited exceptions, and regulating Appendix II species to ensure commercial activities do not result in the species becoming threatened. In addition, Parties may cooperate to regulate species protected through domestic legislation through listing on Appendix III for the purpose of preventing exploitation.<sup>463</sup>

The Convention applies to both “species” and “specimens,” as well as derivatives, of fauna and flora found in the Appendices.<sup>464</sup> Trade in Appendix I species that are directly threatened with extinction is highly restricted and may only proceed on extraordinary grounds and for strictly non-commercial purposes.<sup>465</sup> While not directly threatened, Appendix II includes species that could face deterioration without regulatory protections, as well as “look-alike species” that garner commercial exploitation by virtue of their similarity.<sup>466</sup> Appendix III species are protected under domestic regimes and require international cooperation to restrict exploitation.<sup>467</sup> Trade of listed species is governed through a permit scheme for import, export, introduction to the sea, and re-export provided by the designated Scientific and Management Authority certifying the action will not be deleterious to the species, transfer of the sample will be carried out in a humane manner, and that access was conducted in line with domestic requirements.<sup>468</sup>

Domestic breeding or propagation of species listed in Appendix I in line with a sustainable management plan and annual quota (“ranching”) may be traded as an Appendix II species through the issuance of the requisite permit by the competent national authority and subsequently traded for commercial use.<sup>469</sup> Other listed species domestically ranched sustainably may be traded commercially through appropriate authorisation issued by the Management Authority.<sup>470</sup> Utilisation of GRs which are listed species requires compliance with both Nagoya and CITES obligations.

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<sup>462</sup> CITES Secretariat, “The CITES Species” online: < [www.cites.org/eng/disc/species.php](http://www.cites.org/eng/disc/species.php)>; CITES, Appendices I-III (valid from 5 February 2015), online: < [www.cites.org/sites/default/files/eng/app/2015/E-Appendices-2015-02-05.pdf](http://www.cites.org/sites/default/files/eng/app/2015/E-Appendices-2015-02-05.pdf)>.

<sup>463</sup> Bowman et al., *supra* note 533 at 484.

<sup>464</sup> CITES, *supra* note 204, Article I, I(b); *Ibid*, Bowman et al., at 490.

<sup>465</sup> *Ibid*, CITES, Article II(1), III(3)(a-c), III(5)(a-c).

<sup>466</sup> *Ibid*, CITES, Article II(2)(a-b).

<sup>467</sup> *Ibid*, CITES, Article II(3).

<sup>468</sup> *Ibid*, CITES, Article III-V.

<sup>469</sup> *Ibid*, CITES, Article VII(4); CITES, Resolution 3.15, COP 3 “Ranching” (1981); Bowman et al., *supra* note 533, at 513-514; CITES, Resolution 11.16, COP 15 “Ranching and trade in ranched specimens of species transferred from Appendix I to Appendix II” (2010), online: <<https://cites.org/sites/default/files/document/E-Res-11-16-R15.pdf>>.

<sup>470</sup> *Ibid*, CITES, Article VII(5); Bowman et al., *supra* note 533 at 514.

## *Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) and the WIPO Draft Articles*

Intellectual property regimes, both established in the case of TRIPS and evolving in the case of the WIPO Draft Articles, provide an important tool for the conservation and utilisation of GRs and TK in support of sustainable development. Established as a component of the covered agreements forming the WTO, the TRIPS agreement provides a framework to enable trade and development grounded in respect for IP rights.<sup>471</sup> Copyright provides safeguards for protected works (literary, scientific and artistic expressions) in fixed form for the lifetime of the creator plus 50 years.<sup>472</sup>

Patent protection, which is of distinct importance in the ABS context,<sup>473</sup> is provided for inventions (both products and processes) that are novel, involve an “inventive step,” and that have utility or industrial application.<sup>474</sup> Filings must include sufficient disclosure to allow a “person skilled in the art” to reproduce the intended results, the “best mode of operation,” and parallel applications in foreign jurisdictions.<sup>475</sup> Protection provides for a limited-term monopoly of 20 years over the invention.<sup>476</sup> Lastly, protections are also provided for undisclosed information of actual or potential commercial value under the framework of “trade secrets” provided reasonable measures are taken to maintain the secrecy of the information.<sup>477</sup> Undisclosed TK which meets the conditions might be suitable for recognition and protection under the trade secrets regime.<sup>478</sup>

Several limitations may be observed with the current IP regime relating to TK. Copyright raises concerns over fixation with much being held orally, identification of a single author as TK is communally developed, and term protection. In the current TRIPS agreement, there is no obligation for the disclosure of origin of TK which informs aspects of the patent or its claims, or demonstration that the GRs or TK were obtained in compliance with ABS domestic legislation. Information on where to obtain the GRs, not where the sample

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<sup>471</sup> Antony Taubman, Hannu Wager & Jayashree Watal, *A Handbook on the WTO TRIPS Agreement* (Cambridge: Cambridge University Press, 2012) at 1-8. [Taubman et al.]

<sup>472</sup> TRIPS, *supra* note 101, Article 12; *ibid*, Taubman et al., at 37-40.

<sup>473</sup> Glowka & Normand, *supra* note 500, at 46.

<sup>474</sup> TRIPS, *supra* note 101, at Article 27(1); Taubman et al., *supra* note 543 at 98-100; Elizabeth Judge & Daniel Gervais, *Intellectual Property: The Law in Canada*, 2d ed (Toronto, Canada: Carswell, 2011) at 643-645: “inventive step” and “industrial application” are equitable to “non-obvious” and “useful” respectively.

<sup>475</sup> *Ibid*, TRIPS, at Article 29; Phillips 2019, *supra* note 206, at 160.

<sup>476</sup> *Ibid*, TRIPS, at Article 33.

<sup>477</sup> *Ibid*, TRIPS, Article 39; Taubman et al., *supra* note 543, 126-128.

<sup>478</sup> Graham Duthfield, “TRIPS Related Aspects of Traditional Knowledge” (2001) 33 Case W. Res. J. Int’l L. 233, at 259; Deepa Varadarajan, “A Trade Secret Approach to Protecting Traditional Knowledge” (2011) 36 Yale I. Int’l L. 371, 382, 396; Howard Mann, “Indigenous Peoples and the Use of Intellectual Property in Canada: Case Studies Relating to Intellectual Property Rights and the Protection of Biodiversity” Industry Canada, Intellectual Property Policy Directorate, and Canada Working Group on Art. 8(j) of the CBD (1997), online: <<http://nativemaps.org/files/Mann.pdf>> [Mann]

utilised was obtained, is sufficient to satisfy the disclosure requirement and leave the door open for continued misappropriation.

Parties have been working since 2000 through the World Intellectual Property Organization Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (WIPO-IGC) as the primary forum for negotiations on the Draft Articles on TK,<sup>479</sup> and an internationally agreed instrument on GRs.<sup>480</sup> Despite negotiations remaining ongoing for over two decades, the aim is to establish an internationally agreed *sui generis* instrument(s) to provide recognition of and protections for GR and TK held by IPLCs, promotes conservation and sustainable use and protective measures that foster international research and innovation, prevents against misappropriation, and enables fair and equitable benefits to flow from utilisation.<sup>481</sup> Several key definitions are introduced in the Draft Articles on TK including: TK which encompasses knowledge (know-how, innovations, skills, practices, and teachings) originating from IPLCs which can be dynamic, evolving, and the result of cultural or experiential learning in the traditional context, and may be connected to the land or environment; types of TK are further delineated into categories including protected, secret (sacred, narrowly/widely diffused), and publicly available; and utilisation which covers both products and processes informed by TK.<sup>482</sup> Multiple definitions for misappropriation remain under discussion, with a conduct-based focus that emphasises legality of access, granting of PIC, and establishment of MAT.<sup>483</sup>

As holders and guardians of TK, IPLCs are recognised as beneficiaries, with protections extending to TK generated by IPLCs, held collectively, essentially linked with the cultural heritage/identity of the community, and shared intergenerationally.<sup>484</sup> While deference is provided to national jurisdictions to determine the term of protection, the minimum term provided shall be a period of 50 years or five generations,<sup>485</sup> with indefinite protection provided the subject matter maintains the character of TK also proposed.<sup>486</sup> The suggested scope of protections range across a spectrum, encompassing economic and moral rights, providing tiered degrees of restrictions on particular types of TK (sacred or secret, narrowly or widely diffused), include exclusive controls for the beneficiaries on use of closely held TK with more

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<sup>479</sup> WIPO IGC 2000, *supra* note 205; WIPO Draft Articles on TK 2019, *supra* note 205.

<sup>480</sup> WIPO, "The Consolidated Document Relating to Intellectual Property and Genetic Resources REV. 2" Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, Thirty-Fifth Session (23 March 2018), WIPO/GRTKF/IC/35. [Consolidated Document on IP and GRs]

<sup>481</sup> WIPO Draft Articles on TK 2019, *supra* note 205, *Preamble*, Article 2; *Ibid*, Consolidated Document on IP and GRs, *Preamble*.

<sup>482</sup> *Ibid*, WIPO Draft Articles on TK 2019, Article 1.

<sup>483</sup> *Ibid*.

<sup>484</sup> *Ibid*, WIPO Draft Articles on TK 2019, Article 3-4.

<sup>485</sup> *Ibid*, WIPO Draft Articles on TK 2019, Article 3alt.

<sup>486</sup> *Ibid*, WIPO Draft Articles on TK 2019, Article 10.

widely held TK share on fair and equitable terms, and Member States encouraged to preserve and protect TK more broadly.<sup>487</sup> The development of national databases (publicly accessible; national TK database in IP office; private TK collections with IPLCs) in accordance with customary laws to collect and preserve TK is encouraged,<sup>488</sup> with defensive measures suggested to provide for cooperation across IP offices, sharing of information/access to national databases, and allowance for third parties to contest the validity of a patent among others.<sup>489</sup>

A disclosure requirement at the time of filing for IP protections is proposed whereby applicants would be required to indicate the use of TK, the country of origin, the immediate source, and if PIC had been established, with the potential for IP offices to dismiss an application, invalidate a patent, or apply domestic criminal penalties for cases of wanton non-compliance.<sup>490</sup> Specific exceptions and limitations are envisioned providing flexibility at the national level,<sup>491</sup> provided ideally the PIC of the beneficiaries was obtained or at least acknowledged, utilisation is not offensive, does not prejudice interests, and is non-commercial in application, with preservation and in cases of national emergency suggested as potential specific exceptions.<sup>492</sup> TK is deemed to not be misappropriated if it was obtained from a printed publication, multiple holders who provide PIC, or through the establishment of MAT with the Competent National Authority.<sup>493</sup> It is envisioned that nothing in the instrument shall be interpreted to derogate rights held by IPLCs, with the standard of treatment suggested to be reciprocal across all Party jurisdictions.<sup>494</sup> Appropriate sanctions and judicial remedies are to be established at the national level to enable compliance and prevent misappropriation.<sup>495</sup>

The principal object of the proposed instrument on GRs is focused on ensuring mutual supportiveness of international instruments, enhancing transparency, and enabling cooperation across patent offices.<sup>496</sup> A mandatory disclosure requirement is envisioned for patents based on/utilising GRs and/or TK with applicants expected to provide information on the country of origin or a declaration that the source is unknown and a demonstration of PIC compliance.<sup>497</sup> Proposed exceptions from the patent disclosure requirement include human GRs and pathogens, derivatives, GRs used as commodities, GRs obtained from

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<sup>487</sup> *Ibid*, WIPO Draft Articles on TK 2019, Article 5.

<sup>488</sup> *Ibid*, WIPO Draft Articles on TK 2019, Article 5bis.1-3.

<sup>489</sup> *Ibid*, WIPO Draft Articles on TK 2019, Article 5bis alt.4-10; 16.

<sup>490</sup> *Ibid*, WIPO Draft Articles on TK 2019, Article 7, 7alt 1-3.

<sup>491</sup> *Ibid*, WIPO Draft Articles on TK 2019, Article 9.

<sup>492</sup> *Ibid*, WIPO Draft Articles on TK 2019, Article 9 alt 1-3.

<sup>493</sup> *Ibid*, WIPO Draft Articles on TK 2019, Article 9 alt 6.

<sup>494</sup> *Ibid*, WIPO Draft Articles on TK 2019, Article 14-15.

<sup>495</sup> *Ibid*, WIPO Draft Articles on TK 2019, Article 6.

<sup>496</sup> Consolidated Document on IP and GRs, *supra* note 552, Article 2.

<sup>497</sup> *Ibid*, Consolidated Document on IP and GRs, Article 4.

areas beyond national jurisdiction, TK in the public domain, GRs accessed before either the entry into force of the CBD or Nagoya Protocol (temporal scope remains a negotiating point), or GR and TK necessary to protect the human and natural environment.<sup>498</sup> Remedial measures, both pre and post-grant are suggested,<sup>499</sup> as well as due diligence procedures,<sup>500</sup> techniques to prevent erroneous granting of patents,<sup>501</sup> and transboundary cooperation on enforcement and technical assistance.<sup>502</sup>

While the mandate of the WIPO-IGC has endured for over 20 years, and the proposed instruments on GRs and TK respectively remain under negotiation, the proposed approaches work to address key tensions relating to ABS, creating enabling frameworks for further congruence of practice through the market mechanism.

## Exploring ABS Experiences

Following early ABS experience coupled with the passage, implementation and growing operationalisation of the Nagoya Protocol, there exists the emergence of examples that inform understanding of how market mechanisms advance environmentally sound outcomes. Due to the complexity associated with biodiscovery and bioprospecting coupled with the relative infancy of global ABS frameworks, experiences have taken time to mature significantly. Notwithstanding, the following examples were selected as they illustrate both congruence of practice and direct factors underpinning sustainable development.

As of 1 October 2021, the ABS-CH managed by the CBD Secretariat contained 3024 IRCC derived from 23 jurisdictions.<sup>503</sup> Of the listed entries on the ABS-CH, 898 are listed as non-commercial, 966 are listed as commercial, 7 are listed as both, and 1153 have no classification. In addition, 721 drawn predominantly from France (547), Spain (100), and South Korea (35) provide very limited information or are listed as confidential, with the remaining broken down to encompass GR samples relating to plants, animals, fungi, microorganism, soil, water, and TK. However, the ABS-CH provides only a fractional perspective on the ongoing ABS experiences given the extended timeline needed to advance through the bioprospecting, biodiscovery, and commercialisation lifecycle, as well as the existence of pre-Protocol projects.

Despite progress in terms of implementation of the compliance provisions of the Nagoya Protocol, some of the most informative experiences are derived from pre-Protocol access which speaks to both the

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<sup>498</sup> *Ibid*, Consolidated Document on IP and GRs, Article 5.

<sup>499</sup> *Ibid*, Consolidated Document on IP and GRs, Article 6.

<sup>500</sup> *Ibid*, Consolidated Document on IP and GRs, Article 7.

<sup>501</sup> *Ibid*, Consolidated Document on IP and GRs, Article 8.

<sup>502</sup> *Ibid*, Consolidated Document on IP and GRs, Article 11-13.

<sup>503</sup> CBD, "Access and Benefit Sharing Clearing House" online: <<https://absch.cbd.int/search/nationalRecords?schema=absPermit>>.

duration needed to actualise some biobased products and the evolving nature of sustainability outcomes empowered through benefit-sharing. Profiled case studies were selected to provide regional diversity encompassing experiences from Latin America, Africa, and Asia, were drawn from both the CBD and the ITPGRFA to illustrate approaches adopted under each respective regime, have matured results and practices regarding benefit-sharing and operationalisation of conservation and sustainable use principles, illustrate intersections with multiple international instruments, and engage IPLCs. A factual summary is provided followed by an analysis linking results to sustainable development outcomes.

### *Experiences Under the CBD and Nagoya Protocol*

#### *Astrocaryum murumuru (Murumuru) and Carapa guianensis (Andiroba) – Brazil*

Cosmetics giant Natura (now Natura & Co Group along with Avon, The Body Shop, and Aesop), has longstanding experience working to both preserve biodiversity and enable fair and equitable benefit-sharing as a core business priority. Originating prior to the Nagoya Protocol, Natura initiated discussions with the Brazilian government in 2005 to understand the scope of ABS requirements applied to their extractives sector. Following the granting of PIC for Murumuru and Andiroba in 2009, Natura established MAT with three community organisations –the Mixed Cooperative for Sustainable Development and Solidarity Economy of the Medio Jurua Extractive Reserve (CODAEMJ), the Association of farmers from Carauari (ASPROC), and the Association of agroextractive communities of the Uacari Sustainable Development Reserve (AMARU) – and the Chico Mendes Institute for Biodiversity Conservation (ICMBio) in 2011.<sup>504</sup>

Natura in establishing MAT suggested utilisation of guidelines under consideration as a component of the nascent domestic ABS framework. An annual royalty of 0.75% of product revenues was agreed and administered through the Medio Jurua Fund which is managed by an executive secretary and a governing committee with representatives of each community organisation, ICMBio and Natura. The committee regularly solicits proposals from communities in the Medio Jurua region aimed at conservation and sustainable development-related outcomes with past funded projects including: forest conservation including freshwater marine and endangered species, community-level environmental education and capacity building with a particular focus on youth engagement, local infrastructure developments,

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<sup>504</sup> Valerie Normand et al., The contribution of Access and Benefit-Sharing (ABS) to the Sustainable Development Goals Lessons learned and best practices (GeoMedia, UEBT, IBN: April 2021), at 56-57. [Normand et al 2021]

integration of community participation into decision-making, and increasing the overall sustainability and quality of the supply chains of extractive compounds.<sup>505</sup>

Benefit-sharing has continued to increase over Natura's 16 years of experience with ABS amounting to R\$ 789,859 BRL (~ EUR 133,899.42) in 2017 and R\$ 989,946 BRL (~ EUR 167,602.82) in 2018, assisting 485 families over 42 communities.<sup>506</sup> By 2021, R\$ 8.7 million had been provided to Amazon communities through ABS payments, with Natura continuing to prioritize the collaborative expansion of bio-ingredients (38 to 55), broadening of payment schemes with communities (33 to 40), expanding protected ecosystems (1.8m to 3m ha), and contributing total overall payments to communities in excess of R\$ 30 million (~ EUR 5 million) in 2020 with a corporate target of doubling this in the near future in line with the broader Sustainability Vision 2030.<sup>507</sup> A new product under the Ekos line incorporates sustainably sourced Tukumã providing support for 700 families in the sourcing region.<sup>508</sup>

Lastly, Natura engages internationally through the CBD and strategic partnerships such as One Planet Business for Biodiversity to advance sustainable business practices in bio-based sectors.<sup>509</sup> A strategic partnership with the Union for Ethical BioTrade (UEBT) allowed for the development and deployment of monitoring and verification processes obtaining UEBT Natural ingredient certification on 40 sustainably sourced items enhancing traceability and increasing sustainability outcomes across the value chain.<sup>510</sup> The unique relationship between Natura and the communities, which has evolved deeply over the duration of the experience in particular due to the lack of intermediaries, has strengthened decision making, contributed to sustainable development locally, increased local knowledge, and enabled the expansion of value chain opportunities in support of SDGs related to education (SDG 4.4), biodiversity (SDG 15.2, 15.5, 15.9), poverty reduction (SDG 1.1), reduction of inequalities (SDG 10.2) and economic growth (SDG 8.3) with some projects also focusing on gender-specific outcomes (SDG 5.a).<sup>511</sup>

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<sup>505</sup> *Ibid*, Normand et al 2021, at 58.

<sup>506</sup> *Ibid*.

<sup>507</sup> Natura & Co, "Sustainability Vision 2030: Commitment to Life: One Year On" Factsheet (2021), online: <<https://api.mziq.com/mzfilemanager/v2/d/9e61d5ff-4641-4ec3-97a5-3595f938bb75/588b8e90-d026-76fd-eba7-427d2f050b12?origin=2>>; Natura & Co, "Natura & Co gives first annual update on Commitment to Life 2030 Sustainability Vision" Press Release (22 June 2021), online: <<https://api.mziq.com/mzfilemanager/v2/d/9e61d5ff-4641-4ec3-97a5-3595f938bb75/63fc331f-5922-a667-97e3-b8c9b209a411?origin=2>>.

<sup>508</sup> Natura & Co, "Financial Statements 2020" (2020), at 11-12, online: <<https://api.mziq.com/mzfilemanager/v2/d/9e61d5ff-4641-4ec3-97a5-3595f938bb75/44261102-9f19-41ff-a6ad-141002475412?origin=2>>.

<sup>509</sup> Natura & Co, "Annual Report 2020" (2020), at 59, online: <<https://api.mziq.com/mzfilemanager/v2/d/9e61d5ff-4641-4ec3-97a5-3595f938bb75/c1e8af04-3e09-5f1b-f8c8-1e5d1c7eab3b?origin=1>>.

<sup>510</sup> UEBT, "Impact Case Study: Natura's Commitment to Ethical BioTrade" (2016), online: <<https://static1.squarespace.com/static/58bfcaf22994ca36885f063e/t/5d1a1b3ecff76800013e65d2/1561992003982/Natura-impact+study-july+2019.pdf>>.

<sup>511</sup> Normand et al 2021, *supra* note 576, at 60.

The longstanding and direct relationship with IPLCs coupled with the hands-on approach adopted by Natura has resulted in an enduring partnership grounded in shared understandings and mutually supportive outcomes. Illustrative of a deep internalisation, these practices have been applied within and across Natura supply chains leading to enhanced equitable and sustainable sourcing practices throughout the Natura & Co. value chain in line with broader sustainability commitments.

#### Pelargonium sidoides (P. sidoides) – South Africa

Endemic to South Africa and neighbouring Lesotho, and having long-understood medicinal uses for treatment of digestive and urinary tract infections among IPLCs, *P. sidoides* was first introduced as a medical treatment to Europeans in 1897 when Charles Henry Stevens travelled to South Africa in search of a cure for his recently diagnosed tuberculosis.<sup>512</sup> Having met with a traditional healer who produced a tincture using the roots of the *P. sidoides* which cured his ailments, Stevens returned to England disseminating the experience prompting research into medicinal applications at the University of Geneva, and leading to the establishment of ISO- Arzneimittel (later subsumed as a part of the Schwabe Group) for the importation and production of medicinal treatments based on the *P. sidoides* and commercial sale of the treatment under the name Umckaloabo.<sup>513</sup>

Working through an intermediary Parceval since 1995 which procures from local sources and dehydrates the root for export, Schwabe maintains a supply chain for the development of a range of products sold in the EU and US markets predominantly utilising *P. sidoides*.<sup>514</sup> In 2008, following the passage of ABS legislation in South Africa, Perceval and Schwabe building on pre-existing agreements with tribal councils for cultivation and harvesting of *P. sidoides* negotiated PIC and a BSA with a Xhosa community and the King Sandile Developmental Trust for both access to the resource and associated TK.<sup>515</sup> Benefit-sharing terms as agreed with the tribal councils are integrated into the BSA, with an additional premium provided on a per/KG basis for harvesting, and resulting in several million Rand directed to community-focused projects.<sup>516</sup> Through the creation of two organisations dedicated to advancing projects, the Samara and

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<sup>512</sup> African Centre for Biosafety, “Knowledge Not for Sale: Umckaloabo and the Pelargonium elargonium Patent Challenges” Briefing Paper (ACB, 2008), at 3. [ACB 2008]

<sup>513</sup> Adrien Séchehayé, *The Treatment of Pulmonary and Surgical Tuberculosis with Umckaloabo, Internal Medication (Stevens' Cure) Historical, Experimental Research, Clinical Observations, Results* (London: Fraser, 1930), at 2-3; S Bladt & H Wagner, “From the Zulu medicine to the European phytomedicine umckaloabo” (2007) 14:6 *Phytomedicine* 2.

<sup>514</sup> *Ibid*, ACB 2008, at 5; Normand et al 2021, *supra* note 576, at 18.

<sup>515</sup> Roger Chennells, Traditional Knowledge and Benefit Sharing After the Nagoya Protocol: Three Cases from South Africa (2013) 9:2 *Law, Environment and Development Journal*, at 170.[Chennells]

<sup>516</sup> Normand et al 2021, *supra* note 576, at 19.

Umckaloabo Foundations respectively, investments have been made into several SDG-related initiatives including early childhood development centres (SDG 4.1), delivery of capacity building and training workshops (SDG 4), infrastructure developments at local schools (safe drinking water, educational and sport facilities) (SDG 6.2, SDG 4), community cultivation and conservation activities (SDG 15.1, SDG 2.1), alternative livelihood generation in particular for women (SDG 8.5), and large-scale resource assessments to increase understanding on the prevalence and active elements found in *P. sidoides* (SDG 3.3, SDG 17.17) to inform future applications.<sup>517</sup>

In 2007, Schwabe successfully secured a European Patent 1429795 on “Method for Producing Extracts of *Pelargonium Sidoides* and/or *Pelargonium Reniforme*” which utilises an “aqueous ethanolic solvent” (alcohol) for extraction of the active compounds in the plant.<sup>518</sup> This patent was subsequently challenged by other competitors in the pharmaceutical sector (Frutarom Schweiz, Alpinamed, Finzelberg) as well as the African Centre for Biosafety in conjunction with traditional healers from the Alice Community,<sup>519</sup> as the TK which informed the patent was suggested to be more widely held.<sup>520</sup> EP 1429795 was part of a larger patent family held by Schwabe and their subsidiaries relating to *P. sidoides*, with claims related to the treatment of several types of infections, and was subsequently revoked in 2010 for lack of novelty, and existence of prior art.<sup>521</sup>

Experiences in South Africa relating to *P. sidoides*, among other resources such as Rooibos,<sup>522</sup> are illustrative of tensions across international instruments, the evolving perspective of industry to ABS, and the important role intermediaries play in the bioprospecting and commercialisation lifecycle for biobased products. The case of *P. sidoides* is emblematic of the need for the international systems to be compatible as opposed to leaving key gaps in clarity, the role of defensive measures and cooperation across patent systems, and the need to address transboundary or more widely held TK in the context for market mechanisms equitably.

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<sup>517</sup> *Ibid*, Normand et al 2021, at 20-22; Parceval, Samara Foundation, online: <<https://parceval.co.za/corporate-social-responsibility/samara-foundation/>>.

<sup>518</sup> EP 1429795 B1, “Method for Producing Extracts of *Pelargonium Sidoides* and/or *Pelargonium Reniforme*” (13 June 2007). [EP 1429795 B1]

<sup>519</sup> ACB 2008, *supra* note 584, at 9; EP 1429795 B1, “Opposition Filed with the EPO” (NLR1) (10 March 2008).

<sup>520</sup> Chennells, *supra* note 587, at 175-76; J van Niekerk and R Wynberg, “The Trade in *Pelargonium Sidoides*: Rural Livelihood Relief or Bounty for the ‘Bio-bucaneers,’” (2012) 29:4 Development Southern Africa 530.

<sup>521</sup> ACB 2008, *supra* note 584, at 9-10; Margo A. Bagley, “Toward an Effective Indigenous Knowledge Protection Regime: Case Study of South Africa” CIGI Paper 207 (CIGI, 2018) at 10; EP 1429795 B1, “Information on the Status of an EP Patent Application or Granted EP Patent” Patent Revoked (6 August 2010).

<sup>522</sup> D Schroeder, et al., “The Rooibos Benefit Sharing Agreement—Breaking New Ground with Respect, Honesty, Fairness, and Care” (2020) Cambridge Quarterly of Healthcare Ethics, 1–17.

## Litsea cubeba – Malaysia

Found in the highlands of Sarawak on the island of Borneo, the *Litsea cubeba* (locally called “Pahkak” or “Tenem”) extract derived from the fruit and leaves of the small tree native to the area which have anti-microbial and anti-inflammatory properties was discovered as a component of efforts to chronical TK by the Sarawak Biodiversity Centre (SBC).<sup>523</sup> Benefiting from collaborations with the Forest Research Institute Malaysia (FRIM) and the Sabah Biodiversity Centre, the SBC directs engagement with IPLCs to support R&D on use of biological resources and conservation of TK.<sup>524</sup> Through close collaboration over a decade with five IPLCs including the establishment of a benefit-sharing agreement in 2020,<sup>525</sup> registration of geographic indicators and trademarks, development of a stable value chain, and commercial collaboration with Pullman hotels, SBC were able to launch a line of bio-based products under the trade names LitSara and NatureSara.<sup>526</sup>

Grounded in the SBC ordinance and biodiversity regulations, passed in 1997 and 2016 respectively,<sup>527</sup> SBC meets with community leaders to seek PIC, assists in documentation of TK, and gains permission to bring plant specimens back to the lab for analysis, with the ‘equity of access stressed as a unique factor underpinning the products.<sup>528</sup> Communities are directly involved in conservation and sustainable use practices, including through the preservation of the natural habitat and development and adoption of Good Wild Craft Practices.<sup>529</sup> Distilled oil is purchased directly from the communities and a share of proceeds is channelled to a community-managed fund, as well as non-monetary benefits including capacity building, training on sustainable harvesting practices, and in collaboration with GEF/UNDP construction of distillation facilities to enable the delivery of a designated amount of oil annually.<sup>530</sup>

Throughout the evolution of the project, from documentation of TK, biodiscovery, R&D, and eventual commercialisation of community-informed natural personal care products including the establishment of

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<sup>523</sup> Normand et al 2021, *supra* note 576, at 34.

<sup>524</sup> UNDP Ecosystems & Biodiversity, “Our Solutions are in Nature: Safeguarding traditional knowledge and biodiversity for improved health and hygiene, finding symbiotic solutions to environmental, social, and economic challenges” (UNDP, 18 May 2020), online: <<https://undp-biodiversity.exposure.co/our-solutions-are-in-nature>>.

<sup>525</sup> Litsara, “SBC seals country’s first Benefit Sharing Agreement (BSA) with Five Indigenous Communities” (2 July 2020), online: <[www.litsara.com/index.php/news/latest-news/10-sbc-seals-country-s-first-benefit-sharing-agreement-bsa-with-five-indigenous-communities](http://www.litsara.com/index.php/news/latest-news/10-sbc-seals-country-s-first-benefit-sharing-agreement-bsa-with-five-indigenous-communities)>.

<sup>526</sup> Normand et al 2021, *supra* note 576, at 35; Litsara, “About Litsara” online: <[www.litsara.com/index.php/about-litsara/the-story-of-litsara](http://www.litsara.com/index.php/about-litsara/the-story-of-litsara)>.

<sup>527</sup> Malaysia, Sarawak Biodiversity Centre Ordinance (1997 as amended 30 September 2015), online: <<https://www.sbc.org.my/research-regulations-permit/ordinance-and-regulations/409-sarawak-biodiversity-regulations-2016/file>>; Malaysia, Sarawak Biodiversity Regulations (2016) (30 December 2016), online: <[www.sbc.org.my/research-regulations-permit/ordinance-and-regulations/409-sarawak-biodiversity-regulations-2016/file](http://www.sbc.org.my/research-regulations-permit/ordinance-and-regulations/409-sarawak-biodiversity-regulations-2016/file)>.

<sup>528</sup> Litsara, “Prior Informed Consent” online: <[www.litsara.com/index.php/about-litsara/prior-informed-consent-pic](http://www.litsara.com/index.php/about-litsara/prior-informed-consent-pic)>.

<sup>529</sup> UNDP, “The LITSARA Story - Innovating Ancestral Knowledge” (22 May 2017), online: <[www.my.undp.org/content/malaysia/en/home/ourwork/environmentandenergy/successstories/the-litsara-story-innovating-ancestral-knowledge.html](http://www.my.undp.org/content/malaysia/en/home/ourwork/environmentandenergy/successstories/the-litsara-story-innovating-ancestral-knowledge.html)>.

<sup>530</sup> Normand et al 2021, *supra* note 576, at 36.

IP rights to protect the unique chemical characteristics of the plant species, LitSara has supported alternative livelihoods and poverty eradication (SDG 1.4), gender empowerment (SDG 5.5), and decent work through recognition of the value of TK and biodiversity conservation activities (SDG 8.3, and SD 15.2, 15.5, and 15.9).<sup>531</sup> In addition, through the development of a sustainable value chain (SDG 12.2) and partnership-driven innovation with both the communities and intergovernmental organisations such as UNEP, UNDP (SDG 17.6, 17.9),<sup>532</sup> LitSara provides an illustration of collaborative product development grounded in equitable utilisation of TK, leveraging IP rights for recognition of the unique properties of the biological resource, and development of infrastructure and capacity within the involved communities to actualise sustainable development which respects local priorities and traditions.

#### Eragrostis tef (Teff) –Ethiopia

Experiences with *teff*, a traditional grain found in Ethiopia, highlight the difficulties in effective operationalisation of the Nagoya Protocol and key the tensions across international legal regimes. Through a Memorandum of Understanding (MoU) established 26 March 2003 among the Ethiopian Agricultural Research Organization (EARO), Larenstein University through the subsidiary Larenstein Transfer, and Soil & Crop Improvement (S&C) of the Netherlands, S&C gained the rights to registration and use of Ethiopian plant cultivars globally with agreed royalty payments, co-ownership of newly developed plant varieties, agreed to conduct R&D both in Ethiopia and the Netherlands relating to breeding and product development, and agreed on the creation of a fund with contributions by S&C to support agricultural development in Ethiopia.<sup>533</sup> Benefits included the aforementioned royalty for use of the identified varieties calculated at EUR 10 per hectare sowed, shared IP rights through plant variety protection, a royalty of EUR 5 per hectare sowed of the co-owned varieties, and an annual donation by S&C to the fund (the greater of EUR 20,000 or 5% of net profits).<sup>534</sup>

A patent was filed in the Netherlands for the “Processing of Teff Flour” in July 2003,<sup>535</sup> a fact which prompted articles published in mainstream Dutch magazines, and initiated a series of diplomatic communiques and meetings among Ethiopian and Dutch officials seeking to clarify the terms of MoU and the related patent and proposing a renegotiation.<sup>536</sup> As a result of perceived tensions around the legitimacy

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<sup>531</sup> *Ibid*, Normand et al 2021, at 38; LitSara, “SBC- United Nations Development Programme (UNDP)- Ministry of Water, Land and Resources (KATS) Access & Benefit Sharing (ABS) Project” online: <[www.litsara.com/index.php/about-litsara/access-benefit-sharing-project](http://www.litsara.com/index.php/about-litsara/access-benefit-sharing-project)>.

<sup>532</sup> *Ibid*.

<sup>533</sup> Regine Andersen & Tone Winge, “The Access and Benefit-Sharing Agreement on Teff Genetic Resources” FNI Report 6/2012 (2012) at 35-36. [Andersen & Winge]

<sup>534</sup> *Ibid*, Andersen & Winge, 37-38.

<sup>535</sup> Patent WO2005025319 A1, “Processing of teff flour” PCT/NL2004/000524 (22 July 2004).

<sup>536</sup> Andersen & Winge, *supra* note 605, 31-32, 40-46.

of the patent filing the ETC Group – a research and environment NGO – investigated the situation leading to S&C being awarded the “Captain Hook Award for Biopiracy” by environmental advocacy organisation Coalition Against Biopiracy for the falsely claiming IP ownership over production of teff and teff flour.<sup>537</sup> Beginning in 2004 negotiations were initiated between Ethiopian officials (EARO and the Institute of Biodiversity Conservation, now named the Ethiopian Biodiversity Institute (EBI)) and S&C, shifting in 2005 to Health and Performance Food International (HPFI), a new company founded by key S&C leadership and shareholders, leading to the signing of an ABS agreement 5 April 2005.<sup>538</sup> Relevant elements included a prohibition on claiming IP rights over teff GRs or any components, limitations on teff-related product development, restrictions on access to TK and a requirement of written permission for the claiming of IP rights or commercial benefit over TK, and benefit-sharing amounts and scope further clarified.<sup>539</sup>

On 19 April 2006, HPFI was granted European Patent 1,646,287,<sup>540</sup> which was transferred in 2008 to Prograin International BV/Ecosem – a new entity made up of key figures in HPFI – prior to both HPFI and S&C in August 2009 entering insolvency in the Netherlands.<sup>541</sup> The EU patent for “Processing of Teff Flour,” which integrates specific elements derived from TK relating to desired flour texture, mixture, and curing procedures,<sup>542</sup> was subsequently challenged unsuccessfully in 2010 with the court concluding the invention satisfied the disclosure requirements.<sup>543</sup>

These case studies demonstrate the functionality of the market mechanism of ABS exemplifying conditions that benefit successful experiences – engaged and committed private actors, prioritisation of ABS as a business mission, informed intermediaries, and facilitative capacity building with IPLCs – as well as failures – lack of alignment with intellectual property regimes and limited ABS capacity for enforcement. Overall, these cases highlight that ABS can bring about sustainable development benefits when the appropriate conditions are in place.

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<sup>537</sup> Coalition Against Biopiracy, “The Captain Hook Awards–2004” (2004), online:

<<http://www.etcgroup.org/sites/www.etcgroup.org/files/publication/590/01/captnhook2004.pdf>>; Andersen & Winge, *supra* note 605 at 45.

<sup>538</sup> *Ibid*, Andersen & Winge, at 57-60, Annex 3; Agreement on Access to, and Benefit Sharing from, Teff Genetic Resources (5 April 2005).

<sup>539</sup> *Ibid*, Andersen & Winge, at 60-64, Annex 3.

<sup>540</sup> EP 1646287 (A1/B1) “Processing of Teff Flour” PCT/NL2004/000524 (19 April 2006). [EP 1646287]

<sup>541</sup> Andersen & Winge, *supra* note 605, at 67-70, 114-116, 125.

<sup>542</sup> EP 1646287, *supra* note 546, at Claims 2, 11,13.

<sup>543</sup> Andersen & Winge, *supra* note 605, at 130-134.

## *Experiences from ITPGRFA Benefit-Sharing Fund*

Through the Benefit-Sharing Fund (BSF) under ITPGRFA, now in their fourth project cycle, over USD 26 million have been invested in 80 carefully selected projects across 67 developing and emerging economies.<sup>544</sup> Benefits accrued through the MLS are administered through the BSF and aimed at supporting vulnerable local and indigenous farmers to respond to the impacts of climate change, with the BSF progressively expanding in scale from BFS-1 (2009-2012): 11 projects with USD 543,004 disbursed; BFS-2 (2012-2016): 19 Projects with USD 5,497,723 disbursed,<sup>545</sup> BFS-3 (2015-2020): 22 projects with USD 9,778,864 disbursed, with projects.<sup>546</sup> Of the funds collected by the BSF, based on the report to the eighth session of the Governing Body in 2019, USD 157,002 (0.54%) was provided by MLS user-based contributions, with voluntary contributions from Parties USD 25,493,904 (87.56%), private sector (seeds) USD 801,049 (2.75%), international mechanisms/funds USD 1,500,000 (5.15%), and innovative approaches USD 1,162,851 accounting for the majority share.<sup>547</sup>

Project selection begins with approval by the Bureau of the International Treaty of proposed scope and focus on the cycle, with proposals appraised and ranked by a panel of experts, and final approval granted again by the Bureau.<sup>548</sup> Primary grant recipients work in collaboration with National Focal Points, key stakeholders, and sub-national authorities to execute the project, with regular reporting provided to demonstrate the progression on project-related targets.<sup>549</sup>

Over the evolution of the BSF a central focus has been sustainable development-related outcomes in line with the goals of the International Treaty. Early project alignment focused on the achievement of the Millennium Development Goals (MDGs) related to poverty and environmental sustainability, transitioning to the SDGs more recently with a focus zero hunger (SDG 2), sustainable consumption and production (SDG 12), climate (SDG 13), and SDG 15 (biodiversity). Growing out of recommendations from the independent evaluation of BSF-2, reporting for BSF-3 cycle included indicators that reinforced the sustainable development outcomes including: 65,842 engaged in training and capacity building; 89,639 farmers directly

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<sup>544</sup> ITPGRFA, "Draft Report of the First Phase of the Independent Evaluation of the Third Project Cycle of the Benefit-Sharing Fund" 3rd Meeting of the Standing Committee on the Funding Strategy and Resource Mobilization (February 2021), IT/GB-9/SFC-3/21/Inf.3, at 13., online: <[www.fao.org/3/cb3418en/cb3418en.pdf](http://www.fao.org/3/cb3418en/cb3418en.pdf)>. [Evaluation of BSF-3]

<sup>545</sup> ITPGRFA, "Implementation of the first and second rounds of the project cycle" (2012), IT/ACFS-7/12/Inf.1, online: <[www.fao.org/3/a-be512e.pdf](http://www.fao.org/3/a-be512e.pdf)>; FAO, "Evaluation of the Benefit-sharing Fund second project cycle International Treaty on Plant Genetic Resources for Food and Agriculture" Office of Evaluation (September 2017), at 12, online: <[www.fao.org/3/bd706e/bd706e.pdf](http://www.fao.org/3/bd706e/bd706e.pdf)>. [Evaluation of BSF-2]

<sup>546</sup> Evaluation of BSF-3, *supra* note 550, at 16.

<sup>547</sup> ITPGRFA, "The Benefit-sharing Fund: 2018-2019 Report" 8th Session of the Governing Body, IT/GB-8/19/9.1/Inf.1 Rev.1, Annex II, online: <[www.fao.org/3/na914en/na914en.pdf](http://www.fao.org/3/na914en/na914en.pdf)>.

<sup>548</sup> FAO/ITPGRFA, "Benefit-sharing Fund of the International Treaty: Equity and food for all" Workshop presentation, Addis Ababa (30 Oct – 1 Nov 2018), online <[www.fao.org/3/ca6867en/ca6867en.pdf](http://www.fao.org/3/ca6867en/ca6867en.pdf)>.

<sup>549</sup> ITPGRFA, Fourth Session of the Governing Body: Resolution 3/2011: Implementation of the Funding Strategy of the Treaty (2011), IT/GB-4/11/Report, online: <[www.fao.org/3/be460e/be460e.pdf](http://www.fao.org/3/be460e/be460e.pdf)>.

and 317,505 indirectly were reached, 38% and 30% were women respectively; 7000 new samples made available on the MLS, and 79 community seed banks established.<sup>550</sup>

#### Parque de la Papa (“Potato Park”) – Peru

A central focus of the projects funded through the various cycles of the BSF is to ensure they provide sustainable development outcomes. Supported through BSF-1 the project for Conservation and Sustainable Use of Native Potato Diversity in the Parque de la Papa (“Potato Park”) in Cusco, Peru, provides a unique example. Established in 1998 by a local Indigenous NGO (Asociación ANDES) and six Quechua communities as a “Agrobiodiversity Conservation Area,” the Potato Park provides a framework for conservation and sustainable utilisation of GRs and TK.<sup>551</sup> Following the 2004 agreement with the Potato Park and the International Potato Centre (CIP), an Inter-Community Agreement was established to codify customary practices grounded in traditional governance structures, provide a mechanism for equitable sharing of benefits, and to mitigate disputes between communities.<sup>552</sup>

Funding provided through BSF-1 supported the survey and conservation of 1345 varieties in the Potato Park with 779 accessions locally collected, 157 received through exchanges, and 410 repatriated traditional varieties acquired from CIP which had been previously lost.<sup>553</sup> Beyond conservation and reintegration of genetic diversity the initiative enhanced food security and climate adaptation, allowed for the deposit of the collection of seeds from the Potato Park in the Svalbard Global Seed vault, supported collection and preservation of related TK and cultural practices, enabled knowledge transfer and capacity building, and contributed to the development of 11 biocultural products derived from 61 of the reintroduced strains.<sup>554</sup> The Association of Communities of the Potato Park provide administration of the park, created a local register of biodiversity and TK, manage ecotourism activities, and coordinate the onsite museum and traditional restaurant.<sup>555</sup> Both benefits shared through the Inter-Community Agreement and increasing income from eco-tourism activities have enabled conservation-focused development and provided alternative income streams.

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<sup>550</sup> Evaluation of BSF-3, *supra* note 550, at 14, 31-32, 44.

<sup>551</sup> Alejandro Argumedo et al., “Community Biocultural Protocols: Building Mechanisms for Access and Benefit Sharing among the Communities of the Potato Park based on Customary Quechua Norms” (October 2011, IIED), 2-3, online: <<https://pubs.iied.org/sites/default/files/pdfs/migrate/G03168.pdf>>. [A Argumedo et al]

<sup>552</sup> *Ibid*, A Argumedo et al., 1, 7-11.

<sup>553</sup> Tammy Stenner et al., “Potato Park-International Potato Center-ANDES Agreement Climate Change Social Learning (CCSL) case study on the repatriation of native potatoes” (November 2016, IIED), online: <[http://andes.center/wp-content/uploads/2019/11/Solving-%E2%80%98wicked%E2%80%99-problems\\_-a-compendium-of-case-studies.pdf](http://andes.center/wp-content/uploads/2019/11/Solving-%E2%80%98wicked%E2%80%99-problems_-a-compendium-of-case-studies.pdf)> [Tammy Stenner et al]; ITPGRFA, “Factsheet: Peruvian ‘guardians’ lead Potato Park to a secure future” online: <[www.fao.org/3/bb139e/bb139e.pdf](http://www.fao.org/3/bb139e/bb139e.pdf)>.

<sup>554</sup> *Ibid*, Tammy Stenner et al., 128-129.

<sup>555</sup> Manuel Ruiz Muller, “Agrobiodiversity zones and the register of native crops in Peru: Learning from ourselves” (Sociedad Peruana de Derecho Ambiental/Biodiversity International, 2009), at 25-27, online: <[https://repositorio.spda.org.pe/bitstream/20.500.12823/114/1/agrobiodiversity\\_zones\\_english\\_2009.pdf](https://repositorio.spda.org.pe/bitstream/20.500.12823/114/1/agrobiodiversity_zones_english_2009.pdf)>.

BSF-3 aligns evaluation with key SDGs, international agreements, and national policy priorities on food security, climate change and biodiversity further embedding sustainable development outcomes as a central aspect of operationalisation of the MLS and the BSF with the Potato Park a prime example.<sup>556</sup>

### *Experiences from Regional Fisheries*

#### Nauru Agreement and the Palau Arrangement – Pacific Islands

Regional Fisheries in western Pacific are heavily influenced by the *Nauru Agreement Concerning Cooperation in the Management of Fisheries of Common Interest* (Nauru Agreement), which provides for sub-regional coordination, harmonised governance, and sustainable management of tuna purse seine fisheries among the eight Pacific Island Parties.<sup>557</sup> Collectively, the exclusive economic zone (EEZ) of the PNA provides for control of a quarter of global tuna supply.<sup>558</sup>

Through the Nauru Agreement, the Parties agreed to establish fisheries zones, principles for the prioritisation and granting of applications for fishing vessels (both foreign and domestic), standardised licensing procedures, and uniform minimum terms and conditions for the licensing of foreign vessels including payment of a fee, standardised logs, full catch transparency, and inclusion of an observer on foreign vessels.<sup>559</sup> The South Pacific Forum Fisheries Agency supported implementation of the Agreement through provision of statistical catch information and Secretariat services.<sup>560</sup> Cooperative monitoring, surveillance, and reciprocal enforcement is affirmed, with the Parties agreeing to conclude terms where necessary to attain the objectives of the Agreement.<sup>561</sup>

Furthering regional cooperation and coordination of fisheries policies, in 1992 the *Palau Arrangement for the Management of the Western Pacific Purse Seine Fishery* was agreed.<sup>562</sup> Intended to advance effective operationalisation of the implementation agreements under the Nauru Agreement, the Palau Arrangement provided a framework for regulation of purse seine vessels, criteria for allocation of licenses (including the aim to reduce license numbers), consultative dispute settlement, and procedures for annual management meetings and ongoing working groups for consideration and integration of evolving scientific data,

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<sup>556</sup> Evaluation of BSF-3, *supra* note 550, at 22-23.

<sup>557</sup> Nauru Agreement, *supra* note 82; Parties to the Nauru Agreement (PNA) include: Federated States of Micronesia, Kiribati, the Marshall Islands, Nauru, Palau, Papua New Guinea, Solomon Islands and Tuvalu.

<sup>558</sup> WWF, “Parties to the Nauru Agreement (PNA)” Offshore Fisheries Factsheet (2011), online: <[http://awsassets.panda.org/downloads/factsheet\\_7.pdf](http://awsassets.panda.org/downloads/factsheet_7.pdf)>.

<sup>559</sup> Nauru Agreement, *supra* note 82, Article I-III.

<sup>560</sup> *Ibid*, Nauru Agreement, Article IV-V.

<sup>561</sup> *Ibid*, Nauru Agreement, Article VI-VII, IX.

<sup>562</sup> Palau Arrangement 1995, *supra* note 82.

management measures, and enforcement approaches.<sup>563</sup> With the license allocations done by Flag State in an attempt to accommodate existing bilateral agreements and an emphasis on revenues received through fees, over time complaints that foreign vessels were given priority over domestic vessels in allocation mounted, and the Parties proved unable to reduce foreign numbers even while domestic vessel numbers increased.<sup>564</sup> Recognising the economic importance of fisheries in the region despite institutional weaknesses, a Vessel Day Scheme (VDS) was adopted in 2005 by the PNA through the Western and Central Pacific Fisheries Commission (WCPFC) as a result of findings by the Scientific Committee to sustainably manage Bigeye and Yellowfin tuna populations.<sup>565</sup>

In 2010, the Palau Arrangement was amended by the PNA to enhance the functions of the annual Management Meetings among the Parties, to include consideration of implementation and operationalisation of Management Schemes, the establishment of closed seasons, refinement of observer, inspection, and surveillance programs, budget approval, referral of matters to the Special Working Group, and determination of levels of contributions of the Parties.<sup>566</sup> In addition, the PNA office was created in Majuro, Marshall Islands to provide Secretariat functions, evaluate information submitted by Parties, and coordinate management of the fisheries measures in place.<sup>567</sup> While the Palau Arrangement was further amended in 2015 and 2017, the baseline year of 2010 is used to calculate Total Allowable Effort (TAE) going forward and allocated to Party jurisdiction based on the outcome of PNA negotiations.<sup>568</sup> Under the VDS, the TAE is calculated in days, which are subsequently purchased and traded on the open market creating scarcity and increasing their respective value.<sup>569</sup> The TAE for 2018-2020 was 44,033 for the PNA, with an additional 972 specifically for Tokelau who voluntarily participates within the VDS.<sup>570</sup>

Whereas under the previous scheme there existed an abundance of days and a limited number of vessels, the VDS empowered Parties through their unified front and core principles of operation which include restrictions on drawing from future periods, and carrying over days.<sup>571</sup> As a result, the pre-VDS daily rate

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<sup>563</sup> *Ibid*, Palau Arrangement 1995, Article 2-3, 5-8, 10.

<sup>564</sup> *Ibid*, Palau Arrangement 1995, Annex 1; Transform Aqorau, "Fishing for Success: Lessons in Pacific Regionalism" (The Australian National University, Department of Pacific Affairs: 2019) at 78. [Aqorau]

<sup>565</sup> Western and Central Pacific Fisheries Commission, *Conservation and Management Measure-2012-01: Conservation and Management Measures for Bigeye and Yellowfin Tuna in the Western and Central Pacific Ocean*, Conservation and Management Measure 2012-01 (6 December 2012); Western and Central Pacific Fisheries Commission, Resolution on Conservation and Management Measures, Conservation and Management Measure-2004-04 (10 December 2004).

<sup>566</sup> Palau Arrangement 1995, *supra* note 82, as amended by the PNA (11 September 2010), Article 3.

<sup>567</sup> *Ibid*, Palau Arrangement amended 2011, Article 3.4, 7.

<sup>568</sup> Aqorau, *supra* note 636, at 86-87.

<sup>569</sup> *Ibid*, Aqorau at 86-87.

<sup>570</sup> Parties to the Palau Arrangement, "Purse Seine VDS TAE for 2018-2020" (7 April 2017) PA22/WP.4; VDS-T&SC6/WP.1, online: <[https://www.pnatuna.com/sites/default/files/Purse%20Seine%20VDS%20TAE%20for%202018-2020\\_0.pdf](https://www.pnatuna.com/sites/default/files/Purse%20Seine%20VDS%20TAE%20for%202018-2020_0.pdf)>.

<sup>571</sup> Aqorau, *supra* note 636, at 93.

of US\$ 1,000-1,100 was far eclipsed by the minimum agreed rate of US\$ 8,000 or the average modern VDS commercial price as high as US\$ 14,000, and trading rarely below US\$ 10,500 per day.<sup>572</sup> Through the broad engagement of the Parties, harmonisation of governance measures, enhanced institutional and capacity building, and the cooperative approach across a contiguous group of jurisdictions, a unified front was developed to an issue of collective interest. More importantly, fisheries governance in the region was able to evolve to be properly valued within the market. The VDS provides for optimal and sustainable utilisation in support of SDG 14.4 (regulating harvest and IUU fishing), while increasing the overall income received by each respective jurisdiction furthering SDG 14.7 (increasing income to small islands).

Collectively, experiences derived from regional fisheries in the Pacific provide an informative example of a functional market mechanism, assists in the identification of operational modalities which allow for adoption across all levels of capacity, and offer insights into critical pillars underpinning the market logic and supporting long term adoption by private actors despite broader SDG benefits being limited.

## Concluding Thoughts: Legal Architecture of Market Mechanisms in Biodiversity

International law plays a key role in fostering conservation and sustainable use of biodiversity. However, lack of cohesion across instruments, in particular with regard to the IP regime, continues to undermine critical aspects of ABS and leaves avenues open for misappropriation.

Private actors operating in the bio-based product sector are looking for legal certainty to mobilise investment, reduce risk, and ensure innovations are able to traverse the product development life cycle and enter the market. Passage of the CBD and the Nagoya Protocol marked a bargain between developed and developing economies integrating a market logic whereby the former would support a regime grounded in sustainable use and fair and equitable benefit-sharing while the latter would protect domestic biodiversity resources and enable access based on clear and transparent procedures.<sup>573</sup> While the uncertainty for private actors created by myriad access systems at the domestic level was clarified through the standardisation offered by the Protocol both systemically and through use of model contractual clauses,<sup>574</sup> gaps across regimes –relating to disclosure of origin for both GRs and TK – coupled with the

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<sup>572</sup> *Ibid*, Aqorau at 95-97.

<sup>573</sup> Glowka & Normand, *supra* note 500 at 24; Brendan Coolsaet et al., “The Challenges for Implementing the Nagoya Protocol in a Multi-Level Governance Context: Lessons from the Belgian Case” (2013) 2:4 Resources, online: <<https://doi.org/10.3390/resources2040555>>.

<sup>574</sup> *Ibid*, Glowka & Normand, at 29-30.

advancement of technologies such as synthetic biology work to inhibit the full operationalisation of the market logic inherent in the market mechanisms under the biodiversity-related regimes.<sup>575</sup>

Parties to the CBD have worked steadily to address perceived shortcomings in the global ABS framework, including passage of the Tkarihwaí:ri Code of Ethical Conduct to encourage development of model codes of conduct for access and utilisation of TK,<sup>576</sup> development of a multi-year program of work to advance implementation of Article 8(j),<sup>577</sup> creation of a Technical Experts Group on digital sequence information and synthetic biology,<sup>578</sup> identification of the need for a multilateral benefit-sharing mechanism for cases of transboundary GRs and TK,<sup>579</sup> adoption of the Rutzolijirisaxik Voluntary Guidelines for the Repatriation of TK,<sup>580</sup> and periodic review of the effectiveness of the Protocol.<sup>581</sup> The Mo'otz Kuxtal voluntary guidelines adopted at COP 13 were identified as an existing tool to facilitate equitable access while negotiations in WIPO remain ongoing.<sup>582</sup> Despite continued adoption of voluntary measures the need for agreement on an international interment(s) encompassing the interface of GRs, TK and IP rights remains a significant gap, and continues to inhibit the potential of ABS.

Continued evolution of technology related to synthetic biology raises considerable concerns around the potential for the Protocol to address ongoing R&D activities. Swiss biotechnology firm Evolva SA, holder of several patents relating to synthetic biology processes and outcomes, offers an informative example. Leveraging a yeast genetically engineered to have metabolic pathways and act as a recombinant host to produce specific materials, Evolva SA has patented among others the process for biosynthesis of vanillin beta-D-glucoside,<sup>583</sup> and steviol glycosides,<sup>584</sup> for manufacture of synthetically produced yet chemically identical vanilla and stevia. Stevia was commercially developed by Evolva and Cargill and sold under the trade name EverSweet for use in among other things beverages including Coca Cola and Pepsi Green

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<sup>575</sup> Molly Bond & Deborah Scott, "Digital biopiracy and the (dis)assembling of the Nagoya Protocol" (2020) 117 *Geoforum*, 24-32; Margo Bagley & Arti Rai, "The Nagoya Protocol and Synthetic Biology Research: A Look at the Potential Impacts" (November 2013) 6 *SYNBIO*, online: <[https://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=5916&context=faculty\\_scholarship](https://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=5916&context=faculty_scholarship)>.

<sup>576</sup> CBD Decision X/42: The Tkarihwaí:ri Code of Ethical Conduct to Ensure Respect for the Cultural and Intellectual Heritage of Indigenous and Local Communities (20 January 2011) UN Doc UNEP/CBD/COP/10/27.

<sup>577</sup> CBD Decision X/43: Multi-Year Programme of Work on the Implementation of Article 8(j) and Related Provisions of the Convention on Biological Diversity (20 January 2011) UN Doc UNEP/CBD/COP/10/27.

<sup>578</sup> CBD Decision XIII/16: Digital sequence information on genetic resources (16 December 2016) CBD/COP/DEC/XIII/16; CBD Decision XIII/17: Synthetic biology (16 December 2016) CBD/COP/DEC/XIII/17.

<sup>579</sup> CBD Decision NP-2/10: The need for and modalities of a global multilateral benefit-sharing mechanism (Article 10) (17 December 2016) CBD/NP/MOP/DEC/2/10; CBD Decision NP-3/13: Global multilateral benefit-sharing mechanism (Article 10) (30 November 2018), CBD/NP/MOP/DEC/3/13.

<sup>580</sup> CBD Decision XIV/12: The Rutzolijirisaxik Voluntary Guidelines for the Repatriation of Traditional Knowledge Relevant for the Conservation and Sustainable Use of Biological Diversity (30 November 2018), CBD/COP/DEC/14/12.

<sup>581</sup> CBD Decision NP-3/1: Assessment and review of the effectiveness of the Protocol (30 November 2018), CBD/NP/MOP/DEC/3/1. [Decision NP-3/1]

<sup>582</sup> CBD, Decision XIII/18: Mo'otz Kuxtal voluntary guidelines (17 December 2016), CBD/COP/DEC/XIII/18; *Ibid*, Decision NP-3/1, para 25-26.

<sup>583</sup> Patent WO/2013/022881, "Compositions and methods for the biosynthesis of vanillin or vanillin beta-d-glucoside" PCT/US2012/049842 (14 February 2013).

<sup>584</sup> Patent WO/2016/023844, "Production of steviol glycoside in recombinant hosts" PCT/EP2015/068314 (18 February 2016).

without prior informed consent or equitable sharing of benefits with the Guarni people who traditionally grew and utilised the leaves as a sweetener.<sup>585</sup> Following the publication and dissemination of initial findings by the Berne Declaration (now “Public Eye”), coupled with advancements at the domestic level both in Brazil as well as the EU, discussions began relating to establishment of a benefit-sharing agreement for use of the TK.<sup>586</sup> Despite drawing significant international attention to the case at CBD COP 13 in conjunction with Natural Justice and the ABS Capacity Development Initiative,<sup>587</sup> Evolva continues to utilise their respective IP to legally generate stevia (among other flavours and scents) at a commercial scale without engagement in benefit-sharing. The rapidly evolving nature of biotechnology as illustrated by the Evolva patent portfolio utilising metabolic pathways, with the first filing occurring in 2009 (a year before passage of the Protocol) and subsequently granted in 2013 (a year prior to entry into force),<sup>588</sup> highlights the difficulty of establishing a consensus-based international instrument to provide equitable guardrails on bio-based innovation.

Using market logic to achieve environmental outcomes, ABS provides incentives for both protection and restoration of ecosystems through in effect a conserve to equitability utilize framework analogous to payment for ecosystem services, and ensuring the goods and services provided by biodiversity can be maintained. Concurrently, the research community is incentivised to conduct bioprospecting and biodiscovery having the legal certainty needed to underpin the investment grounded in the ability to secure utilization rights through establishment of fair and equitable benefit sharing terms with the holders in the country of origin.

Lack of alignment within the international system, both substantively and in relation to the commercial reality of technology, coupled with a limited uptake of IRCC through the ABS-CH creates inhibiting factors which undermine ABS internalisation among private actors and the market logic of the mechanism. While ABS has been a longstanding element of the international system, experiences have taken considerable time to actualise and provide lessons learned which could galvanise uptake across biobased sectors. The legal architecture of market mechanisms relating to biodiversity is illustrative of the need for substantive

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<sup>585</sup> Francois Meienberg et al., “The Bitter Sweet Taste of Stevia: Commercialisation of Stevia-derived sweeteners by violating the rights of indigenous peoples, misleading marketing and controversial SynBio production” (Berne Declaration, CEIRAD, Misereor, Pro Stevia Switzerland, SUNU, University of Hohenheim) (November 2015), online: <[www.publiceye.ch/fileadmin/doc/\\_migration/Biodiversitaet/BD\\_STEVIA\\_REPORT\\_EN.pdf](http://www.publiceye.ch/fileadmin/doc/_migration/Biodiversitaet/BD_STEVIA_REPORT_EN.pdf)>.

<sup>586</sup> Laurent Gaberell et al., “The Bitter Sweet Taste of Stevia: Follow up Report” (Public Eye, CEIDRA, Misereor, Pro Stevia Switzerland, SUNU, University of Hohenheim, France Libertés) (November 2016), online: <<https://s3.amazonaws.com/s3.sumofus.org/images/stevia-report-nov-2016.pdf>>.

<sup>587</sup> CBD, “Diverging ABS laws in North and South – what are the consequences?” COP 13 / CP-COP-MOP 8 / NP-COP-MOP 2, Official Side Event No. 2060 (14 December 2016), online: <[www.cbd.int/side-events/2060](http://www.cbd.int/side-events/2060)>.

<sup>588</sup> Patent WO/2009/124879, “Production of Stilbenoids” PCT/EP2009/053974 (15 October 2009); Patent WO/2009/124967, “Recovery of Stilbenoids” PCT/EP2009/054219 (15 October 2009); US Patent 12936830 (granted 29 October 2013).

legal alignment across regimes, a temporal scope that does not leave large classes of resources outside the international system, and a governance scope which is ahead of the technological reality. Until legal certainty can be provided across all aspects of the regime, private actors can continue to exploit gaps undermining ABS potential.

## Chapter 5 | Market Mechanisms and the Intersections with Sectoral Approaches

### Introduction

This chapter explores market mechanisms under international law and intersections with sectoral approaches, arguing that their mutual supportive interaction can buttress related international instruments to nurture the actualisation of the obligations under these related regimes, or hold the potential to undermine them. Three key sectors that leverage market logic (either through direct engagement with a market mechanism, or through their influence) are considered: international transport (civil aviation and maritime transport), climate finance, and nature-based solutions. First, market measures adopted under the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) are outlined, followed by a discussion of mutually supportive initiatives and innovative applications. Second, measures in the financial sector are surveyed to highlight advancements made by the Task Force on Climate-related Financial Disclosures (TCFD) and the International Sustainability Standards Board (ISSB) as important steppingstones to the mobilisation of finance to flow through market mechanisms. Third, legal intersections with nature-based solutions are discussed in the context of biodiversity conservation and climate responses, exploring areas of convergence and divergence with the international system to enable them to be deployed as climate-conscious development solutions. The analysis provided illustrates the degree of congruence of practice found in each sector and the role of interaction across regimes advancing synergies of practice directly through market mechanisms or through their facilitation.

### Sectoral Spotlight: International Aviation and Maritime Transport

Sectoral approaches play an important role in advancing climate ambition and biodiversity conservation efforts. Key among them are international aviation and maritime transport given their environmental impact and projections for future growth. The Paris Agreement calls for greater international cooperation across all institutional levels to advance climate ambition,<sup>589</sup> and recognises in the *Preamble* the importance of establishing sustainable consumption patterns.<sup>590</sup> This section explores approaches legal and policy approaches adopted at the ICAO and the IMO identifying the role played by market mechanisms, mutually supportive measures, and innovative solutions that advance sustainable development outcomes in each of

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<sup>589</sup> UNFCCC, Decision 1/CP.21: Adoption of the Paris Agreement, Report of the Conference of the Parties on its twenty-first session, held in Paris from 30 November to 13 December 2015 (29 January 2016) CP.21, FCCC/CP/2015/L.9, *Preamble* of the decision.

<sup>590</sup> Paris Agreement, *supra* note 78.

the respective regimes. With both ICAO and IMO recognised as UN specialised agencies,<sup>591</sup> the Glasgow Climate Pact from COP 26 calls for action to unlock sectoral potential, particularly in emission-intensive sectors, to contribute to climate action.<sup>592</sup>

Emissions from fuel combustion represent a significant portion of the overall emissions picture, both internationally and domestically, with many jurisdictions predicted to continue increasing.<sup>593</sup> Based on data from 2018, global combustion-based emissions accounted for 33,513 million tonnes of CO<sub>2</sub> (MtCO<sub>2</sub>), with bunker fuel from international aviation and maritime transport contributing 604 MtCO<sub>2</sub> and 708 MtCO<sub>2</sub> respectively, an increase of 79.6% and 62.5% respectively since 1990.<sup>594</sup> Given the scale of these sectors, approaches adopted under each regime will play an important role in fostering or frustrating climate efforts going forward.

### *Market Mechanisms Under the ICAO and IMO*

At the international level, ICAO has identified market mechanisms and alternative fuels as complementary approaches, with the latter recognised as a key gateway technology to assist in the achievement of the sustainable growth of the aviation sector. At the 37<sup>th</sup> Meeting of the ICAO Assembly in 2010 (A37), the achievement of “carbon-neutral growth” by 2020 was adopted as an aspirational goal for the aviation sector.<sup>595</sup> While the EU in 2008 initiated the inclusion of aviation emission under the EU Emissions Trading Scheme (EU-ETS), a move that was challenged unsuccessfully in the European Court of Justice (ECJ) in 2011,<sup>596</sup> progress continued under ICAO leading to a decision on the part of the EU to temporarily suspend EU-ETS inclusion to allow for a response internationally.<sup>597</sup> The 38<sup>th</sup> Meeting of the ICAO Assembly (A38) passed a “basket of measures” to align the aviation sector with actions taken under the UNFCCC, promoting: CO<sub>2</sub> emission standards, operational measures, fuel efficacy and alternative fuels, and

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<sup>591</sup> UN, No. 45 Protocol Concerning the Entry into Force of the Agreement Between the United Nations and the International Civil Aviation Organization, signed at New York, 1 October 1947, 8 UNTS 316 (1947); UN, No. 553 Protocol Concerning the Entry into Force of the Agreement Approved by the General by the General Assembly of the United Nations on 18 November 1948 and by the Assembly of the Inter-Governmental Maritime Consultative Organization on 13 January 1959, signed at New York and London on 17 February 1959, 324 UNTS 273 (1959).

<sup>592</sup> Glasgow Climate Pact, *supra* note 280.

<sup>593</sup> OECD, “OECD Environmental Outlook to 2050: Chapter 3: Climate Change” (November 2011), at 5, online: <[www.oecd.org/env/cc/49082173.pdf](http://www.oecd.org/env/cc/49082173.pdf)>.

<sup>594</sup> OECD, “IEA CO<sub>2</sub> Emissions from Fuel Combustion Statistics: Greenhouse Gas Emissions from Energy” (2020), online: <<https://iea.blob.core.windows.net/assets/6296011e-4fed-40c3-95a0-1367a4c4484a/CO2Highlights2020.xls>>.

<sup>595</sup> ICAO, Resolution A37-19: Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate change (2010), online: <[http://www.icao.int/Meetings/AMC/Assembly37/Documents/ProvisionalEdition/a37\\_res\\_prov\\_en.pdf](http://www.icao.int/Meetings/AMC/Assembly37/Documents/ProvisionalEdition/a37_res_prov_en.pdf)>.

<sup>596</sup> ATAA, *supra* note 110.

<sup>597</sup> Reuters, “EU agrees text of ‘stop the clock’ aviation law” (12 March 2013) online: <<http://www.reuters.com/article/eu-icao-idUSL6N0C4FFM20130312>>.

development of a market-based mechanism to enable reduction of sectoral emissions.<sup>598</sup> Agreement on the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) at the 39<sup>th</sup> Meeting of the ICAO Assembly (A39) set in place the desired market-based measures and rounded out the basket of measures.<sup>599</sup>

The ICAO scheme aims to achieve carbon-neutral growth, recognised as sustainable growth of the aviation sector while maintaining CO<sub>2</sub> emissions at 2020 levels, and addresses gaps in the sector's ability to reduce emissions with operational or technological solutions alone. Operators who emit over 10,000 tonnes of CO<sub>2</sub> (tCO<sub>2</sub>) annually participate in the CORSIA.<sup>600</sup> Implementation will occur in a phased manner, with a pilot phase (2021-2023) and first phase (2024-2026) where States are encouraged to join voluntarily.<sup>601</sup> The second phase (2027-2035) encompasses 90% of all revenue tonne kilometres (RTK) and includes all States which contribute above 0.5 % of total RTKs based on 2018 levels. Landlocked Developing Countries (LLDCs), LDCs and SIDS are omitted.<sup>602</sup> LLDCs are given a reprieve due to reduced alternative shipping options unless they voluntarily participate in the scheme. A safeguard option was introduced in the fall of 2019 at A40 to insulate the sector from "inappropriate economic burden," with the implementation of CORSIA to be reviewed every three years by the Council starting in 2022.<sup>603</sup>

Originally, a calculated average of 2019 and 2020 travel was set as the baseline level for emission reduction allowing for unrestrained sectoral expansion without the corresponding offsetting obligation in the interim.<sup>604</sup> However, in June 2020 due to the pandemic and the negative impact on air travel the ICAO Council utilised the safeguard provision to set the 2019 emissions level as the baseline for CORSIA.<sup>605</sup> Obligations on operators for offsetting in a given year are calculated by a formula based on the per cent of sectoral contributions, multiplied by sectoral emissions under CORSIA, times the sectoral growth rate. The total is added to the total of individual percentage, multiplied by individual operator's per cent of emissions

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<sup>598</sup> ICAO, Resolution A38-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection — Climate change (2013) online: <[http://www.icao.int/environmental-protection/Documents/A38-17\\_A38-18.pdf](http://www.icao.int/environmental-protection/Documents/A38-17_A38-18.pdf)>; A Chircop et al. "Shipping and Climate Change: International Law and Policy Considerations" CIGI Special Report (CIGI, 2018), at 58, online: <[www.cigionline.org/publications/shipping-and-climate-change-international-law-and-policy-considerations/](http://www.cigionline.org/publications/shipping-and-climate-change-international-law-and-policy-considerations/)>. [Chircop et al.]

<sup>599</sup> ICAO, Resolution A39-3: Consolidated statement of continuing ICAO policies and practices related to environmental protection — Global Market-based Measure (MBM) scheme (5 October 2016), at i-80-i-86, online: <[https://www.icao.int/Meetings/a39/Documents/Resolutions/10075\\_en.pdf](https://www.icao.int/Meetings/a39/Documents/Resolutions/10075_en.pdf)>. [A39-3]

<sup>600</sup> *Ibid*, A39-3, at 13.

<sup>601</sup> *Ibid*, A39-3, at 9(a-b).

<sup>602</sup> *Ibid*, A39-3, at 9(e).

<sup>603</sup> *Ibid*, A39-3, at 9(g); ICAO Resolution A40-19: Consolidated statement of continuing ICAO policies and practices related to environmental protection - Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) (4 October 2020), at 16-17. [A40-19]

<sup>604</sup> *Ibid*, A39-3, at 11(b, e).

<sup>605</sup> ICAO, "ICAO Council agrees to the safeguard adjustment for CORSIA in light of COVID-19 pandemic" (30 June 2020), online: <[www.icao.int/Newsroom/Pages/ICAO-Council-agrees-to-the-safeguard-adjustment-for-CORSIA-in-light-of-COVID19-pandemic.aspx](http://www.icao.int/Newsroom/Pages/ICAO-Council-agrees-to-the-safeguard-adjustment-for-CORSIA-in-light-of-COVID19-pandemic.aspx)>.

under CORSIA, and times the operator's growth rate.<sup>606</sup> Individual operator growth is integrated progressively starting at 0 in 2021-2030, 20% in 2030-2032, and increasing to 70% over 2033-2035,<sup>607</sup> providing in practice an extended period of reduced commitments. A total of 65 states covering 86.5% of international aviation activities preliminarily pledged to participate in the voluntary scheme at its inception, including key jurisdictions such as the USA, the EU, Japan, Canada, the UK, UAE, and China.<sup>608</sup>

As requested by the Council at A40, a registry was created, reporting requirements were established, and criteria for eligible fuels and credits were put in place.<sup>609</sup> Eligible projects must comply with the program design elements based on clear methodologies and protocols, include a publicly disclosed scope of activities, define a consistent structure for issuance and retirement of credits, provide traceability, transferability, and verification procedures, include good governance, transparency, and public participation modalities, integrate sustainable development criteria and safeguards, and ensure the avoidance of double counting or claiming of units generated.<sup>610</sup> Credit integrity criteria are also included based on additionality and permanence of emission reductions, grounded in credible baselines, qualified through agreed MRV procedures, maintain a clear chain of custody, minimise leakage, and avoid projects that cause social, environmental, or economic harm at the local, national, or international level.<sup>611</sup> Units derived from eligible programs are identified, encompassing ACR Registry Emission Reduction Tonnes (ERT) (California Registry Offset Credits, those for early action and REDD+ ERTs), Architecture for REDD+ Transactions (ART) Registry, China Certified Emissions Reductions (CCERs) from their voluntary registry, CDM generated credits, Climate Action Reserve (CAR), Global Carbon Council (GCC), Gold Standard (GSF Impact Registry), and Verified Carbon Standard (VCS) (Verra Registry).<sup>612</sup> While the diversity of options provides operators with flexibility of supply, the inclusion of CCERs which can be derived from management and abatement of N<sub>2</sub>O, HCF, HCF<sub>2</sub>2, SF<sub>6</sub>, and fluorinated gas raises issues of environmental integrity compared to GSF or VCS generated credits.

On the maritime transport side, to promote a reduction in the overall emissions footprint of maritime activities, IMO agreed to a multifaceted approach that prioritises operational measures in the short-

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<sup>606</sup> A39-3, *supra* note 671, at 11(a).

<sup>607</sup> *Ibid*, A39-3, 11(d-e).

<sup>608</sup> ICAO, Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), "Official declarations of support and intent to join the global MBM scheme" (6 October 2016), online: <<http://www.icao.int/environmental-protection/Pages/market-based-measures.aspx>>.

<sup>609</sup> A40-19, *supra* note 675, at 19(b).

<sup>610</sup> ICAO, "CORSIA Emissions Unit Eligibility Criteria" (March 2019), at 1-2, online: <[www.icao.int/environmental-protection/CORSIA/Documents/ICAO\\_Document\\_09.pdf](http://www.icao.int/environmental-protection/CORSIA/Documents/ICAO_Document_09.pdf)>. [Emissions Unit Eligibility Criteria]

<sup>611</sup> *Ibid*, Emissions Unit Eligibility Criteria, at 2-4.

<sup>612</sup> ICAO, "CORSIA Eligible Emissions Units" 6th ed (November 2021), online: <[www.icao.int/environmental-protection/CORSIA/Documents/TAB/ICAO%20Document%2008%20\\_%20CORSIA%20Eligible%20Emissions%20Units\\_November%202021.pdf](http://www.icao.int/environmental-protection/CORSIA/Documents/TAB/ICAO%20Document%2008%20_%20CORSIA%20Eligible%20Emissions%20Units_November%202021.pdf)>.

medium term, with an Initial Strategy on reduction of GHG emissions from ships established in 2018 to target a 40% reduction by 2030 and a 70% reduction by 2050.<sup>613</sup> The Initial Strategy aims to identify appropriate measures to be implemented by the maritime sector to enhance the contribution towards global climate efforts under the Paris Agreement and SDG 13.<sup>614</sup> The Initial Strategy will be guided by: (i) the principle of non-discrimination and no more favourable treatment, as well as common but differentiated responsibilities, (ii) the requirement for ships to implement mandatory measures regardless of flag, (iii) the need to consider the impact of the Strategy on developing countries, LDCs and SIDS, and (iv) the need for evidence-based decision making balanced with the precautionary approach.<sup>615</sup> Importantly, the Initial Strategy is only the first step in a broader roadmap to reduce GHG emissions from shipping with a revised strategy to be adopted in 2023.<sup>616</sup>

A non-exhaustive list of potential measures is provided and loosely clustered on a timetable indicating timing of finalisation and agreement by the Marine Environment Protection Committee (MEPC), including short-term (2018-2023), mid-term (2023-2030), and long-term (post-2030) measures.<sup>617</sup> Governance of maritime transport at the IMO has placed the development of market-based measures (MBMs) as a medium-term goal under their strategy to prioritise operation and technological solutions in the short-term.<sup>618</sup> To complement sectoral action, at COP 23 the Biofuture Platform was launched by twenty Parties with the objective of increasing the utilisation of low carbon fuels in energy-intensive industries.<sup>619</sup> Lacking the financial incentive for reform provided by a MBM, industry actors will continue efforts under aspirational targets only. The suggested inclusion of aviation and marine bunker fuel emissions as standalone reporting categories in the evolving development of the Paris Agreement Work Program, including separation for domestic and international travel,<sup>620</sup> suggests Parties will initiate domestic accounting requirements which could act to catalyse otherwise sluggish industry action.

While both ICAO and IMO are at different levels of adoption regarding market mechanisms, the aviation and maritime sectors see the existing plans as a component of a larger strategy used to incentivise

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<sup>613</sup> IMO, Adoption of the Initial Strategy on the Reduction of GHG Emissions from Ships and Existing Activity Related to Reducing GHG Emissions in the Shipping Sector, Submission of IMO to the Talanoa Dialogue (November 2018), Annex I: Resolution MEPC.304(72), at Annex para 3.1.2., online: <[https://unfccc.int/sites/default/files/resource/250\\_IMO%20submission\\_Talanoa%20Dialogue\\_April%202018.pdf](https://unfccc.int/sites/default/files/resource/250_IMO%20submission_Talanoa%20Dialogue_April%202018.pdf)> [IMO Initial Strategy]; Chircop et al. *supra* note 670 at 46-48.

<sup>614</sup> *Ibid*, IMO Strategy at Annex para 1.7.1-2.

<sup>615</sup> *Ibid*, IMO Strategy at Annex para 3.2.1-4.

<sup>616</sup> *Ibid*, IMO Strategy at Annex para 1.4.

<sup>617</sup> *Ibid*, IMO Strategy at Annex para 4.1, 4.6.

<sup>618</sup> *Ibid*, IMO Strategy at Annex para 4.8.3.

<sup>619</sup> Biofuture Platform, "Scaling -up low carbon bioeconomy: an urgent and vital challenge" Vision Statement COP 23 (2017), online: <[www.iea.org/media/workshops/2017/cop23/presentations/BiofuturePlatformVisionStatement.pdf](http://www.iea.org/media/workshops/2017/cop23/presentations/BiofuturePlatformVisionStatement.pdf)>.

<sup>620</sup> UNFCCC, Revised additional tool under item 3 of the agenda (9 September 2018) at B.6(b)(11), online: <[https://unfccc.int/sites/default/files/resource/Latest%20PAWP%20documents\\_9Sep.pdf](https://unfccc.int/sites/default/files/resource/Latest%20PAWP%20documents_9Sep.pdf)>. [PAWP compilation, version of 9 September 2018]

innovation by private actors in alternative fuels – among other technological solutions – and will look to use A6.4ERs and ITMOs (classified as “other international mitigation outcomes”) or other available credit types as determined by the sectoral framework. As these regimes advance, approaches that prioritise high-quality credits with strong sustainable development benefits are preferred.

### *An Exploration of Mutually Supportive Measures: Aviation and Shipping*

#### Promotion of Alternative Fuels

While CORSIA provides a positive mechanism to support the curbing of emissions from international aviation, carbon offsetting alone will be insufficient to achieve ICAO’s aspirational target of carbon-neutral growth. Integration of alternative fuels plays a crucial role in the basket of measure, and CORSIA eligible fuel must comply with sustainability criteria.<sup>621</sup> To be CORSIA eligible, a fuel produced before 2024 must provide a 10% reduction in emissions on a lifecycle basis, not utilise a high carbon feedstock (ie. from an area of forest/wetland prior to 2008 or resulting in direct or indirect land use change).<sup>622</sup> Fuels produced after 2024 must comply with these criteria as well as additional sustainability measures, including operational practices for sustainable management of chemical waste, maintaining or enhancing water quality, use of environmentally sound management practices that preserve soil health, minimise air pollution, and conserve biodiversity, protect human, labour, and land use rights, enabling food security, and maintaining local social development aimed at poverty eradication and improvement of social conditions.<sup>623</sup> Pathways are provided for nine conversion processes for the development of alternative fuels.<sup>624</sup>

Alternative fuels can be refined from four categories of feedstocks: (i) oils (palm, soybean, camelina, used cooling oil), (ii) sugars and starches (sugarcane, sweet sorghum, cellulose, cassava), (iii) lignocellulosics (Algae, eucalyptus, elephant grass), and (iv) wastes and residues (flue gas, municipal waste, wood).<sup>625</sup> Furthermore, biofuels are commonly broken down by generation – first generation (conventional) and second generation (advanced) – based on the type of feedstock and conversion technology utilised, and the molecular properties of the fuel produced. Conventional alternative fuels are produced using starch, sugar, vegetable oil, or animal fat. They reflect most global supply though have faced critique due to

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<sup>621</sup> ICAO, “Sustainability Criteria for CORSIA Eligible Fuels” 2nd ed (November 2021), online: <[www.icao.int/environmental-protection/CORSIA/Documents/ICAO%20document%2005%20-%20Sustainability%20Criteria%20-%20November%202021.pdf](http://www.icao.int/environmental-protection/CORSIA/Documents/ICAO%20document%2005%20-%20Sustainability%20Criteria%20-%20November%202021.pdf)>. [CORSIA Eligible Fuels]

<sup>622</sup> *Ibid*, CORSIA Eligible Fuels, at 1.

<sup>623</sup> *Ibid*, CORSIA Eligible Fuels, at 2-4.

<sup>624</sup> ICAO, “Conversion Processes” (9 October 2021), online: <[www.icao.int/environmental-protection/GFAAF/Pages/Conversion-processes.aspx](http://www.icao.int/environmental-protection/GFAAF/Pages/Conversion-processes.aspx)>.

<sup>625</sup> Boeing/Embraer/ FAPESP & UNICAMP, “Flightpath to Aviation Biofuels in Brazil: Action Plan” (2013), at 33, online: <[www.fapesp.br/publicacoes/flightpath-to-aviation-biofuels-in-brazil-action-plan.pdf](http://www.fapesp.br/publicacoes/flightpath-to-aviation-biofuels-in-brazil-action-plan.pdf)>.

negative environmental impact.<sup>626</sup> Advanced alternatives on the other hand are derived from non-food crops, residues, and various types of waste.<sup>627</sup>

Initiated in 2009 with the first Conference on Aviation and Alternative Fuels, the launch of the online platform a “Global Framework on Aviation Alternative Fuels (GFAAF),” and the first approval of the ASTM D7566 fuel standard specification for synthesised hydrocarbons,<sup>628</sup> alternative fuels sources were provided a modality for enhanced investment, research & development, and utilisation by operators. In 2011 the ASTM D7566 specification was amended to include an annex covering fuels derived from hydroprocessed esters and fatty acids (HEFA),<sup>629</sup> which diversified the types of feedstocks available. To highlight these developments to the international community, in 2012 the ICAO Secretary-General and other delegates participated in a four-leg biofuel flight to the United Nations Conference on Sustainable Development (Rio+20).<sup>630</sup> KLM in 2013 became the first operator to provide regular trans-Atlantic biofuel flights on Dutch-bound travel from New York.<sup>631</sup> The ASTM D7566 specification now provides for nine different certification streams for alternative fuel types.<sup>632</sup> Lifecycle values are also envisioned for emerging technology of FT-SPK Power to Liquid Sustainable Aviation Fuel (PtL e-SAF) in the near future,<sup>633</sup> whereby electricity is combined with point-captured CO<sub>2</sub> to create synthetic drop-in jet fuel. By promoting utilisation of carbon-reducing fuel sources, ICAO has prioritised the development and integration of emerging alternative fuel technology within the aviation sector and has created a market drive for innovation to complement CORSIA.

While feasible in principle, the deployment of alternative fuels in the marine sector is underdeveloped for predominantly technical, logistic, and safety reasons.<sup>634</sup> Marine fuels must be fit for purpose and be

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<sup>626</sup> UNCTAD, “Second Generation Biofuels Markets: State of Play, Trade and Developing Country Perspectives” (Geneva: UNCTAD, 2016) at 8, online: <[http://unctad.org/en/PublicationsLibrary/ditcted2015d8\\_en.pdf](http://unctad.org/en/PublicationsLibrary/ditcted2015d8_en.pdf)>.

<sup>627</sup> Kathleen Araújo et al., “Global Biofuels at the Crossroads: An Overview of Technical, Policy, and Investment Complexities in the Sustainability of Biofuel Development” (2017) *Agriculture* 7:32, at 5, online: <[www.mdpi.com/2077-0472/7/4/32/pdf](http://www.mdpi.com/2077-0472/7/4/32/pdf)>.

<sup>628</sup> ASTM International, “ASTM D7566: Standard Specification for Aviation Turbine Fuel Containing Synthesized Hydrocarbons” (West Conshohocken, PA: ASTM International, 2009).

<sup>629</sup> ASTM International, “ASTM D7566-11: Standard Specification for Aviation Turbine Fuel Containing Synthesized Hydrocarbons” (West Conshohocken, PA: ASTM International, 2011); Cicely Enright, “D7566 Takes Flight: D7566 Revision Adds Bioderived Components” *ASTM Standardization News* (September/October 2011), online: <<https://www.astm.org/standardization-news/?q=features/d7566-takes-flight-so11.html>>.

<sup>630</sup> ICAO, “Flightpath to a Sustainable Future: The Rio+20 Global Biofuels Initiative” (Montreal, QC: ICAO, 2012), online: <[http://www.icao.int/environmental-protection/Documents/RIO+20\\_Flightpath\\_Review.pdf](http://www.icao.int/environmental-protection/Documents/RIO+20_Flightpath_Review.pdf)>.

<sup>631</sup> KLM, “KLM Takes Steps in Sustainable Flights” *Newsroom* (8 March 2013), online: <<http://news.klm.com/klm-zet-stappen-richting-duurzame-vluchten-en>>.

<sup>632</sup> ASTM International, “ASTM D7566-16b: Standard Specification for Aviation Turbine Fuel Containing Synthesized Hydrocarbons” (West Conshohocken, PA: ASTM International, 2021), online: <<https://www.astm.org/Standards/D7566.htm>>; Specification D1655 sufficient fuel, hydroprocessed esters and fatty acids (HEFA), Fischer-Tropsch synthesized paraffinic kerosine (FT-SPK), synthesized paraffinic kerosine plus aromatics (FT-SKA), alcohol-to-jet fuel (ATJ-SPK), Synthesized Iso-Paraffins (SIP), Catalytic hydrothermolysis (CHJ), Synthesized paraffinic kerosene from hydrocarbon-hydroprocessed esters and fatty acids (HC-HEFA-SPK), Fats, oils, and greases (FOG) co-processing, FT co-processing.

<sup>633</sup> ICAO, “Power-To-Liquids (PtL): Sustainable Fuels for Aviation” Working Paper, Assembly 40th Session, 9 October 2019, A40-WP/526, online: <[www.icao.int/Meetings/a40/Documents/WP/wp\\_526\\_en.pdf](http://www.icao.int/Meetings/a40/Documents/WP/wp_526_en.pdf)>.

<sup>634</sup> Chia-wen Carmen Hsieh & Claus Felby, “Biofuels for the marine shipping sector: An overview and analysis of sector infrastructure, fuel technologies and regulations (IEA Bioenergy, 2017), 71-72, online: <<http://task39.sites.olt.ubc.ca/files/2013/05/Marine-biofuel-report-final-Oct>>.

compliant with safety standards and MARPOL Annex VI limits on air pollutants.<sup>635</sup> Amendments made to MARPOL Annex VI which entered into force in 2010 included the establishment of limits for SO<sub>x</sub> and NO<sub>x</sub> in Emission Control Areas,<sup>636</sup> and a reduction in the sulphur limit in fuel (3.50 to 0.50%) which came into force in January 2020.<sup>637</sup> It is suggested that this change will render 70% of fuel currently used incompatible and in need of modification or blending.<sup>638</sup> Importantly, specifications for marine fuels under ISO 8217:2017 were updated in 2017 to replace the 2012 standard. This included, under the operative scope, hydrocarbons from synthetic or renewable sources which are similar in composition,<sup>639</sup> and allowed for the certification of cleaner fuels. Issues relating to continued availability, technical integration, storage, technology development, cost of operations, and overall ship operational safety have however been identified as impediments to broader adoption.<sup>640</sup>

### Role of Certifications in Advancing Sustainability

Advancement of alternative fuel production benefits from mutually supportive measures at both the international and national level act to reinforce sectoral development in a manner that allows for legal certainty, incentivises uptake, promotes environmentally innovation, and fosters broader sustainable development principles. Clear international emissions targets and inclusion of carbon offsetting requirements incentivise ongoing sectoral reductions. Embedding sustainable landscape management and agroforestry practices into domestic strategies supports feedstock selection which prevents indirect land-use changes. The utilisation of certifications validates the sustainability of the fuel production approach and fosters broader sustainable development goals, such as respect for human rights, ecosystem integrity, and food security. Biofuel production when complemented with mutually supportive measures allows for the mitigation of many negative environmental considerations and provides a significant reduction in overall lifecycle emissions.

Through external validation and monitoring, certifications play a unique role in the development and deployment of alternative fuels that advance sustainable development outcomes. In 2019, ICAO

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2017.pdf> [Hsieh & Felby]; K Kołwzan & M Narewski, "Alternative Fuels for Marine Applications" *Latvian Journal of Chemistry* 4 (2012), 403-405. [Kołwzan & Narewski]

<sup>635</sup> IMO, Protocol of 1997 to Amend MARPOL 73/78: Revised Annex VI of MARPOL 73/78, Regulations for the Prevention of Air Pollution from Ships (London: IMO, 2009). Pollutants covered: sulphur oxides (SO<sub>x</sub>), nitrous oxides (NO<sub>x</sub>), particulate matter, and ozone depleting substances (ODS).

<sup>636</sup> *ibid.*

<sup>637</sup> IMO, Resolution MEPC.280(70): Effective Date of Implementation of the Fuel Oil Standard in Regulation 14.1.3 of MARPOL Annex VI (28 October 2016) MEPC 70/18/Add.1, online: <[www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Marine-Environment-Protection-Committee-\(MEPC\)/Documents/MEPC.280\(70\).pdf](http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Marine-Environment-Protection-Committee-(MEPC)/Documents/MEPC.280(70).pdf)>.

<sup>638</sup> Hsieh & Felby, *supra* note 706, at 5.

<sup>639</sup> ISO, ISO 8217:2017 Specifications of Marine Fuels, 6th ed (2017-03), Clause 1.

<sup>640</sup> Kołwzan & Narewski, *supra* note 706; A Florentinus et. al., "Potential of biofuels for shipping" (Ecofys/European Maritime Safety Agency, 2012), online: <[www.emsa.europa.eu/stmid/download/1626/1376/23.html](http://www.emsa.europa.eu/stmid/download/1626/1376/23.html)>.

established criteria for certification schemes requiring sound document management, provide for transparency of participants, and audit competencies for GHG reporting and accounting, monitoring, and reporting systems including procedures for addressing cases of non-compliance. The schemes also provide ICAO with an annual report, risk management protocols, compliance procedures, ISO 17011 accredited as a certification body, and modalities for stakeholder engagement.<sup>641</sup> Based on these criteria as of 2021, only two bodies have been approved.

The [International Sustainability and Carbon Certification \(ISCC\)](#) is a leading third-party standard governing the full supply chain of bio-based feedstocks and renewable products. ISCC may be utilised to validate the sustainability of biofuel feedstock sourced globally for sale within the EU.<sup>642</sup> Following an initial audit to identify information gaps and compliance with domestic legal requirements by a recognised certification body,<sup>643</sup> a Proof of Sustainability (PoS) certificate is provided to the organisation and is publicly listed on the ISCC platform.<sup>644</sup> ISCC Standard 202 establishes Sustainability Requirements for the Production of Biomass, which are guided by six core principles: (1) production should not be conducted on land with high biodiversity value; (2) production should be conducted in an environmentally responsible manner; (3) production should consider safe work conditions, including education, adequate safety precautions, and accident prevention; (4) production shall not violate community rights such as labour, health or human rights; (5) production must be in compliance with all applicable domestic and regional legal obligations; and (6) production should utilise good management practices.<sup>645</sup> ICSS also has established specific guidelines for traceability, mass calculations, GHG emission calculation, and risk management.<sup>646</sup>

Alternatively, the [Roundtable on Sustainable Biomaterials \(RSB\)](#) standard is a best-in-class sustainability certification recognised by World Wildlife Fund (WWF), International Union Nature for Conservation of Nature (IUCN), and the Natural Resources Defense Council (NRDC). Applicable to a wide spectrum of bio-based feedstocks, the RSB Standard is grounded in twelve principles: (1) legal compliance, (2) planning, monitoring, and continuous improvement, (3) reduction of GHGs, (4) respect for human and labour rights,

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<sup>641</sup> ICAO, "CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes" (November 2019), online: <[www.icao.int/environmental-protection/CORSIA/Documents/ICAO%20document%2003%20-%20Eligibility%20Framework%20and%20Requirements%20for%20SCS.pdf](http://www.icao.int/environmental-protection/CORSIA/Documents/ICAO%20document%2003%20-%20Eligibility%20Framework%20and%20Requirements%20for%20SCS.pdf)>.

<sup>642</sup> EU, "Voluntary schemes" (15 December 2021), online: <[https://ec.europa.eu/energy/topics/renewable-energy/biofuels/voluntary-schemes\\_en](https://ec.europa.eu/energy/topics/renewable-energy/biofuels/voluntary-schemes_en)>.

<sup>643</sup> ISCC, "List of Certification Bodies" (last update: 14 March 2022), online: <[www.iscc-system.org/en/certification-process/certification-bodies/recognized-cbs/](http://www.iscc-system.org/en/certification-process/certification-bodies/recognized-cbs/)>; There are currently 45 Certification Bodies who must comply with established guidelines to retain approval to grant certifications.

<sup>644</sup> ISCC, "Registration and Use of ISCC Certificates" online: <[www.iscc-system.org/en/certification-process/process-overview/](http://www.iscc-system.org/en/certification-process/process-overview/)>.

<sup>645</sup> ISCC, "ISCC 202: Sustainability Requirements for the Production of Biomass" ISCC 11-03-15 v 2.3-EU (2015), online: <[www.iscc-system.org/uploads/media/ISCC\\_EU\\_202\\_Sustainability\\_Requirements-Requirements\\_for\\_theProduction\\_of\\_Biomasse\\_2.3.pdf](http://www.iscc-system.org/uploads/media/ISCC_EU_202_Sustainability_Requirements-Requirements_for_theProduction_of_Biomasse_2.3.pdf)>.

<sup>646</sup> ISCC, "ISCC System Documents" online: <[www.iscc-system.org/en/certification-process/isccsystemdocuments/](http://www.iscc-system.org/en/certification-process/isccsystemdocuments/)>.

(5) contribute to rural and social development, (6) support local food security, (7) ecosystem and biodiversity conservation, (8) maintenance of soil health, (9) maintenance of water quality, (10) minimisation of air pollution, (11) minimisation of risk through technology and waste management, and (12) respect for traditional land rights of Indigenous peoples and local communities.<sup>647</sup> RSB provides an EU-RED compliant standard for producers within the Union, as well as standards for non-EU producers, bioproducts and materials producers, and smallholder farmers. Additionally, a voluntary standard has been developed for verification of low indirect land use changes (ILUC).<sup>648</sup> Structured in five chambers of stockholder groups – growers and producers, end users and investors, social, environmental, and governmental/intergovernmental and research – each chamber elects three delegates to the Assembly of Delegates, and subsequently, each chamber has an equal weight in the development and governance of the standard.<sup>649</sup> Currently, RSB certification is utilised by 28 airlines covering 33% of global aviation fuel.<sup>650</sup>

Airport facilities may also participate in the [Airport Carbon Accreditation](#). A four-stage process to receive accreditation includes mapping the facility footprint, carbon management to drive reduction, technical optimisation,<sup>651</sup> with the aim of and carbon neutrality.<sup>652</sup> In 2019-2020, a total of 333 airports participated (up from 156 in 2016) covering 45% of global air traffic, and 61 airports having achieved carbon-neutral operations (up from 28 in 2016).<sup>653</sup> Certifications guide industry practices and provide legal certainty within the market mechanism.

Certifications play an important complementary role in ensuring fuel types and facilities that advance sustainable development outcomes in support of the broader market mechanism under the climate and aviation regimes receive appropriate market differentiation. Participation in certification schemes validates that the emission reductions made through fuel production or infrastructure refinements make a genuine environmental impact.

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<sup>647</sup> RSB, “A Guide to the RSB Standard” (Châtelaine, Switzerland), online: <<http://rsb.org/wp-content/uploads/2017/03/RSB-Guide-to-the-RSB-Standard.pdf>>.

<sup>648</sup> RSB, “Certification Documents” online, <<http://rsb.org/certification/certification-documents/>>.

<sup>649</sup> RSB, “The Assembly of Delegates” online: <<http://rsb.org/about/who-we-are/assembly-of-delegates/>>.

<sup>650</sup> Elena Schmidt, “Roundtable of Sustainable Biomaterials” Presentation at the ICAO Seminar on Alternative Fuels, Montreal QC (8-9 February 2017), online: <[www.icao.int/Meetings/altfuels17/Documents/Elena%20Schmidt%20-%20RSB.pdf](http://www.icao.int/Meetings/altfuels17/Documents/Elena%20Schmidt%20-%20RSB.pdf)>.

<sup>651</sup> ACA, “Interim Annual Report 2019-2020” (Airport Carbon Accreditation, 2021), at 8-9, online: <<https://www.airportcarbonaccreditation.org/component/attachments/?task=download&id=168>>. [ACA Annual Report 2019-2020]

<sup>652</sup> *Ibid*, ACA Annual Report 2019-2020.

<sup>653</sup> *Ibid*, ACA Annual Report 2019-2020, a 13-15; ACA, “Annual Report 2015-2016” (Airport Carbon Accreditation, 2016), online: <[www.airportcarbonaccreditation.org/component/attachments/?task=download&id=103](http://www.airportcarbonaccreditation.org/component/attachments/?task=download&id=103)>.

## *Innovative Approaches to Production of Alternative Fuels*

Prioritisation of alternative fuels in aviation and maritime transport at the international level acted as a catalyst for innovation across the sector. The following are examples of innovative approaches in alternative fuel development, drawn from leading providers from different jurisdictions, that utilise a range of feedstocks, and foster direct sustainable development outcomes.

The Masdar's Institute of Science and Technology's Sustainable Bioenergy Research Consortium (SBRC), a UAE-based non-profit research institution founded by Etihad Airways, Boeing, Honeywell UOP, Takreer, Safran and General Electric, has developed an innovative agriculture and bioenergy initiative.<sup>654</sup> Sitting at the crucial nexus of food security, biofuel development, and carbon offsetting, the 20,000 square-metre pilot facility is comprised of three interconnected chambers. An aquaculture pond allows for the growth of fish and shrimp, with the nutrient-rich excrement utilised to fertilise salt-tolerant halophyte plant species which produce a seed that may be harvested and used as a feedstock for biofuel production. The seawater finally moves to nourish a mangrove wetland that naturally sequesters carbon dioxide.<sup>655</sup> Looking holistically, the project is carbon-neutral, provides a sustainable approach to the development of aquaculture, agriculture, and silvicultural, and a unique feedstock for biofuel production. Outside of the climate benefits, the project enables food security and climate-resilient food production in support of SDG 2.4, creates a circular economy, which sustainably manages natural resources supporting SDG 12.2, and integrates ecosystem values into planning and works to restore ecosystem functionality aiding the achievement of SDG 15.1 and 15.9.

Due in part to the speculative nature of biofuels, and the need for high capital expenditures, the industry suffers a lack of access to capital and technical expertise, which places an increased emphasis on working together. Boeing, in collaboration with South African Airlines, SkyNRG, and Dutch firm Sunchem, have invested in the Project Solaris. The project utilises nicotine-free tobacco, which is grown domestically for manufacture of biofuel, to create a sustainable supply chain for scalability of production. It is proposed that the project could scale to 75,000-85,000 ha, with the potential to create an equivalent number of jobs, providing both consistency of fuel supply, but also long-term economic development opportunities.<sup>656</sup> Certified by RSB to verify and validate sustainability, Project Solaris has the potential to revolutionise the agro-economy of the region, establish a local supply of sustainable jet fuel, and act as an exemplar for

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<sup>654</sup> Masdar Institute, "Sustainable Bioenergy Research Consortium at Masdar Institute Breaks Ground on Innovative Agriculture and Energy Pilot" *Press Release* (14 June 2015), online: <[http://web.mit.edu/mit-mi-cp/news/EN\\_SBRC\\_Groundbreaking\\_Ceremony.pdf](http://web.mit.edu/mit-mi-cp/news/EN_SBRC_Groundbreaking_Ceremony.pdf)>.

<sup>655</sup> *Ibid*; Masdar Institute, "Sustainable Bioenergy Research Consortium" online: <[www.masdar.ac.ae/innovation-centers/sbrc](http://www.masdar.ac.ae/innovation-centers/sbrc)>.

<sup>656</sup> Boeing, "First Harvest" online: <<http://www.boeing.com/features/2015/02/bca-tobacco-energy-02-03-15.page>>.

similar projects across the continent.<sup>657</sup> In addition, Boeing promotes the use of an industry ecology model – co-location of parallel and complementary industries to symbiotically share resources and risk – allowing for the commercial success of alternative fuel development to be more economically viable.<sup>658</sup> The innovative approach assists in creating decent employment opportunities in the region in support of SDG 8.2 and 8.3, and contributes to the reduction of poverty in the region assisting in the achievement of SDG 1.2.

LanzaTech, a carbon capture company, utilises a proprietary microbe to sequester carbon for use as a biofuel feedstock. The patented “LanzaTech Process” converts a range of industrial gases, generally produced in steel manufacturing, refining, and chemical industries, or gasification processes (burning of municipal waste, biomass, or coal) through a gas-fermentation procedure, into industrial chemicals or fuels traditionally derived from petroleum.<sup>659</sup> By-products of the process are malleable allowing for the creation of a spectrum of chemical compositions, including aviation biofuels among other industrial applications. Also utilising carbon capture, SAF+ Consortium is the first recognised PtL/e-SAF producer in North America, converting point-captured GHG emissions combined with hydrogen generated from hydroelectricity into SAF utilising a Fischer-Tropsch process to generate liquified hydrocarbons.<sup>660</sup> The resulting synthetic fuels may be utilised as drop-in or blended alternatives for aviation or marine bunker fuel without alteration to conventional systems and provided an 80% total lifecycle emission reduction.<sup>661</sup> Holistically, point-capture technology promotes sustainable industrial activities advancing SDG 9.2, improves air quality and reduces the negative impact of cities in support of SDG 11.6, and fosters sustainable consumption and production models in line with SDG 12.5 and 12.6, while assisting in the achievement of our climate goals.

Development of alternative fuel in the marine sector remains hampered by issues of scalability, and the difficulty to maintain a secure and supply coupled with reliable technology sufficient to produce price-competitive fuel products.<sup>662</sup> While biofuel in the maritime sector remains under-deployed, with roughly 330 million tonnes (Mt) of fuel utilised annually and biodiesel and bioethanol production accounting for 81 Mt in 2016, there is hope for optimism with lignocellulosic production – which includes algae and forest-

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<sup>657</sup> Project Solaris, “Background” online: <<http://www.projectsolaris.co.za/p/about-us.html>>; Project Solaris, “Sustainability” online: <<http://www.projectsolaris.co.za/p/sustainability.html>>.

<sup>658</sup> Michael Lakeman, “Sustainable Aviation Fuels: An Industrial Ecology Perspective” Presentation at the ICAO Seminar on Alternative Fuels, Montreal QC (8-9 February 2017), online: <<http://www.icao.int/Meetings/altfuels17/Documents/Boeing.%20websiteversion.v2.pdf>>.

<sup>659</sup> LanzaTech, “Technical Overview” online: <<http://www.lanzatech.com/innovation/technical-overview/>>; These included: Carbon monoxide (CO), Hydrogen (H<sub>2</sub>), Carbon dioxide (CO<sub>2</sub>), Hydrogen sulphide (H<sub>2</sub>S), and Methane (CH<sub>4</sub>).

<sup>660</sup> SAF+ Consortium, “Our SAF Technology” online: <<https://safplusconsortium.com/our-technology/>>.

<sup>661</sup> *Ibid.*

<sup>662</sup> Hsieh & Felby, *supra* note 705, at 60-61.

based biomass/residues – holding the potential to provide 455-805 Mt annually.<sup>663</sup> In 2016, Goodfuels Marine and international dredging company Boskalis successfully tested a sustainable wood-based drop-in fuel called UPM BioVerno supplied by the Finnish company UPM Biofuels. The vessel, a 1696 deadweight tonne dredger, utilised a 50% blend for work over the first half of the year, and provided over the operating period an emissions reduction of 600Mt.<sup>664</sup> Danish shipping giant Maersk, who in 2011 began testing algae-based biofuel,<sup>665</sup> shifted attention in 2013 to projects focused on the development of lignin-based fuel.<sup>666</sup> Innovative fuel development approaches are supporting the sustainable management of natural resources and advance sustainable consumption and production models to achieve SDG 12.2 and 12.6.

### *Observations from Aviation and Maritime Transport*

Air and marine transport provide informative examples of the internalisation of international goals related to climate and biodiversity. Through the creation of a sectoral market mechanism for aviation and consideration of a similar approach for maritime transport, alignment with Article 6 of the Paris Agreement could be integrated into the PAWP. This can help ensure the systems appropriately provide for corresponding adjustments and common methodologies that allow for mutual supportiveness. Promotion of alternative fuels and operational refinements, coupled with sustainability-focused certifications, position the sector for the advancement of innovative solutions that enable climate-conscious sectoral growth, incentivise dissemination and deployment of technological solutions, and create alternative sectors that enable local green economies. Grounded in sustainable consumption and production models, these innovations illustrate a genuine shift in industry thinking that resonate from the cascade produced by the Paris Agreement. Despite greater progress being desirable, the approaches adopted at the ICAO and IMO demonstrate how the crafting of sector-specific responses creates an enabling environment for innovative solutions to be developed by private actors that prioritise sustainable development outcomes. Research findings suggest the congruence of practice demonstrated within and across the aviation and marine transport sectors is illustrative of the type of interaction across international legal frameworks that translates legal obligations into practical solutions.

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<sup>663</sup> *Ibid*, at 65.

<sup>664</sup> Goodfuels, “First commercial marine biofuel based on wood residues” (2016), online: <<https://goodfuels.com/wood-residues/>>.

<sup>665</sup> Business Wire, “Maersk Tests Soladiesel<sub>RD</sub>® in 6,500 Nautical Mile Commercial Voyage” Business Wire (23 January 2012), online: <[www.businesswire.com/news/home/20120123005469/en/Maersk-Tests-SoladieselRD%C2%AE-6500-Nautical-Mile-Commercial](http://www.businesswire.com/news/home/20120123005469/en/Maersk-Tests-SoladieselRD%C2%AE-6500-Nautical-Mile-Commercial)>.

<sup>666</sup> Ship & Bunker, “Maersk Working on Two Biofuel Projects” Ship & Bunker (21 March 2013), online:

<<https://shipandbunker.com/news/world/321338-maersk-working-on-two-biofuel-projects>>; Biomass Magazine, “Maersk Group pursues lignin-based fuel for marine applications” Biomass Magazine (22 March 2013), online: <<http://biomassmagazine.com/articles/8757/maersk-group-pursues-lignin-based-fuel-for-marine-applications>>.

## Sectoral Spotlight: Climate Finance

Mobilisation of sufficient capital to address the congruence of crises currently faced by humanity will be a defining element influencing the functionality of the international legal architecture of market mechanisms. Parties to the Paris Agreement, recognising the important role solution-oriented investment plays, set the collective goal of US\$ 100 billion annual contribution as the starting point, and committed in Article 2.1(c) to make finance flows consistent with pathways for low GHG and climate-resilient development.<sup>667</sup> Mark Carney in his famous 2015 speech to Lloyds of London characterised these challenges as “Breaking the tragedy of the horizon” whereby conventional monetary policy or investment cycles are unable to account for a cacophony of climate-related risks – physical (extreme weather events and shifts in the value of assets), liability (compensation for climate impacts), and transition (legal/regulatory, cost of adjustment). By mitigating through an early and swift transition, and by following a predictable path so the market may anticipate and more importantly support, this creates mechanisms enabling the evolution towards a low carbon future.<sup>668</sup> Crucial aspects underpinning the transition include transparency to allow the market to effectively calculate and respond to perceived risks, the formation of entities to enable collective action, and innovative approaches to allow for a recalibration of investments toward a more sustainable future. For example, at COP 26, the Glasgow Climate Pact stressed the need for financial institutions and private actors to mobilise financial resources to scale-up climate action.<sup>669</sup>

This section looks at the contribution made by the Task Force on Climate-related Financial Disclosures (TCFD) towards enhanced transparency frameworks across the market, followed by a discussion of mutually supportive measures advanced through the creation of the International Sustainability Standards Board (ISSB) under International Financial Reporting Standards Foundation (IFRS), coupled with recommendations to inform the creation of a sustainable development disclosure standard. Concluding with an outline of innovative institutional approaches to shift capital through market mechanisms, the vital role of the finance sector is elucidated to reinforce the argument that alignment across sectors is needed to avoid a chilling effect on market mechanism functionality.

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<sup>667</sup> Paris Agreement, *supra* note 78, Decision preamble, Article 2.1(c).

<sup>668</sup> Mark Carney, “Breaking the Tragedy of the Horizon – climate change and financial stability” Lloyd’s of London (29 September 2015), online: <[www.bankofengland.co.uk/speech/2015/breaking-the-tragedy-of-the-horizon-climate-change-and-financial-stability](http://www.bankofengland.co.uk/speech/2015/breaking-the-tragedy-of-the-horizon-climate-change-and-financial-stability)>.

<sup>669</sup> Glasgow Climate Pact, *supra* note 280, 14.

## Climate-Related Risk Disclosure

On the heels of the passage of the Paris Agreement, in December 2015 the Financial Stability Board (FSB) created the TCFD to consider the financial implications of climate change and to develop a framework for disclosure that could foster greater awareness and understanding among asset owners and managers. It also sought to enable the good governance of the financial market and empower climate-focused mobilisation of capital.<sup>670</sup> Chaired by Michael Bloomberg and comprised of 32 members of financial, non-financial, and other expert institutions, the TCFD offered recommendations that aimed to direct a level of granular reporting among the financial sector that would inform sound investment decisions and allow for a formative shift in capital allocation. This could help align more appropriately with both consumer demand and market needs to pre-emptively respond to forthcoming climate shifts.<sup>671</sup>

In 2017, the Task Force delivered key recommendations encompassing four main areas: governance, strategy, risk management, and metrics and targets, with these later updated in 2021 with additional guidance.<sup>672</sup> Governance-related disclosure included a description of the climate-related risks and opportunities, and the role of the board and management in assessing and addressing these risks.<sup>673</sup> Strategic disclosure comprised summarising the identified climate-related risks and opportunities over the short, medium, and long-term, describing the organisation's financial and business strategy, and the resilience of the strategy taking into account different climate scenarios.<sup>674</sup> Regarding risk management, the organisation should disclose processes for the identification, assessment, management, and integration of climate-related risks into the overall risk management structure.<sup>675</sup> Finally, metrics and targets allow for tracking of understanding and progress, with disclosure to include monitored indicators for assessing the integration of opportunities and risks into strategic processes. Reporting on GHG emissions were additionally divided into three scopes; scope 1 (owned or controlled sources), scope 2 (indirect sources such as energy generation and use), and scope 3 (indirect across the value chain) and related risks, thus creating milestones used for the evaluation of performance relating to climate risks and opportunities vis-a-vis the organisation's overall targets.<sup>676</sup>

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<sup>670</sup> TCFD, "Recommendations of the Task Force on Climate-related Financial Disclosures" Final Report (2017), at 2-3, online:

<<https://assets.bbhub.io/company/sites/60/2020/10/FINAL-2017-TCFD-Report-11052018.pdf>>. [TCFD 2017]

<sup>671</sup> Megan Bowman & Daniel Wiseman, "Finance Actors and Climate-Related Disclosure Regulation: Logic, Limits and Emerging Accountability" C Holley, L Phelan & C Shearing, eds., *Criminology and Climate: Insurance, Finance and the Regulation of Harmscapes* (London: Routledge, 2021), at 155-158.

<sup>672</sup> TCFD 2017, *supra* note 742, at 14; TCFD, "Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures" (October 2021), online: <[https://assets.bbhub.io/company/sites/60/2021/07/2021-TCFD-Implementing\\_Guidance.pdf](https://assets.bbhub.io/company/sites/60/2021/07/2021-TCFD-Implementing_Guidance.pdf)>. [TCFD 2021]

<sup>673</sup> *Ibid*, TCFD 2017; *Ibid*, TCFD 2021, at 17.

<sup>674</sup> *Ibid*, TCFD 2017, at 20-21; *Ibid*, TCFD 2021, at 18-19

<sup>675</sup> *Ibid*, TCFD 2017, at 21-22; *Ibid*, TCFD 2021, at 20.

<sup>676</sup> *Ibid*, TCFD 2017, at 22-23; *Ibid*, TCFD 2021, at 21-22.

Specific sectoral guidance is also provided for key commanding heights industries – financial (banks, insurance, asset owners and managers) and non-financial (energy, transportation, materials and buildings, agriculture food and forest products) – to assist in calibration of reporting. In the 2021 updates, supplemental direction was outlined for financial institutions to ensure key aspects such as asset liabilities, frequency of risk assessments, top and emerging risks by sector/industry, management responsibilities, and GHG emissions of lending, asset classes, and intermediary activities in line with industry standards.<sup>677</sup> A key addition was the inclusion of detailed formulas for calculation of GHG emission metrics, and common carbon foot-printing and exposure metrics that provide a harmonised basis for calculating the carbon risks of invested or managed assets.<sup>678</sup> Similar guidance is provided for non-financial sectors to inform strategic evaluation and responses to climate risks and exposures across product and service lines, supply chains, operations, and investments, with a focus on implications for R&D investment, acquisition, or divestment pressures, and challenges to access capital.<sup>679</sup>

While the content and scope of the disclosure is often sector-specific and evolves over time, the TCFD provides a common industry framework. Disclosure should contain relevant, balanced, and sufficiently comprehensive information (including both qualitative and quantitative data), and account for both gradual and acute impacts to enable any interested party to make an informed decision as a result.<sup>680</sup> Striving for relative consistency and comparability within a sector or industry, the material should be verifiable, objective, and delivered in a timely manner especially where a financial impact is observable.<sup>681</sup> As of 2021, the recommendations and implementation guidance have received international support through endorsement by the G7 and G20 Finance Ministers, the FSB, the IFRS Foundation, and the European Commission, 8 jurisdictions with TCFD-aligned reporting requirements, and support from over 2,600 organisations with company assets and market capitalisation exceeding US\$ 194 trillion and US\$ 25 trillion respectively.<sup>682</sup> The IFRS Foundation has also created a prototype disclosure supplemental that aligns with

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<sup>677</sup> *Ibid*, TCFD 2021, at 24-54; Partnership for Carbon Accounting Financials, “Global GHG Accounting and Reporting Standard for the Financial Industry” (18 November 2020), online: <<https://carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf>>.

<sup>678</sup> *Ibid*, TCFD 2021, at 24-54: Formulas include: GHG emission metrics: Listed equity, listed corporate bonds, business bonds, unlisted equity, project finance, commercial real estate, mortgages, motor vehicle loans; Common carbon foot-printing and exposure: weighted average carbon intensity of investments and insurance premiums, total carbon emissions, carbon footprint, carbon intensity, and exposure to carbon related assets.

<sup>679</sup> *Ibid*, TCFD 2021, at 56-62.

<sup>680</sup> *Ibid*, TCFD 2021, at 70.

<sup>681</sup> *Ibid*, TCFD 2021, at 71-72.

<sup>682</sup> TCFD, “2021 Status Report” (October 2021), at 13-23, online: <[https://assets.bbhub.io/company/sites/60/2021/07/2021-TCFD-Status\\_Report.pdf](https://assets.bbhub.io/company/sites/60/2021/07/2021-TCFD-Status_Report.pdf)>; TCFD-Aligned Reporting Jurisdictions: Brazil, European Union, Hong Kong, Japan, New Zealand, Singapore, Switzerland, United Kingdom.

TCFD and provides a greater level of granularity to enable more effective implementation among private actors.<sup>683</sup>

Overall, the TCFD provides a flexible framework for understanding the depth and breadth of climate-related impacts and responses within an organisation influencing capital allocation across the market, freeing up funds tied in stranded assets, directing capital reallocation, and allowing for investments to flow enabling the effective operation of market mechanisms.

### *Mutually Supportive Measure: Expanded Disclosure*

#### Disclosure Related to the Sustainable Development Goals

Building on the work of the TCFD and supported by Mr. Russell Picot, the Special Advisor to the TCFD process, and endorsed by a multistakeholder group of accountants, recommendations were developed in 2020 for sustainable development-related disclosure.<sup>684</sup> Grounded in the TCFD themes of governance, strategy, management approaches, and performance and targets, the recommendations look at intersections with the SDGs through a value creation lens to reframe business inputs, activities, outputs and outcomes. This was with the goal to advance sustainability priorities through capital allocation, be them financial, manufactured, intellectual, human, natural, or grounded in the organisation's social relationship with risks and opportunities framed as impediments or enablers.<sup>685</sup>

The recommendations suggest incorporating into annual reporting several elements. First, a description of the procedures and policies adopted by the Board to integrate sustainable development into organisational oversight, including identification of material issues, context and relevance, identifiable risks and opportunities. Additionally, stakeholder identification and engagement processes to enhance positive impacts and modalities for inclusion in the organisation's strategy were to be incorporated, along with the assessment of the organisational culture for encouraging innovation around the sustainable development issues.<sup>686</sup> It was recommended in a statement from the Chair of the Board to include the mandate of SDG disclosure, outline the timeframe for implementation, and describe the competencies and modalities, such

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<sup>683</sup> IFRS, "Prototype Climate-related Disclosures Requirements (Climate Prototype)" (3 November 2021), online: <[www.ifrs.org/content/dam/ifrs/groups/trwg/trwg-climate-related-disclosures-prototype.pdf](http://www.ifrs.org/content/dam/ifrs/groups/trwg/trwg-climate-related-disclosures-prototype.pdf)>; IFRS, "Supplement: Technical Protocols for Disclosure Requirements (Climate Prototype)" (3 November 2021), online: <[www.ifrs.org/content/dam/ifrs/groups/trwg/climate-related-disclosures-prototype-technical-protocols-supplement.pdf](http://www.ifrs.org/content/dam/ifrs/groups/trwg/climate-related-disclosures-prototype-technical-protocols-supplement.pdf)>.

<sup>684</sup> Carol Adams, Paul Druckman & Russell Picot, "Sustainable Development Goals Disclosure (SDGD) Recommendations" (January 2020), online: <[www.integratedreporting.org/wp-content/uploads/2020/01/Adams\\_Druckman\\_Picot\\_2020\\_Final\\_SDGD\\_Recommendations.pdf](http://www.integratedreporting.org/wp-content/uploads/2020/01/Adams_Druckman_Picot_2020_Final_SDGD_Recommendations.pdf)> [Adams, Druckman & Picot 2020]; Supported by: The Association of Chartered Certified Accountants (ACCA), Chartered Accountants ANZ, the Institute of Chartered Accountants of Scotland (ICAS) the International Federation of Accountants (IFAC), the International Integrated Reporting Council (IIRC) and the World Benchmarking Alliance (WBA), and United Nations Development Program (UNDP).

<sup>685</sup> *Ibid*, Adams, Druckman & Picot 2020, at 8.

<sup>686</sup> *Ibid*, Adams, Druckman & Picot 2020, at 12.

as auditing or performance-based incentives that can be used for the achievement of designated outcomes.<sup>687</sup> Second, the annual reporting should include how sustainable development considerations influence strategy through disclosure of risks and opportunities on the organisational business model, the nature and extent of scenario analysis to stress-test strategic documents, and the value created and investments made in sustainable development issues.<sup>688</sup>

Management approaches adopted are intended to integrate stakeholder participation, highlight modalities for issue identification and assessment of which SDGs the organisation may have the greatest positive and negative impacts, summarise risk and opportunity prioritisation procedures, select specific metrics and targets, and collaborate across channels to enable cross-departmental engagement. It also considers how the organisational business model may be refined to take advantage of SDG-related opportunities. Further, the scenario analysis utilised should be described to illustrate how SDGs and priorities have been identified.<sup>689</sup> Explanation on performance targets aims to describe the approach adopted towards sustainable development and the links to the organisation's mission and vision, how targets were set based on linkages to risks, opportunities, and scenarios, both positive and negative material financial and non-financial impacts, and progress made in relation to targets and milestones related to SDG impacts.<sup>690</sup>

Through an annual reporting process, a dialogue is established with shareholders and stakeholders relating to how the organisation understands material SDG-related impacts, the management approaches adopted, strategic and governance responses, and ongoing refinements to iteratively increase insights on value creation and transformation in line with the SDGs.

### Disclosure of Sustainability-related Financial Information

During COP 26 the IFRS Trustees announced the creation of the International Sustainability Standards Board (ISSB) as a consolidation of two leading bodies – Climate Disclosure Standards Board (CDSB) and the Value Reporting Foundation (VRF) – to advance the development of a robust framework for sustainability-related disclosure. The VRF serves as a standard to enable investors and capital markets to have a more fulsome perspective on risks and opportunities and to provide an improved global baseline for transparency.<sup>691</sup> At that time, the Technical Readiness Working Group provided recommendations to the ISSB for

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<sup>687</sup> *Ibid.*

<sup>688</sup> *Ibid.*, Adams, Druckman & Picot 2020, at 13.

<sup>689</sup> *Ibid.*

<sup>690</sup> *Ibid.*

<sup>691</sup> IFRS, "Consultation Paper on Sustainability Reporting" (September 2020), online: <[www.ifrs.org/content/dam/ifrs/project/sustainability-reporting/consultation-paper-on-sustainability-reporting.pdf](http://www.ifrs.org/content/dam/ifrs/project/sustainability-reporting/consultation-paper-on-sustainability-reporting.pdf)>.

consideration,<sup>692</sup> to empower consultation with relevant stakeholders, and to lay the groundwork for a proper due diligence process in creating a formal international standard for sustainability disclosure.

Corporate disclosure here predominantly addresses three lenses – (i) to stakeholders about the organisation’s impacts on people, the environment, and the economy; (ii) to investors and creditors on sustainability and impacts on enterprise valuation; and (iii) to investors and creditors relating to monetary elements included in the financial statements. Sustainability acts as a cross-cutting consideration and the creation of the IFRS standards provides a comprehensive understanding of the impact on enterprise value for investors and key stakeholders.<sup>693</sup> The Draft IFRS SX was developed as a response to market needs for a consistent and comprehensive framework for “decision-useful standardised narrative disclosures” to assist investors and stakeholder institutions in evaluating the entities’ performance, financial position, enterprise value, and the responsiveness to sustainability drivers in overall business strategy.<sup>694</sup>

The stated objective is to provide general users of financial reporting with neutral, comparable, and relevant information on sustainability-related risks and opportunities to inform a balanced assessment of the overall enterprise value of the entity, support decisions associated with holding or releasing debt instruments, or influence the trajectory of the entity as shareholders.<sup>695</sup> While entity-specific, the information provided must have a material connection to the overall value of the enterprise and may influence an informed user in their assessment of the ability of the entity to generate cashflow over the short, medium and long-term, such as social and environmental impacts and critical events which may have a low likelihood but a high impact on the entity’s financial health.<sup>696</sup> Both financial and sustainability disclosure are suggested to share the same boundaries of materiality, connectivity, and relevance to the entity’s current and future operations and proposed responses.<sup>697</sup> For example, potential restructuring or responses due to a carbon tax or changes in the climate-related legal landscape could pose a significant disruption to the operations of the entity necessitating a potential downsizing of the employment or operational footprint in a jurisdiction, relocation, or alteration of business practices, and subsequently requiring an explanation of these risks and mitigation approaches adopted.

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<sup>692</sup> IFRS Technical Readiness Working Group, “General Requirements for Disclosure of Sustainability-related Financial Information Prototype” (3 November 2021) online: <[www.ifrs.org/content/dam/ifrs/groups/trwg/trwg-general-requirements-prototype.pdf](http://www.ifrs.org/content/dam/ifrs/groups/trwg/trwg-general-requirements-prototype.pdf)>. [Draft IFRS SX]

<sup>693</sup> *Ibid*, Draft IFRS SX, at IN1-3.

<sup>694</sup> *Ibid*, Draft IFRS SX, at IN7-9.

<sup>695</sup> *Ibid*, Draft IFRS SX, at 1-5.

<sup>696</sup> *Ibid*, Draft IFRS SX, at 8, 11-16.

<sup>697</sup> *Ibid*, Draft IFRS SX, at 19-22.

Like both the TCFD and the SDG-related disclosures discussed earlier, the common lenses of governance, strategy, risk management, and metrics and targets are applied.<sup>698</sup> Governance-related disclosure focuses on the processes and procedural aspects of monitoring and managing sustainability-related risks and opportunities. Attention is focused on institutional bodies holding oversight, skill curation and retention within these bodies, modalities for considering and integrating risks and opportunities into organisational practices, and management roles coordinating responses across the organisation.<sup>699</sup> With the aim to ensure stakeholders understand the organisation's strategic response, disclosure should include the identified risks and opportunities including the process of identification, potential significance over the short, medium, and long-term on cashflow, operational considerations (value chain, areas of operation), and regulatory compliance, impacts and influences on decision-making (current impacts and uncertainties), and the resilience of the organisation to respond to identified shifts.<sup>700</sup> Both qualitative and quantitative analysis should be provided and integrated to provide a holistic understanding, and should also include boundary and time horizons for the applied analysis.<sup>701</sup>

Risk management aims to provide insight on the entity's modalities for identification, evaluation and mitigation of sustainability-related risks specifically, including the process of identification, significance, models utilised for the determination of likelihood for potential impacts, prioritisation and risk assessment tools, input parameters, assumptions and data used, monitoring procedures for each risk, and the degree of integration into overall risk management procedures outlined.<sup>702</sup> Metrics and targets are intended to illustrate the key tools used for monitoring performance and evaluating the evolution of both risks and opportunities on organisational practices.<sup>703</sup> Disclosure should include both cross-sectoral and sector-specific metrics (based on common features of business models used), targets as identified by relevant internal bodies, and key performance indicators used to evaluate progress made.<sup>704</sup> Management-designated targets for mitigation or adaptation to sustainability-related risks or opportunities should be clearly identified encompassing the target type (absolute, activity-based, etc), the applicable timeframe, milestones, and external parameters including third-party validation, along with metrics utilised that are

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<sup>698</sup> *Ibid*, Draft IFRS SX, at 23.

<sup>699</sup> *Ibid*, Draft IFRS SX, at 24-25.

<sup>700</sup> *Ibid*, Draft IFRS SX, at 26-32.

<sup>701</sup> *Ibid*, Draft IFRS SX, at 33.

<sup>702</sup> *Ibid*, Draft IFRS SX, at 34-35.

<sup>703</sup> *Ibid*, Draft IFRS SX, at 36.

<sup>704</sup> *Ibid*, Draft IFRS SX, at 37-42.

expected to remain consistent over time to allow for comparability. These targets should additionally be justified and explained.<sup>705</sup>

Comparative data showing progress over time, and future projections and forecasts, should be provided as a component of a standard reporting cycle occurring at least annually in line with financial reporting practices.<sup>706</sup> The complete set of sustainability-related financial disclosures should be presented in a fair and balanced manner, applying appropriate industry standards and with sources of uncertainty both estimated and articulated. This is to inform a holistic understanding of the entity's operational strength, enterprise value, and propensity to respond to or capitalise on respective sustainability risks and opportunities into the future.<sup>707</sup>

The approach suggested by the Technical Readiness Working Group for consideration by the ISSB provides a more fulsome level of disclosure geared towards enabling capital mobilisation towards organisations best positioned to respond to increased market pressures for sustainable business practices. For market mechanisms to effectively operate largescale capital injections are needed – be that new capital or a shift of capital from old technologies to new ones. Clear, coherent, consistent, and industry-endorsed disclosure standards are a fundamental prerequisite to enable a transition towards operations by private actors directed towards the achievement of sustainable development outcomes rather than at odds with them.

### *Innovative Institutional Approaches: Climate Disclosure*

In line with the ongoing global shift towards increased transparency and mobilisation of capital to support climate-focused initiatives, several experiences are illustrative of the internalisation by private actors of enhanced disclosure practices in support of sustainable development, and the coalescing of private actors to make available significant capital stocks to advance a whole-of-economy transition towards the 1.5°C goal. Selected experiences are drawn from organisations spanning multiple sectors (finance, energy, aviation, and shipping) with largescale climate footprints, annual revenues exceeding US\$ 10 billion who have engaged in enhanced reporting processes highlighting the scope and scale of disclosure and the significant degree of uptake and sustainability-driven innovative perspectives adopted by leading commanding heights industry actors.

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<sup>705</sup> *Ibid*, Draft IFRS SX, at 43-47.

<sup>706</sup> *Ibid*, Draft IFRS SX, at 48-52.

<sup>707</sup> *Ibid*, Draft IFRS SX, at 68-77.

Barclays PLC, a leading financial institution with £21.8 billion (~US\$ 29.23 billion) total income in 2020, has established core priorities that support sustainable and inclusive economic activity, sound management of environmental and social impacts, responsible business management, build strong employees and institutional culture, and invest in local communities.<sup>708</sup> As a founding member of the Principles for Responsible Banking, Barclays was among 29 other financial institutions who have committed to aligning their operations to the goals expressed in the Paris Agreement and the SDGs, as well as committing to follow the TCFD disclosure recommendations.<sup>709</sup> These commitments are grounded in the goal of being fully net-zero by 2050, with current emissions from operations already offset, focusing attention on reducing emissions from financed projects (“financed emissions”), and aligning their overall portfolio to enable the achievement of the Paris Agreement.<sup>710</sup> In 2020, Barclays saw a 71% reduction in scope 1 and 2 emissions based on a 2018 baseline, renewable energy consumption accounting for 74% of total use with a target of 90% and 100% set for 2021 and 2030 respectively, and facilitated over £32.4 billion (~US\$ 43.44 billion) in financing for green innovation since 2018 towards a goal of £100 billion by 2030.<sup>711</sup> They also set an institutional commitment to decrease financed emissions, targeting a 15% reduction in energy from 75 MtCO<sub>2</sub> in 2020 to 63.75 MtCO<sub>2</sub>, and a 30% reduction in power from 321 KgCO<sub>2</sub>/MWh in 2020 to 224.7 KgCO<sub>2</sub>/MWh by 2025 respectively.<sup>712</sup>

Enel, a renewable energy operator serving 74 million users and seeing €17.9 billion (US\$ 20.25 billion) in total revenue in 2020, aims to facilitate an energy transition through decarbonisation to support the fight against climate change, create value for shareholders and contribute to the achievement of the SDGs.<sup>713</sup> Setting a corporate target of reducing direct emissions by 80% to 82 gCO<sub>2</sub>e/KWh by 2030 compared to 2017 levels to be Paris aligned, Enel also provides a fully integrated report, both financial and sustainability-related following the pillars as identified by the TCFD, and strategic objectives aligned with SDG 7 (sustainable energy), SDG 9 (decent work), SDG 11 (sustainable cities), and SDG 13 (climate change).<sup>714</sup> In addition to the targeted direct emission reductions (Scope 1), an indirect (Scope 3) goal of a 16% reduction to 21.2 MtCO<sub>2</sub> by 2030 has also been established coupled with designated investment commitments to accelerate renewable energy installation – €16.8 billion (2021-2023) and €65 billion (2021-2030) --

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<sup>708</sup> Barclays PLC, “Environment Social Governance Report 2020” (Barclays, 2020), at 7, 10, online: <<https://home.barclays/content/dam/home-barclays/documents/investor-relations/reports-and-events/annual-reports/2020/Barclays-PLC-2020-ESG-Report-2020.pdf>>. [Barclays ESG 2020]

<sup>709</sup> *Ibid*, Barclays ESG 2020, at 2, 5, 10, 17.

<sup>710</sup> *Ibid*, Barclays ESG 2020, at 14.

<sup>711</sup> *Ibid*, Barclays ESG 2020, at 12, 15.

<sup>712</sup> *Ibid*, Barclays ESG 2020, at 16.

<sup>713</sup> Enel, “Integrated Annual Report 2020” (Enel, 2020), at 11-13, online: <[www.enel.com/content/dam/enel-com/documenti/investitori/informazioni-finanziarie/2020/annuali/en/integrated-annual-report\\_2020.pdf](http://www.enel.com/content/dam/enel-com/documenti/investitori/informazioni-finanziarie/2020/annuali/en/integrated-annual-report_2020.pdf)>. [Enel 2020]

<sup>714</sup> *Ibid*, Enel 2020, at 11-13, 55-56.

established to achieve the net-zero goal.<sup>715</sup> Several other key metrics are monitored and managed to reduce the overall environmental impact of operations, including total water consumption of 20.4 million M<sup>3</sup> representing a 65% reduction from 2019, zero-emission generation accounting for 63.4 %, a near-complete elimination of SO<sub>2</sub>, NO<sub>2</sub>, and particulate matter, and investments made in 187 projects to preserve biodiversity totalling 4,479 ha.<sup>716</sup> Business outcomes are presented on a connectivity matrix aligning core operational goals with SDG-related outcomes as a principal framework directing the organisation.<sup>717</sup>

Maersk, a global shipping and logistics leader who registered US\$ 39.74 billion in revenue for 2020, has committed to deliver a 60% reduction in relative CO<sub>2</sub> emissions by 2030 compared to 2008 levels. They already have commercially viable net-zero vessels deployed, and aim to have all ocean operations be net-zero by 2050.<sup>718</sup> Delivery of credible decarbonisation plans in line with the Paris Agreement begins with tracking and enacting active reduction of both direct emissions which totalled 33.9 MtCO<sub>2</sub> (Scope 1), indirect totalling 0.6 MtCO<sub>2</sub> (Scope 2), and indirect through the value chain totalling 19 MtCO<sub>2</sub> (Scope 3). They additionally understand where emissions come from, with 96% of direct emissions derived from operations,<sup>719</sup> and are charting a course to achieve the targeted reductions. Development of fully net-zero alternative fuels is a prime pathway focusing on four fuel types (biodiesel, methanol, lignin-based, and ammonia) though face a lack of infrastructure as a key limiting factor to deployment. Additionally, they also contribute to investments in the Maersk Mc-Kinney Møller Center for Zero Carbon Shipping to advance R&D into low carbon pathways for the maritime sector.<sup>720</sup> Noting that building consensus at the international level is gradual, Maersk expects shipping will come under the EU-ETS prior, but has prioritised being a first-mover and innovator in developing and promoting the adoption of net-zero alternative fuel to have a tangible reduction in emissions in conjunction with a continued commitment to transparency through TCFD and related sustainability reporting.<sup>721</sup> Approaches adopted across the organisation to enable sustainable trade, decarbonisation, safety, ship recycling, and diversity and inclusion are also mapped to the SDGs including SDG 5 (gender), SDG 7 (renewable energy), SDG 8 (decent work), SDG 9 (sustainable

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<sup>715</sup> *Ibid*, Enel 2020, at 55-56

<sup>716</sup> *Ibid*, Enel 2020, at 113-115.

<sup>717</sup> *Ibid*, Enel 2020, at 14.

<sup>718</sup> A.P. Moller – Maersk, “Annual Report 2020” (Maersk, 2020), at 11, online: <<https://ml-eu.globenewswire.com/Resource/Download/b6733b95-7047-4870-a4cc-8acb20c41dbf>>; A.P. Moller – Maersk, “Sustainability Report 2020” (Maersk, 2020), at 17, online: <[www.maersk.com/~/media\\_sc9/maersk/about/files/sustainability/sustainability-reports/apmm-sustainability-report-2020-a4-210210.pdf](http://www.maersk.com/~/media_sc9/maersk/about/files/sustainability/sustainability-reports/apmm-sustainability-report-2020-a4-210210.pdf)> [Maersk Sustainability Report].

<sup>719</sup> *Ibid*, Maersk Sustainability Report, at 44-45.

<sup>720</sup> *Ibid*, Maersk Sustainability Report, at 19-20.

<sup>721</sup> *Ibid*, Maersk Sustainability Report, at 20-21.

infrastructure), SDG 10 (reduced inequalities), SDG 12 (sustainable consumption and production), SDG 13 (climate action), SDG 14 oceans, and SDG 17 (partnerships).<sup>722</sup>

Air France-KLM, a leading air carrier who posted revenue of €11.1 billion (US\$ 12.58 billion) in 2020 totalling a 59% reduction due to the pandemic and resulting in a €4.5 billion operating loss (US\$ 5.1 billion), have committed to net-zero emissions by 2050, and linkage of performance-related financial incentives to key long-term milestones which include environmental and sustainability metrics.<sup>723</sup> Emissions in 2020 totalled 14.05 MtCO<sub>2</sub> (Scope 1), 0.06 MtCO<sub>2</sub> (Scope 2), and 3.03 MtCO<sub>2</sub> (Scope 3) amounting to a 50% reduction overall.<sup>724</sup> Carbon offset credits were purchased totalling 0.111 MtCO<sub>2</sub> (mandated), 0.623 MtCO<sub>2</sub> (voluntary), and 0.05 MtCO<sub>2</sub> (customers' travel).<sup>725</sup> Largescale development of alternative fuels is a critical priority allowing for an 80-100% emission reduction, with Air France-KLM announcing the construction of a dedicated plant in the Netherlands for SAF production, which was the first in Europe and was certified by the Roundtable for Sustainable Biomaterials which applies the best in class sustainability standard for aviation fuel. Air France-KLM additionally is making a decade-long commitment to purchase 75,000 tonnes of SAF annually.<sup>726</sup> Ground operations are also on target to be net-zero by 2030. Recognising the impacts air transport has on climate and biodiversity, Air France-KLM has committed to support biodiversity through several programs: (i) as a founding member of A Tree For You, which in 2020 saw 38,000 donations contribute to 25 forest restoration projects across 4 continents planting 200,000 trees; (ii) all domestic travel is offset through 9 forest restoration initiatives in France, Brazil, Peru, Cambodia, India, and Kenya contributing credits certified by GSF and VCS and supplemented by the Climate, Community and Biodiversity Standards (CCB Standards) to their portfolio; (iii) since 2008 through the CO2ZERO project supported forest and ecosystem restoration in Panama providing GSF certified outcomes and contributing to alternative local livelihoods, and (iv) created the *Aéro Biodiversité association* bringing together 3 airlines and 18 active airports to protect biodiversity and ecosystems around airports in line with French National Biodiversity Strategy (*Stratégie Nationale pour la Biodiversité – SNB*), thus recording and conserving 2,900 plant and animal species including 252 bird species since 2013.<sup>727</sup> All reporting is conducted in line with the TCFD recommendations and aligned to relevant SDGs including SDG 3 (health), SDG 5 (gender), SDG 7

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<sup>722</sup> *Ibid*, Maersk Sustainability Report, at 42-43.

<sup>723</sup> Air France-KLM, "Universal Registration Document including Annual Financial Report 2020" (Air France-KLM, 2020), at 4, 112-114, 190,193, online: <[www.airfranceklm.com/en/system/files/afk\\_urd\\_2020\\_29042021.pdf](http://www.airfranceklm.com/en/system/files/afk_urd_2020_29042021.pdf)>. [Air France-KLM Annual Report]

<sup>724</sup> *Ibid*, Air France-KLM Annual Report, at 202.

<sup>725</sup> *Ibid*.

<sup>726</sup> *Ibid*, Air France-KLM Annual Report, at 191-192.

<sup>727</sup> *Ibid*, Air France-KLM Annual Report, at 199-200.

(renewable energy), SDG 8 (decent work), SDG 9 (sustainable infrastructure), SDG 10 (reduced inequalities), SDG 12 (sustainable consumption and production), and SDG 13 (climate action).<sup>728</sup>

### *Observations from Climate Finance*

Coordinated commitment through the TCFD and development of complementary SDG and sustainability-related disclosure standards, against the backdrop of international legal architecture of market mechanism and momentum to hold global temperatures below 2°C, has fostered innovative and ambitious efforts across sectoral actors advancing key sustainable development outcomes. Through the enhanced transparency framework adopted by private actors, trust is being generated among the investment community and best practice approaches are being developed illustrative of both an internalisation by private actors, and elucidating transition pathways. COP 26 saw the launch of the Glasgow Financial Alliance for Net-Zero (GFANZ), a transformative institutional initiative bringing together over 450 financial institutions from 45 countries with over US\$ 130 trillion under management, with the intention to galvanise climate finance to the scale needed to enable the effective operation of the market mechanisms under the Paris Agreement.<sup>729</sup> Research findings demonstrate that trust grounded in transparency is integral to the broader framework enabling sufficient funding to flow into the market mechanisms, with the disclosure standards developed by TCFD, ISSB, and others playing a critical complementary role in establishing a common structure to enable investor confidence to be actualised.

### Sectoral Spotlight: Agriculture, Forests and Other Land Uses (AFOLU)

Nature-Based solutions play an important role in biodiversity conservation, climate adaptation and mitigation, and across global value chains with significant livelihoods impact at the local level. This nexus makes the Agriculture, Forests and Other Land Uses (AFOLU) sector both problematic as a driver of negative climate impacts and ripe for innovation. This section briefly highlights the relevant international legal instruments impacting forest governance and notes the lack of a legally binding framework. Mutually supportive modalities are outlined, and intersections identified, including the REDD+ framework and forest-based certifications. Finally, innovative approaches advancing sustainable development in the AFOLU

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<sup>728</sup> *Ibid*, Air France-KLM Annual Report, at 164-168.

<sup>729</sup> GFANZ, “Our progress and plan towards a net-zero global economy” (November 2021), online: <<https://assets.bbhub.io/company/sites/63/2021/11/GFANZ-Progress-Report.pdf>>; GFANZ, “Amount of finance committed to achieving 1.5°C now at scale needed to deliver the transition” (3 November 2021), online: <[www.gfanzero.com/press/amount-of-finance-committed-to-achieving-1-5c-now-at-scale-needed-to-deliver-the-transition/](http://www.gfanzero.com/press/amount-of-finance-committed-to-achieving-1-5c-now-at-scale-needed-to-deliver-the-transition/)>.

sector are outlined illustrating the interaction of the legal architecture of market mechanisms under international law and private actors. Overall, the lack of a comprehensive governance framework for the AFOLU sector leaves engagement with market mechanisms to remain mainly voluntary in nature or by virtue of broader uptake of disclosure standards.

### *Relevant International Instruments*

While the AFOLU sector lacks a comprehensive international legal framework, a patchwork of existing treaty obligations support, advance, and enable the core components of the architecture of market mechanisms related to forestry and landscapes. Primary among these is the CBD, which provides for the conservation and sustainable use of biodiversity, recognises functionality of ecosystems as a unitary whole, establishes sovereign rights to the environment and obligations to prevent deleterious impacts to neighbouring States and areas beyond national jurisdictions, and integrates the development of national biodiversity strategies and action plans (NBSAPs) to enable governance at the national level.<sup>730</sup> *In situ* conservation is supported by Parties through the establishment of protected areas, promotion of ecosystem protection and environmentally conscious development in adjacent areas, and development of national legal regimes to provide protections for threatened species and prevent deleterious impacts to the environment.<sup>731</sup> Recognition and protection of TK and modalities for facilitation of access and benefit-sharing are also provided which were further elaborated in the context of GRs through the Nagoya Protocol.<sup>732</sup>

Where the landscape consists of a wetland or mangrove forest, the Ramsar Convention provides modalities for the wise use of the ecosystem. Under the Convention wetland is broadly defined to encompass natural or artificial areas of wetland, peatland, marsh, or marine spaces of a depth not beyond 6 metres at low tide.<sup>733</sup> If registered as a Wetlands of International Importance (Ramsar Site) by the competent national authority, the Party is obliged to monitor the wetland for human-induced changes to the ecological character. Modalities are also put in place for notification to be provided to the Secretariat by the Party, other Parties, or civil society where such changes have occurred, and may see mobilisation of technical support through a Ramsar Advisory Mission to assist in addressing the deleterious impacts.<sup>734</sup> Other potential instruments of relevance include the CITES regarding trade in listed species, the Convention on

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<sup>730</sup> CBD, *supra* note 80, Article 2-3, 6-7.

<sup>731</sup> *Ibid*, CBD, Article 8.

<sup>732</sup> *Ibid*, CBD, Article 8(j), 15; See chapter 3 for an in-depth discussion of ABS provisions in the CBD, Nagoya Protocol and related instruments.

<sup>733</sup> *Convention on Wetlands of International Importance especially as Waterfowl Habitat*, 2 February 1971, 996 UNTS 245 (entered into force 21 December 1975), Article 1(1), 3(1). [Ramsar Convention]

<sup>734</sup> *Ibid*, Ramsar Convention, Article 3(2), 8(2); Estrin et al., *supra* note 157.

Migratory Species (CMS) addressing preservation of habitats for migratory species, and the Convention for the Protection of the World Cultural and Natural Heritage for the preservation of natural spaces of value to humanity.<sup>735</sup>

In December 2007, the UNGA adopted Resolution 62/98 creating a non-legally binding instrument on all types of forests with the intention to provide a framework for national action and international cooperation to strengthen political commitment to implement sustainable management of forests.<sup>736</sup> While voluntary and non-legally binding, the instrument recognises Member States hold responsibility for the development and enforcement of domestic forest-related laws, notes the importance of engaging IPLCs and relevant stakeholders in decision making, and identifies the need for additional financial resources to enable forest conservation towards achieving progress by 2015.<sup>737</sup> Global objectives of reversing the loss of forest cover, enhancing forest-based livelihoods, increasing forests designated as protected areas, and mobilising new and additional financing for sustainable forest management were identified.<sup>738</sup> Member States agreed to develop and implement domestic forest programs, enhance legislative frameworks, promote the protection of forest-related TK, create enabling environments to encourage private sector investment, and identify areas for cooperation both domestically and internationally.<sup>739</sup> In 2015, the UNGA through Resolution A/RES/70/199 renamed the non-legally binding instrument on forests to the United Nations Forest Instrument and extended the timeframe to 2030 to align with the SDGs.<sup>740</sup>

While non-binding in nature, and with intersections across a range of binding international obligations related to biodiversity, wetlands, habitats, and at-risk species, global efforts related to forest and landscape governance benefit from domestic progress and provide a basis for investment in line with global market mechanisms going forward.

### *Mutually Supportive Measures: Mobilisation of Investment and Certifications in AFOLU*

#### Reducing Emissions from Deforestation and Forest Degradation (REDD+)

Provisions relating to land use, land use change, and forestry (LULUCF) were included in the Kyoto Protocol for activities in developed countries listed in Annex I. However, given the lack of economy-wide targets for

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<sup>735</sup> CITES, *supra* note 204; *Convention on the Conservation of Migratory Species of Wild Animals*, 23 June 1979, 28395 UNTS 1651 (entered into force 1 November 1983); *Convention for the Protection of the World Cultural and Natural Heritage*, 23 November 1972, 15511 UNTS 1037 (entered into force 17 December 1975).

<sup>736</sup> United Nations, Resolution 62/98: Non-legally binding instrument on all types of forests (31 January 2008), A/RES/62/98, para 1. [UNGA Res 62/98]

<sup>737</sup> *Ibid*, UNGA Res 62/98, para 2.

<sup>738</sup> *Ibid*, UNGA Res 62/98, para 5.

<sup>739</sup> *Ibid*, UNGA Res 62/98, para 6-7.

<sup>740</sup> United Nations, Resolution 70/199: United Nations Forest Instrument (16 February 2016), A/RES/70/199.

non-Annex I Parties, parallel provisions were not included for developing and emerging economies. Eligible projects under the CDM included reforestation and afforestation, but conservation-related efforts to reduce forest degradation were omitted.<sup>741</sup> At COP 13 in 2008, a formal workplan to address reducing emissions resulting from deforestation in developing countries (REDD+) was first introduced through the Bali Action Plan along with modalities established for inclusion going forward.<sup>742</sup> The crucial role of reducing emissions from deforestation and forest degradation was acknowledged at COP 15, with the Parties committing to mobilise new and additional financing for REDD+ activities.<sup>743</sup> Safeguards for REDD+ activities were agreed at COP 16,<sup>744</sup> with negotiations on methodological issues ongoing until COP 19 which saw agreement on a package of decisions. This made up the Warsaw Framework for REDD+, which included guidance for national implementation of modalities for forest monitoring, measurement, reporting and verification (MRV), technical assessment, coordination, and results-based finance.<sup>745</sup>

REDD+ projects sit outside of the CDM process interacting in a fragmented international legal framework,<sup>746</sup> and are fully dependent upon the domestic legal framework in place at the national level to actualise benefits.<sup>747</sup> The MRV process on the other hand, links reporting to national obligations under the UNFCCC, while technical assessment procedures provide a means to devolve fiduciary responsibilities for the project to national authorities which can ameliorate some fiduciary concerns and allow results-based financing to flow.<sup>748</sup> Additionally, project readiness and implementation have been predominantly funded through donor bodies with the World Bank and UN-REDD, each having multilateral funds dedicated to these areas, with the largest recipient regions from 2008-2020 being Latin America and Caribbean (56%), Sub-Saharan

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<sup>741</sup> Kyoto Protocol, *supra* note 77, Article 3(3-4), 12.

<sup>742</sup> UNFCCC, Decision 1/CP.13: Bali Action Plan, Report of the Conference of the Parties on its Thirteenth Session (14 March 2008), FCCC/CP/2007/6/Add.1\*; UNFCCC, Decision 2/CP.13: Reducing emissions from deforestation in developing countries: approaches to stimulate action, Report of the Conference of the Parties on its Thirteenth Session (14 March 2008), FCCC/CP/2007/6/Add.1\*.

<sup>743</sup> UNFCCC, Decision 2/CP.15: Copenhagen Accord, Report of the Conference of the Parties on its Fifteenth Session (30 March 2010), FCCC/CP/2009/11/Add.1, para 6, 8. [Copenhagen Accord]

<sup>744</sup> UNFCCC, Decision 1/CP.16: Report of the Conference of the Parties on its Sixteenth Session (15 March 2011), FCCC/CP/2010/7/Add.1, para 70-73, Appendix I, para 2.

<sup>745</sup> UNFCCC, "Report of the Conference of the Parties on its Nineteenth Session" (25 September 2014), FCCC/CP/2013/10/Add.2/Rev.1; See: 9/CP.19, 10/CP.19, 11/CP.19, 12/CP.19, 13/CP.19, 14/CP.19, 15/CP.19; Christina Voigt & Felipe Ferreira, "The Warsaw Framework for REDD+: implications for national implementation and results-based finance" in Christina Voigt, ed., *Research Handbook on REDD-Plus and International Law* (Cheltenham, UK: Edward Elgar Publishing, 2016). [Voigt ed. 2016]

<sup>746</sup> Margaret A Young, "REDD+ and interacting legal regimes" in *ibid*, Voigt ed. 2016.

<sup>747</sup> S Sophie Chapman et al., "The elements of benefit-sharing for REDD+ in Kenya: A legal perspective" *Carbon & Climate Law Review* (2015) CCLR, 9(4), 283-297.

<sup>748</sup> Paul Keenlyside et al., "Managing fiduciary risk in REDD+" in Voigt ed. 2016, *supra* note 817.

Africa (25%) and East Asia and Pacific (10%).<sup>749</sup> As of 2020 there were 155 REDD+ projects ongoing across 36 countries, covering 50.26 million ha, and with 93.2% between 100,000-1,000,000 ha in size.<sup>750</sup>

REDD+ projects often involving significant co-benefits to the local community and supporting sustainable development outcomes have seen popularity in the voluntary market. Project proponents have noted an increase in both demand and credit value from REDD+ projects with forestry and land use in 2019 accounting for 36.7 MtCO<sub>2</sub> in volume at a per ton cost of US\$ 4.33 and a total market value of US\$ 159.1 million, to in 2021 (through August) 115 MtCO<sub>2</sub> in volume, at US\$ 4.73 per ton and a total market value of US\$ 544 million.<sup>751</sup> The Glasgow Leaders Declaration on Forests and Land Use reaffirms commitment to sustainable land use and commit to halting deforestation by 2030, calling for alignment of finance flows with the goal to reverse forest loss and degradation in an effort to achieve the Paris goals.<sup>752</sup> The agreement at COP 26 on cooperative approaches under Article 6.2 and 6.4 created continued channels for mobilisation of capital in the AFOLU sector, provided the additionality requirement can be satisfied and the project scope corresponds with an approved methodology which currently includes afforestation and reforestation, but excludes REDD+ activities such as forest management practices.

Market mechanisms continue to provide a critical pathway to mobilising capital towards ecosystem restoration activities. REDD+ will remain a complementary tool in the voluntary carbon market until further methodologies are approved by the Supervisory Body going forward.

### AFOLU-Related Certifications

Well-designed AFOLU projects can advance both carbon mitigation goals for investors and strong co-benefits at the local level creating alternative livelihoods, protecting biodiversity, and engaging a broad range of stakeholders. The Climate, Community and Biodiversity Standards (CCB Standards), developed by Climate, Community & Biodiversity Alliance (CCBA) in partnership with Conservation International, the Rainforest Alliance and Wildlife Conservation Society, is a trusted tool to provide to investors who are sourcing projects or credits, and are also used by project proponents, local communities, and governments who want confidence that the project synergistically achieves strong climate, biodiversity, and sustainable

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<sup>749</sup> UN-REDD, “12<sup>th</sup> Consolidated Annual Progress Report of the UN REDD Programme Fund” (2020), online: <[www.un-redd.org/sites/default/files/2021-10/UN-REDD-2020-Annual-Report.pdf](http://www.un-redd.org/sites/default/files/2021-10/UN-REDD-2020-Annual-Report.pdf)>; Charlene Watson & Liane Schalatek, “Climate Finance Thematic Briefing: REDD+ Finance” Climate Funds Update: Climate Finance Fundamentals 5 (February 2021), online: <<https://climatefundsupdate.org/wp-content/uploads/2021/03/CFF5-ENG-2020-Digital.pdf>>.

<sup>750</sup> Stibniati S Atmadja, “Summary analysis of REDD+ projects, 2018-2020” CIFOR (2021), online: <[www.reddprojectsdatabase.org/view/IDRECCO\\_analysis\\_Ver3-4.1\\_20210302\\_Summary.pdf](http://www.reddprojectsdatabase.org/view/IDRECCO_analysis_Ver3-4.1_20210302_Summary.pdf)>.

<sup>751</sup> Ecosystem Marketplace, “Markets in Motion: State of the Voluntary Carbon Markets 2021 – Instalment 1” (2021), at 10, online: <[www.ecosystemmarketplace.com/publications/state-of-the-voluntary-carbon-markets-2021/](http://www.ecosystemmarketplace.com/publications/state-of-the-voluntary-carbon-markets-2021/)>. [Ecosystem Marketplace 2021]

<sup>752</sup> UNFCCC, “Glasgow Leaders Declaration on Forests and Land Use” COP 26 (3 November 2021), online: <<https://ukcop26.org/glasgow-leaders-declaration-on-forests-and-land-use/>>.

development outcomes.<sup>753</sup> Applicable to land management projects, the CCB Standards reflect the REDD+ safeguards and carry parallels to the REDD+ Social and Environment Standards (REDD+ SES), with project validation and verification administered by an independent body utilising the CCB program rules.<sup>754</sup>

The CCB Standards provides guidelines for project design to ensure long-term viability, development of land-use scenarios to illustrate additionality, access to information and stakeholder consultation to ground local engagement and participation in decision-making, and management capacity to fulfil the project terms.<sup>755</sup> Climate guidelines for monitoring, impact, and leakage are provided including option guidance on adaptation benefits at the local level, specifically highlighting the benefits to the local community.<sup>756</sup> Additionally, the standard requires scenario analysis of the community to encompass the additionality of the high conservation values, impacts on the livelihoods, and intersections with the traditional cultural identity of the local communities.<sup>757</sup> There are additionally designated indicators for assessment of positive impacts to the local community, and require a commitment to do no harm to broader stakeholders, conduct ongoing community monitoring standards, and provide optional criteria for designation of exceptional community benefits.<sup>758</sup> Respect for the land of local communities is further embedded, requiring proponents to demonstrate that the project will respect land tenure and engage in activities based on Free, Prior Informed Consent (FPIC). This includes detailed requirements for what constitutes consent from the local community, and inclusion of biodiversity scenario assessment embedding conservation and sustainable use principles into the standards.<sup>759</sup> Additionally, there are criteria for net positive impact on local species and ecosystems, requirements to mitigate and negative biodiversity impacts, ongoing monitoring, and optional criteria to illustrate exceptional biodiversity benefits that further support these principles.<sup>760</sup>

As of December 2021, the Verra registry that administers the Verified Carbon Standard includes 31 validated and 86 verified CCB projects across 17 jurisdictions with 258.4 million CCB units issued and having retired 99.5 million units for voluntary offsetting.<sup>761</sup> The scope and community-centric aspects of the CCB Standards provide significant differentiation across many other standards and project types, reinforcing the

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<sup>753</sup> VCS, “The Climate, Community and Biodiversity Standards” 3rd ed – Version 3.1 (21 June 2017), at 3-5, online: <[https://verra.org/wp-content/uploads/2017/12/CCB-Standards-v3.1\\_ENG.pdf](https://verra.org/wp-content/uploads/2017/12/CCB-Standards-v3.1_ENG.pdf)>. [CCB Standards]

<sup>754</sup> *Ibid*, CCB Standards, at 6-9.

<sup>755</sup> *Ibid*, CCB Standards, at 14-20.

<sup>756</sup> *Ibid*, CCB Standards, at 25-32.

<sup>757</sup> *Ibid*, CCB Standards, at 33-34.

<sup>758</sup> *Ibid*, CCB Standards, at 35-40.

<sup>759</sup> *Ibid*, CCB Standards, at 21-24.

<sup>760</sup> *Ibid*, CCB Standards, at 41-48.

<sup>761</sup> Verra, “Climate, Community & Biodiversity Standards: Project and Credit Summary” (2021), online: <<https://registry.verra.org/app/search/CCB>>.

potential for use of market mechanisms even in the voluntarily engaged to drive impactful sustainable development outcomes.

Also of note, the Forest Stewardship Council (FSC) provides a range of certifications applicable for managed forests at the national level such as FSC-STD-01-001, FSC-STD-60-002, FSC-PRO-60-007 providing principles, criteria, and content for national forest stewardship standards and FSC-STD-60-004-20 outlining internationally harmonised indicators.<sup>762</sup> Other certifications, notably FSC-STD-01-003, FSC-STD-30-005, and FSC-STD-20-007 define eligibility, standards, and evaluation methods for low-intensity forests,<sup>763</sup> while FSC-STD-40-005 and FSC-STD-30-010 establish procedures for sourcing of controlled wood.<sup>764</sup> The FSC also provides chain of custody certifications for forest timber projects and project certification for wood-based developments of all sizes. Forest management projects that generate carbon units may have multiple simultaneous uses including sustainably harvested forest timber and non-timber products, with FSC certifications, providing a market-recognised standard that can complement sustainable forest management areas.

### *Innovative Institutional Approaches: AFOLU Engagement*

#### Supply Chains Sustainability

Mars Inc., a family-owned (privately-held) food company with revenue exceeding US\$ 40 billion in 2020 and home to notable brands Snickers, M&M's, Uncle Ben's, Pedigree, Whiskas, and Royal Canin among many others,<sup>765</sup> launched in 2017 the ambitious "Sustainable in a Generation Plan" with the aim of transforming the organisation's operations and total supply chain.<sup>766</sup> In support of the Paris Agreement and framed to accelerate progress towards achievement of the SDGs, the plan is grounded in three pillars: healthy planet, thriving people, nourishing wellbeing. The plan includes targets across each pillar and annual audited reporting structured around the TCFD requirements. It encompasses their full supply chain with operations in over 80 countries, manufacturing in 32, and sourcing some of the most challenging raw

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<sup>762</sup> FSC, "FSC-STD-01-001: FSC Principles and Criteria for Forest Stewardship Standard" v5.2 (22 July 2015); FSC, "FSC-STD-60-002: Structure and Content of National Forest Stewardship Standards" v1.0 (01 January 2010); FSC, "FSC-PRO-60-007: Structure, Content and Development of Interim National" v1.2 (01 October 2016); FSC, "FSC-STD-60-004-20: International Generic Indicators" v2.0 (01 July 2018).

<sup>763</sup> FSC, "FSC-STD-01-003: SLIMF Eligibility Criteria" v1.0 (1 January 2015); FSC, "FSC-STD-30-005: Forest Management Groups" v2.0 (16 March 2021); FSC, "FSC-STD-20-007: Forest Management Evaluations" v3.0 (1 January 2010).

<sup>764</sup> FSC, "FSC-STD-40-005: Requirements for Sourcing FSC Controlled Wood" v3.1 (1 July 2016); FSC, "FSC-STD-30-010: FSC Controlled Wood Standard for Forest Management Enterprises" v2.0 (1 January 2007).

<sup>765</sup> Forbes, "Company Profile: Mars" (21 November 2021), online: <[www.forbes.com/companies/mars/?sh=608a09763bb7](https://www.forbes.com/companies/mars/?sh=608a09763bb7)>; Mars, "Made by Mars" (2020), online: <<https://gbr.mars.com/made-by-mars>>.

<sup>766</sup> Mars, "Sustainable in a Generation Plan" (2017), online: <[https://l1hcdn.mars.com/adaptivemedia/rendition/id\\_86343d566f07ca74d52dcdc9f3d0be5087779ecc/name\\_out/Mars%20Sustainability%20Report%20-%20English.pdf](https://l1hcdn.mars.com/adaptivemedia/rendition/id_86343d566f07ca74d52dcdc9f3d0be5087779ecc/name_out/Mars%20Sustainability%20Report%20-%20English.pdf)>. [Sustainable in a Generation Plan]

materials including cocoa, rice, and palm oil.<sup>767</sup> The process towards sustainability-based priorities began in 2013 with sustainable sourcing targets for several key raw materials and ingredients. Mars established 100% certified sources for palm oil, coffee, and black tea with those targets achieved from 2013-2015.<sup>768</sup> In 2017, Mars launched the Sustainable Rice Platform standard allowing 96% of the raw material to be sustainably sourced, and increasing farmer income by 32% while reducing water use by 30% in Pakistan following a year of operation.<sup>769</sup>

Launching the plan, Mars set targets for climate – specifically reducing full value chain emissions by 27% from 2015 levels by 2025 and 67% by 2050 and reducing emissions from operations by 20% by 2020. With respect to water, they look to reduce unsustainable water use across the value chain by 50% by 2025 and improve water efficiency in stressed regions by 15% by 2020. For landscapes, they are holding all land associated with the value chain at 2015 levels. Additionally they began a complex reporting scheme tracking operational (Scope 1), energy use (Scope 2) emission, and emissions across the full value chain (Scope 3), leading to 100% coverage in 2020, as well as water use and forest land use conversion rates.<sup>770</sup> With global operations and complex agricultural supply chains in 2020, Scope 3 emissions totalled 27.3 MtCO<sub>2</sub> through comprehensive tracking across all business units and with full reporting from suppliers. They are also prioritising the elimination of deforestation from five core raw materials.<sup>771</sup> All executive bonuses are directly linked to the achievement of reductions in Scope 1 and 2 emissions.<sup>772</sup>

Supply chain emission reductions are furthermore supported through projects funded by the Livelihoods Fund for Family Farming (L3F), created by Danone and Mars in 2015. Through the L3F, smallholder farmers producing raw materials who sit at the nexus of economic, social, and environmental impacts are provided with upfront financing, equipment, and technical assistance to enhance farm viability, improve working conditions, and increase and diversify incomes.<sup>773</sup> Sustainable goods produced are purchased through long-term supply contracts providing security of sustainably sourced raw materials while giving local communities a guaranteed high-value return. Additionally, project proponents benefit from positive nature-based externalities and carbon reductions. For instance, sourcing of shea in Ghana targets 13,000

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<sup>767</sup> *Ibid*, Sustainable in a Generation Plan, at 6; Mars, “Climate Change Disclosure” (2020), online: <[www.mars.com/sites/g/files/jydpvr316/files/2020-10/CDP%20Climate%202020.pdf](http://www.mars.com/sites/g/files/jydpvr316/files/2020-10/CDP%20Climate%202020.pdf)>. [Mars Disclosure 2020]

<sup>768</sup> *Ibid*, Sustainable in a Generation Plan, at 8.

<sup>769</sup> *Ibid*.

<sup>770</sup> *Ibid*, Sustainable in a Generation Plan, at 8; Mars Disclosure 2020, *supra* note 839, at 3, 8-9.

<sup>771</sup> *Ibid*, Mars Disclosure 2020, at 8-9, 26-27, 48; Mars, “Policy: Deforestation & Land Use Change Position” (2021), online: <[www.mars.com/about/policies-and-practices/deforestation-policy](http://www.mars.com/about/policies-and-practices/deforestation-policy)>; Prioritized elimination of deforestation from beef, cocoa, palm oil, pulp & paper, and soy.

<sup>772</sup> *Ibid*, Mars Disclosure 2020, at 7.

<sup>773</sup> Livelihoods Funds, “Livelihoods Fund for Family Farming” online: <<https://livelihoods.eu/l3f/>>. [L3F]

women farmers empowered, 3,500 ha of land under sustainable management, and 45,000 tonnes of CO<sub>2</sub> avoided over the 10-year project.<sup>774</sup> Investments made through L3F among other funds managed by Livelihoods provide participants with emission reduction units for voluntary retirement or use with domestic compliance.

By 2020, Mars had reduced full value chain emissions by 7.3%, eliminated unsustainable water use in the value chain by 16%, reduced land use by 8.4%, improved human rights and incomes for over 233,000 farmers, workers, and their families through sustainable agricultural practices, increased the incomes of 40,000 farmers, and achieved a 100% deforestation-free palm oil supply chain.<sup>775</sup> All residual emissions that cannot be reduced will be offset through socially beneficial carbon credits with a recent €150 million investment in Livelihoods Carbon Fund 3 aimed to support this goal going forward.<sup>776</sup> Mars has also joined with the UN-backed Good Growth Partnership to broaden their work on sustainable value chains, with one example being grounded in their Beef Sourcing & Deforestation Action Plan.<sup>777</sup>

While not purchasing units on the open market, choosing rather to invest directly in carbon reduction and nature conservation projects with positive sustainable development co-benefits, the experiences of Mars illustrate how the internalisation of climate and sustainable development priorities can operate at scale, and how the existence of market mechanisms provide the direct and supportive architecture needed for private actors to engage, mobilise capital, and commit to transformative change.

### Impact Investing and Advisory

The development of biodiversity and climate-conscious projects requires access to capital which often sees investments as risk-laden. Impact investment funds can in this respect fill a critical void to support market mechanisms. Bamboo Capital Partners provide catalytic investments to companies in developing countries with positive sustainable development-related outcomes, while providing financial returns for investors.<sup>778</sup> A blended finance solution, Bamboo may provide first-loss capital through bottom-up investments coupled with scalable capital solutions offered through strategic partnerships. Launched in 2019, the Agri-business

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<sup>774</sup> Livelihoods Funds, “Ghana: a sustainable shea sourcing project to support 13,000 women farmers” (2021), online: <<https://livelihoods.eu/portfolio/ghana-sustainable-shea-sourcing/>>; Livelihoods Funds, “A Public & Private Coalition of Actors Joining Forces To Build A Sustainable Shea Supply Chain In Ghana” (11 February 2021), online: <<https://livelihoods.eu/a-public-private-coalition-of-actors-joining-forces-to-build-a-sustainable-shea-supply-chain-in-ghana/>>.

<sup>775</sup> Mars, “Sustainable in a Generation Plan: Scorecard 2020” (2020), online: <[www.mars.com/sites/g/files/jydp316/files/2021-07/SIGP-Scorecard-2020\\_072729.pdf](http://www.mars.com/sites/g/files/jydp316/files/2021-07/SIGP-Scorecard-2020_072729.pdf)>.

<sup>776</sup> Mars, “Mars Pledges Fresh Climate Action to Achieve Net-Zero Emissions Across Full Value Chain” Press Release (5 October 2021), online: <[www.mars.com/news-and-stories/press-releases/mars-pledges-fresh-climate-action-to-achieve-net-zero-emissions](http://www.mars.com/news-and-stories/press-releases/mars-pledges-fresh-climate-action-to-achieve-net-zero-emissions)>.

<sup>777</sup> Mars, “Beef Sourcing & Deforestation Action Plan” (2021), online: <[www.mars.com/about/policies-and-practices/beef-sourcing-policy](http://www.mars.com/about/policies-and-practices/beef-sourcing-policy)>; Mars, “Beef Sourcing & Deforestation Action Plan: 2020 Progress Update” (22 June 2021), online: <[www.mars.com/sites/g/files/jydp316/files/2021-06/Beef%20Latam%20Action%20Plan%20Update\\_2020.pdf](http://www.mars.com/sites/g/files/jydp316/files/2021-06/Beef%20Latam%20Action%20Plan%20Update_2020.pdf)>.

<sup>778</sup> Bamboo Capital Partners, “Impact” online: <<https://bamboocp.com/impact/>>.

Capital Fund (ABC Fund) gives support to farming cooperatives in the Ivory Coast, Burkina Faso, and Ghana, to enable their cocoa to qualify for Fairtrade, UTZ, or Organic certifications. They help by validating the sustainability of the farming practices and thus increasing the market value of the products developed.<sup>779</sup> The ABC Fund has supported over 62,000 smallholder farmers across 6 countries in advancing sustainable development outcomes. In addition, investments in off-grid solar projects have enabled 4,700 businesses to develop solar energy systems, providing renewable energy to 65 million people, and avoiding 12.4 MtCO<sub>2</sub>.<sup>780</sup> While all investments are mapped to SDG-specific outcomes, in 2020 a specific SDG Fund was launched to scale the collective impact of investments.

Clarmondial similarly provides blended finance solutions through their Food Securities Fund (FS Fund). In collaboration with Conservation International, the FS Fund which in 2021 received a US\$ 15 million commitment under the GEF-7 non-grant instrument program. They provide working capital loans to over 30,000 smallholder farmers in East and Southern Africa allowing for sustainable land management and sustainable development in rural areas.<sup>781</sup> Lastly, Pollination Group provides advisory services on climate-related risks and transition plans, and mobilisation of investments for sustainable nature-based carbon and agricultural solutions, decarbonisation and energy transition technologies, and climate-resilient infrastructure.<sup>782</sup> In 2020, HSBC Pollination Climate Asset Management was launched with US\$ 1 billion in assets committed, a further US\$ 2 billion for carbon credit investments, and the goal of scaling to US\$ 6 billion.<sup>783</sup>

Innovative finance and advisory solutions bridge critical knowledge gaps allowing market mechanisms to effectively function through the coupling of technical expertise, market knowledge, professional services, and capital necessary for scalability and deployment of biodiversity and climate-focused solutions in support of sustainable development.

### *Observations from AFOLU Sector*

While it remains unclear if AFOLU projects will find a home under Article 6, with the need for specific methodologies still requiring approval, experiences in the voluntary market demonstrate an ongoing

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<sup>779</sup> Bamboo Capital Partners, “Weathering the crisis, building resilience: Impact Report” (2020), at 36-39, online: <<https://bamboocp.com/wp-content/uploads/Bamboo-Impact-Report-2020-1.pdf>>. [Bamboo Impact Report 2020]

<sup>780</sup> *Ibid*, Bamboo Impact Report 2020, at 28-33.

<sup>781</sup> GEF, “GEF supports innovative Food Securities Fund for sustainable agriculture” Press Release (4 October 2021), online: <[www.thegef.org/newsroom/press-releases/gef-supports-innovative-food-securities-fund-sustainable-agriculture](http://www.thegef.org/newsroom/press-releases/gef-supports-innovative-food-securities-fund-sustainable-agriculture)>; Clarmondial, “Food Securities Fund continues to grow its portfolio” Press Release (15 November 2021), online: <[https://www.clarmondial.com/fsf\\_growth\\_oct2021/](https://www.clarmondial.com/fsf_growth_oct2021/)>

<sup>782</sup> Pollination Group, “What We Do” (2021), online: <<https://pollinationgroup.com/what-we-do/>>.

<sup>783</sup> HSBC, “HSBC Global Asset Management & Pollination launch partnership to create world’s largest natural capital manager” Press Release (24 August 2020), online: <[www.assetmanagement.hsbc.co.uk/en/institutional-investor/news-and-insights/climateassetmanagement-uk](http://www.assetmanagement.hsbc.co.uk/en/institutional-investor/news-and-insights/climateassetmanagement-uk)>.

demand for biodiversity and climate-related projects with positive sustainable development co-benefits. Landscape-focused certifications provide important indicators to investors reinforcing the validity, long-term viability, and constructive local impacts grounded in collaboration and respect for Indigenous and local communities. Efforts made by private actors to link carbon measurements to forest products sourced throughout the supply chain are critical to understanding the scale of impact and enable forest/landscape protection to be captured under Scope 3 and systematically reduced. Mars provides a unique example of how robust climate and biodiversity-focused solutions can be systematically integrated into business processes leveraging market mechanisms as a gateway, but also endeavouring far beyond the initial scope to operationalise sustainable development principles and develop novel solutions. Research findings show innovative financing and advisory services bridge knowledge divides allowing for market mechanisms to actualise their sectoral benefits and empower private actors to develop new markets that drive market mechanisms related to biodiversity and climate change.

## Concluding Thoughts: Intersections with Sectoral Approaches

Meeting the 1.5°C target benefits from market mechanisms that provide a practical and actionable pathway for transition, dedicate levels of funding commensurate to the scale of the challenge, and facilitate the transition through the creation and dissemination of sectoral specific solutions to drive uptake and ongoing innovation. Awareness of the scale and scope of climate change and biodiversity loss has never been higher among private actors with 86% of US companies now publishing sustainability reports and 82% identifying transition risks due to climate change as a pressure.<sup>784</sup> Sectors no longer need to build the business case; they must be provided clear guardrails to enable action.

ICAO, engaged in this process in 2010, approved the “basket of measures” promoting alternative fuels, approval of specifications, and later establishment of CORSIA provided a clear line of sight for operators and financiers of the direction of travel. Maritime transport through IMO similarly following suit albeit at a slower pace, with the hopes that alternative fuels and technological solutions can reduce the need for a market-based approach which demonstrates a lack of commitment, creates unnecessary friction across the international architecture, and works to undermine the climate-related credibility of the overall framework. Private actors in both aviation and maritime transit are responding through innovative approaches as a component of social license to operate and to jockey for position in the future as a part of a broader shift. Despite a clear market logic, a key challenge for CORSIA will be overcoming the lack of guidelines on credit

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<sup>784</sup> Joel Makower, “State of Green Business” (2020), Green Business Group S&P, at 5, online: <[www.greenbiz.com/report/2020-state-green-business-report](http://www.greenbiz.com/report/2020-state-green-business-report)>.

vintages and the openness to potentially subpar quality credits, as these may undermine the perception of quality and credibility of their market mechanism.

Climate-related financial disclosure is gaining strong adoption and leading to more comprehensive sustainable development disclosure standards among market actors. This enhanced level of transparency is beneficial as it supports the functionality of the market logic of market mechanisms, increases the level of pressure on laggards to engage while enabling capital flows to facilitate a green transition. The launch of GFANZ at COP 26 with US\$ 130 trillion in assets managed towards net-zero practically translates to a need for greater levels of understanding among private actors of what must be disclosed annually to unlock capital to advance their enterprise. Market mechanisms provide a crucial modality to, at the very least, engage in this process through the utilisation of carbon credits to facilitate this shift, be it on the mandatory or voluntary market. Or, more appropriately, they can innovate how engagement in the process of investing in carbon-based reductions, informed through an appropriate understanding of Scope 1, 2 and 3 emissions, can drive genuine operational reductions with positive sustainable development outcomes that are grounded in an alignment with the organisation's mission and values.

Even where fragmentation exists, as is the case with the AFOLU sector, the influence of market mechanisms provides a gateway for engagement with conservation and sustainable development-focused practices. Leveraging of sector-specific or cross-sectoral certifications fill voids in the operationalisation of market mechanisms, ensuring outcomes are complementary to goals under both the biodiversity and climate-related regimes. The interface of climate-related risk disclosure, carbon offsets with positive co-benefits, and innovative responses to the climate challenge across sectors illustrate positive interaction of international legal architecture of market mechanisms that can mutually achieve supportive outcomes. It demonstrates how congruence of practice among private actors can act as a catalyst for sustainable development with long-term positive impacts at the local level.

The creation of the market logic in the architecture alone will not make the money flow. It requires trust grounded in transparency. Only through the successful interaction of legal regimes, voluntary mechanisms, and complementary processes can the proper constituent elements be put in place allowing capital to flow through the market mechanism, with the frequency and clarity of reporting a prime indicator of a system's functionality.

# Chapter 6 | The Role Played by Regional and Bilateral Trade and Investment Agreements: Creating an Enabling Environment for Market Mechanisms

## Introduction

Critical to creating enabling pathways to actualise the goals of market mechanisms found in international instruments, trade and investment obligations present in regional and bilateral instruments play a central bridging role through the creation of procedural, substantive, and institutional modalities.<sup>785</sup> Through an analysis of the pillars of international trade law, the landscape will first be defined by illustrating the systemic characteristics that the architecture of market mechanisms must synergistically respect. Second, progressive provisions found in regional and bilateral instruments are explored to illustrate their mutually supportive nature as it pertains to goals relating to climate change and biodiversity. Third, nationally determined contributions (NDCs) submitted under the UNFCCC are surveyed to highlight the interface of trade and investment priorities at the national level and to illustrate the importance played by both in actualising domestic climate and biodiversity initiatives. Finally, concluding thoughts emphasise the role trade and investment clauses play in buttressing market mechanisms established at the international level and fostering channels for congruence of practice.

## Principles of International Trade and Investment Law

### *General Exceptions Relating to the Environment*

Domestic measures that place restrictions on trade, potentially contravening MFN<sup>786</sup> or NT,<sup>787</sup> have the potential to be saved if they fall within one of the General Exceptions provided in the GATT. Article XX provides for a range of exceptions that allow for trade-restrictive measures in limited circumstances to protect, among other things, human, animal, or plant life,<sup>788</sup> and to conserve an exhaustible natural

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<sup>785</sup> Marie-Claire Cordonier Segger, *Crafting Trade and Investment Agreements for Sustainable Development: Athena's Treaties* (Oxford: Oxford University Press, 2021) [Cordonier Segger 2021]; Jeremiás Máté Balogh & Tamás Mizik, "Trade–Climate Nexus: A Systematic Review of the Literature" (2021) 9 *Economies* 99.

<sup>786</sup> GATT, *supra* note 330, Article I:1: MFN treatment provides that any advantage relating to customs duties or charges imposed for imports or exports extended to a contracting Party shall be accorded to like products originating or destined for all other Party jurisdictions; WTO, *Japan: Taxes on Alcoholic Beverages*—Report of the Appellate Body (1999) WT/DS8/AB/R, WT/DS10/AB/R, WT/DS11/AB/R 21; *Japan: Taxes on Alcoholic Beverages*—Report of the Appellate Body (1996) WT/DS8/ AB/R, WT/DS10/AB/R, WT/DS11/AB/R 20 [Japan Alcoholic Beverages II];

<sup>787</sup> *Ibid*, GATT, Article III:1-2, III:4; NT restricts the application of any internal taxes or charges – direct or indirect – or treatment less favourable to like imported products that are not applied to their domestically produced counterpart.

<sup>788</sup> *Ibid*, GATT, Article XX(b).

resource,<sup>789</sup> provided they comply with the *chapeau* and do not constitute arbitrary or unjustifiable discrimination or a disguised restriction on trade. Compliance with the *chapeau* has been viewed as “an expression of the principle of good faith” aimed at proportionality, ensuring a balancing of interests, and the application of the least trade-restrictive means has been utilised.<sup>790</sup>

Article XX(b), which provides safeguard application of measures necessary for the protection of “human, animal, or plant life or health” has been utilised to justify protective restrictions relating to fuel standards, clean air, and carcinogenic substances.<sup>791</sup> Similar arguments have been put forward in the context of the Carbon Border Adjustment Mechanism (CBAM) at the national level.<sup>792</sup> One particular challenge to the application of the GATT XX(b) exception is the strict necessity requirement aimed at ensuring the approach is both required and the least trade-restrictive option.<sup>793</sup> Alternatively, measures for the protection of exhaustible natural resources under Article XX(g), encompassing both mineral and non-mineral resources as well as environmental protection, have been found applicable to biological resources including fish stocks,<sup>794</sup> and turtles,<sup>795</sup> as well as clean air.<sup>796</sup>

Based on WTO jurisprudence, applications of environmental measures that positively support climate and biodiversity market mechanisms yet negatively impact or restrict trade that are applied in a cohesive manner to both domestically produced and imported products,<sup>797</sup> do not favour trade within a regional partnership,<sup>798</sup> are aimed at a bonified environmental purpose,<sup>799</sup> and, importantly, do not have a local content requirement,<sup>800</sup> could be found to comply with the Article XX(g) exception.<sup>801</sup>

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<sup>789</sup> *Ibid*, GATT, Article XX(g).

<sup>790</sup> US-Shrimp-Turtle, *supra* note 335, para 158-159, 161 [US-Shrimp-Turtle]; US-Reformulated Gas, *supra* note 335.

<sup>791</sup> *Ibid*, US-Reformulated Gas; *European Communities: Measures Affecting Asbestos and Asbestos-Containing Products*—Report of the Appellate Body (2000) WT/DS135/AB/R para 157. [EC- Asbestos]

<sup>792</sup> Meinhard Doelle, “Climate Change and the WTO: Opportunities to Motivate State Action on Climate Change through the World Trade Organization” (2004) 13:1 RECIEL 85 at 94; Freedom-Kai Phillips, “An Uneasy Relationship: Combating a Global Threat through International Trade” (2009) 18 Dalhousie Journal of Legal Studies 33; Maria Panezi, “Designing WTO-Compatible Border Carbon Adjustment Legislation Benefits, Challenges and Recommendations” CIGI Policy Memo (CIGI, 2016).

<sup>793</sup> GATT, *Thailand-Restrictions on Importation of Internal Taxes on Cigarettes* —Report of the Panel (1990), BISD 37S/200.

<sup>794</sup> GATT, *United States-Prohibition of Imports of Tuna and Tuna from Canada* —Report of the Panel (1982), BISD 29S/91.

<sup>795</sup> US-Shrimp Turtle, *supra* note 335.

<sup>796</sup> US-Reformulated Gas, *supra* note 335; EC- Asbestos, *supra* note 883.

<sup>797</sup> WTO, *China: Measures Related to the Exportation of Rare Earths, Tungsten, and Molybdenum*—Reports of the Appellate Body (2011) WT/DS431/AB/R, WT/DS432/AB/R, and WT/DS433/AB/R.

<sup>798</sup> WTO, *Brazil-Measures Affecting Imports of Retreaded Tyres* —Report of the Appellate Body (2007), WT/DS332/AB/R.

<sup>799</sup> US-Shrimp Turtle, *supra* note 335.

<sup>800</sup> WTO, *Canada: Certain Measures Affecting the Renewable Energy Generation Sector*—Report of the Appellate Body (2011) WT/DS412/AB/R, WT/DS426/AB/R paras 5.54 [Canada-FIT].

<sup>801</sup> See generally: Jürgen Kurtz, *The WTO and International Investment Law: Converging Systems* (Cambridge: Cambridge University Press, 2016), 168-228.

## *Fair and Equitable Treatment (FET)*

Similarly growing out of the post-war period, but having an equally long history of evolution, the pillars of modern investment protections were initiated through predominantly bilateral agreements, with international rules for the settlement of investment disputes agreed at the multilateral level through the *Convention on the Settlement of Investment Dispute between States and Nationals of other States*.<sup>802</sup> A core aspect of early investment agreements and customary international law, transcending into modern treaty practice, is the fair and equitable treatment (FET) standard.<sup>803</sup>

A core component in bilateral investment treaties (BITs) and many regional and bilateral trade agreements (RTAs and BTAs), such as the recent EU-Canada CETA (2016) and USMCA (2018), is the incorporation of a minimum standard of treatment for investors which explicitly includes FET.<sup>804</sup> Having evolved over time under both codified and customary international law, the standards of FET and related “protection and security” are rooted in the early disadvantageous treatment of foreign aliens, a lack of good faith protections, and insufficient responses at the national level that illustrated an intolerable derogation from international norms.<sup>805</sup> Recent jurisprudence has underlined procedural fairness and access to due process,<sup>806</sup> as well as an emphasis on addressing particularly egregious conduct by the host State.<sup>807</sup> Both EU-Canada CETA (2016) and USMCA (2018) include provisions explicitly referencing procedural fairness and due process, with the former listing specific thresholds such as “manifest arbitrariness,” “targeted discrimination” or “abusive treatment” while the latter affords the minimum standard afforded by international law.<sup>808</sup> While fact-specific and lacking a commonly agreed clause, factors of procedural transparency, compliance with contractual terms, access to justice and due process, good faith, and autonomous operation free from the arbitrary application of the law, coercion, or harassment have been noted by tribunals when evaluating the FET standard.<sup>809</sup>

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<sup>802</sup> Dolzer & Schreuer, *supra* note 100, at 13; *Convention on the Settlement of Investment Dispute between States and Nationals of other States*, 18 March 1965, 575 UNTS 159 (entry into force 14 October 1966).

<sup>803</sup> *Ibid.*, Dolzer & Schreuer, 130-135.

<sup>804</sup> *EU-Canada Comprehensive Economic and Trade Agreement*, 30 October 2016 (entered into force 21 September 2017), Article 8.10 [CETA]; *United States-Mexico-Canada Agreement*, 30 November 2018 (entered into force 1 July 2020), Article 14.6. [USMCA]

<sup>805</sup> *Neer v Mexico*, Opinion, US—Mexico General Claims Commission, 15 October 1926, RIAA Vol IV (1926), 60-66.

<sup>806</sup> *ADF Group Inc. v USA*, Award, 9 January 2003, ICSID ARB(AF)/00/1, at para 179; *Eletronica Sicula SpA (ELSI) (United States of America v Italy)*, Judgement, 20 July 1989, ICJ Reports 1989, at 15. [ELSI]

<sup>807</sup> *Pope & Talbot v Canada*, Award on Merits (Phase 2), 10 April 2001, 122 ILR (2002) 352, at para 118.

<sup>808</sup> CETA, *supra* note 891, Article 8.10(2); USMCA, *supra* note 891, Article 14.6(2)

<sup>809</sup> Dolzer & Schreuer, *supra* note 100, 139-145; Roland Kläger, *Fair and Equitable Treatment in International Investment Law* (Cambridge: Cambridge University Press 2013), at 62-74

A distinct application of the FET standard relates to the protection of the legitimate expectations of an investor and claims of expropriation because of shifts in environmental governance,<sup>810</sup> which has particular relevance to market mechanisms development, implementation, and evolution. Central to an evaluation of legitimate expectations is the presumed stability of the legal framework of the host State, with a number of Tribunals emphasising a grounding of assessment based on the legal order of the host State at the time of investment.<sup>811</sup> In particular, there is an obligation to not alter the legal or business environment within the jurisdiction where the investment was made.<sup>812</sup> Tribunals have stressed the need to avoid general legal instability or arbitrary changes.<sup>813</sup> Importantly, assessment of legitimate expectations must be grounded in objective and reasonable within the circumstances, and are not absolute subsequently providing jurisdictions the ability to adapt legal frameworks to evolving realities,<sup>814</sup> with some Tribunals granting deference to domestic reform in the public interest.<sup>815</sup>

Creation of an A6.4 ER project will require a letter of approval or formal endorsement from the host state in which the investor receives certain rights, and the establishment of an ETS for the trading of ITMOs generates an expectation to investors of the economic intention. These arrangements if altered or nullified could provide the basis for potential investment claims.<sup>816</sup> In *Eureko*, where an agreement was established for the purchase of shares, the Tribunal treated these rights as integral to the investment and subsequently warranting protection.<sup>817</sup> As we have seen with the filing in *Koch Industries*,<sup>818</sup> which results from the 2018 cancellation of the Ontario cap-and-trade programme and remains pending a decision, changes or cancellation to an emission trading program could result in disputes arising.

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<sup>810</sup> Jorge E Viñuales, *Foreign Investment and the Environment in International Law*, Cambridge Studies in International and Comparative Law (Cambridge: Cambridge University Press, 2012) [Viñuales 2012].

<sup>811</sup> Dolzer & Schreuer, *supra* note 100, 146; *SD Myers v Canada*, Second Partial Award, 21 October 2002; *Feldman v Mexico*, Award, 16 December 2002, ICSID ARB(AF)/99/1, at para 128; *Mondev v United States*, Award, 12 October 2002, ICSID ARB(AF)/99/2, at para 156; *Azinian v Mexico*, Award, 1 November 1999, ICSID ARB (AF)/97/2, at para 95-97; *Oscar Chinn Case* (UK v Belgium), 12 December 1934, PCIJ, Series A/B, No 63, at para 184.

<sup>812</sup> *Occidental v Ecuador*, Award, 1 July 2004, LCIA UN3467, at para 191. *Metalclad*, *supra* note 100, at para 103.

<sup>813</sup> *Bayindir v Pakistan*, Decision on Jurisdiction, 14 November 2005, ICSID ARB/03/29, at para 231-232; *Bayindir v Pakistan*, Award, 27 August 2009, ICSID ARB/03/29, at para 192-197; *ME v Czech Republic*, Partial Award, 13 September 2001, at para 611; *LG&E v Argentina*, Decision on Liability, 3 October 2006, ICSID ARB/02/1, at para 131; *PSEG v Turkey*, Award, 19 January 2007, ICSID ARB/02/5, at paras 240-256; *Enron v Argentina*, Award, 22 May 2007, ICSID ARB/01/3, at para 260-262; *Sempra v Argentina*, Award, 28 September 2007, ICSID ARB/02/16, at para 300, 303; *National Grid v Argentina*, Award, 3 November 2008, at para 178-179; *Alpha v Ukraine*, Award, 8 November 2010, ICSID ARB/07/16, at para 420; *Lemire v Ukraine*, Decision on Jurisdiction and Liability, 14 January 2010, ICSID ARB/06/18, at para 267; *Lemire v Ukraine*, Award, 28 March 2011, para 68-73.

<sup>814</sup> *Suez v Argentina*, Decision on Liability, 30 July 2010, ICSID ARB/03/19, at para 209; *Parkerings-Compagniet v Republic of Lithuania*, Award of 11 September 2007, ICSID Case No. ARB/05/8, para 327-338 [Parkerings]; *BG Group PLC v Republic of Argentina*, Final Award, 24 December 2007, at para 292-310 [BG Group]; *Continental Casualty v Argentina*, Award, 5 September 2008, ICSID ARB/03/9, para 258-261; *AES v Hungary*, Award, 23 September 2010, ICSID ARB/07/22, at paras 9.3.27-9.3.35; *El Paso v Argentina*, Award, 31 October 2011, ICSID ARB/03/15, para 344-52, 365-74.

<sup>815</sup> *Saluka v Czech Republic*, Partial Award, 17 March 2006, at para 306; *Total v Argentina*, Decision on Liability, 27 December 2010, ICSID ARB/04/01, at para 123, 309.

<sup>816</sup> Charlotte Streck, "Joint Implementation: History, Requirements, and Challenges" in Freestone & Streck 2005, *supra* note 268, 118-119.

<sup>817</sup> *Eureko B.V. v. Republic of Poland*, Partial Award of 19 August 2005 (2007) ICSID Reports, 12, 331-399, at 34-41, 144-145.

<sup>818</sup> *Koch Industries, Inc. and Koch Supply & Trading, LP v. Canada*, ICSID Case No. ARB/20/52.

A second concern in regulatory reform is breaching the legitimate expectations of the investor. The Tribunal in *Tecmed* stressed that the host Party was obliged to not infringe on the basic expectations underpinning the investment, acting in a consistent and non-arbitrary manner, and with a level of transparency that allowed the investor to know the regulatory basis of policy decisions.<sup>819</sup> However, in *Parkerings* the Tribunal provided further clarity, noting outside of an explicit promise or implicit assurances or representations, the host-State always retains law-making authority, and while a certain level of stability is expected where reasonable in the circumstances, the investor must remain aware that laws evolve over time, anticipate conditions may change, and structure their investment accordingly.<sup>820</sup> *Peter A. Allard v. Barbados* emphasised that regulatory and administrative decisions are not shielded from domestic changes in law, and unable to point to specific statements by the host-State, these changes would not be considered a breach.<sup>821</sup> Lastly, in *Philip Morris* the Tribunal balanced the expectations of the investor with the host-State's ability to enact a series of measures for the benefit of public health in light of obligations under the World Health Organization (WHO) Framework Convention on Tobacco Control, noting the evidence-based provisions and scientific underpinnings of the Convention, and highlighting the rightful exercise of sovereign law-making power in changing circumstances.<sup>822</sup> Importantly, the legitimate expectations in question were calibrated through the lens of widely accepted issues of international concern with an expectation of regulatory refinement deemed reasonable given the global consensus.<sup>823</sup>

While it has been suggested the objective of international investment agreements and the Kyoto Protocol were contradictory, with the former aiming to create a level playing field to promote foreign investment and the latter prioritising specific actions or technologies that enable GHG emission reduction,<sup>824</sup> the Paris Agreement has been characterised differently as a vehicle for mobilising investment in the critical climate-related projects and technologies needed to abate anthropogenic climate change.<sup>825</sup> Implementation of projects or changes to the regulatory landscape to implement the Paris Agreement could bring forward

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<sup>819</sup> *Tecmed*, *supra* note 100, at 154.

<sup>820</sup> *Parkerings*, *supra* note 901, at 331-333.

<sup>821</sup> *Peter A. Allard v. The Government of Barbados*, Award of 27 June 2016, PCA Case No. 2012-06, at 200; See additional: *BG Group*, *supra* note 901; *Plama Consortium Limited v. Republic of Bulgaria*, Award, 27 August 2008, ICSID ARB/03/24, at 219; *EDF (Services) Limited v. Romania*, ICSID Case No. ARB/05/13, Award of 8 October 2009, at 217; *Sergei Paushok and others v. The Government of Mongolia*, Award, 28 April 2011, at 302; *Total S.A. v. Argentine Republic*, of 27 December 2010, Decision on Liability, ICSID Case No. ARB/04/1, at 122; *Impregilo S.p.A. v. Argentine Republic*, Award, 21 June 2011, ICSID Case No. ARB/07/17, at 290-291.

<sup>822</sup> *Philip Morris Brands SÀRL, Philip Morris Products S.A. and Abal Hermanos S.A. v. Oriental Republic of Uruguay*, Award, 8 July 2016, ICSID, Case No ARB/10/7, at 395-396, 418, 422. [Philip Morris]

<sup>823</sup> *Ibid*, Philip Morris, at 427-430.

<sup>824</sup> Freya Baetens, "The Kyoto Protocol in Investor-State Arbitration" in Marie-Claire Cordonier Segger, Markus W Gehring & Andrew Newcome, eds., *Sustainable Development in World Investment Law* (Alphen Aan Den Rijn, The Netherlands: Kluwer Law International, 2011), 692-693.

<sup>825</sup> IFC, "Creating Markets for Climate Business: An IFC Climate Investment Opportunities Report" (Washington, DC: International Finance Corporation, 2021).

investment claims, either domestically or through investment tribunals with these experiences informative to tensions operationalisation of market mechanisms can produce.

The full extent of the relationship of the FET standard vis-à-vis market mechanisms in the climate and biodiversity sector remains underexplored in available jurisprudence, but preliminary conclusions support domestic policy flexibility to respond to these pressing global issues. Legitimate expectations should include a robust response to incentivise action with respect to our changing climate and the continued loss of biodiversity.

## Progressive Regional and Bilateral Trade and Investment Provisions

Creating critical enabling pathways for the advancement of the goals underpinning market mechanisms related to climate change and biodiversity, approaches adopted in trade and investment instruments lay the groundwork for commercial activity and mobilisation of finance flows to incentivise and actualise a green economy. This section explores relevant modalities adopted in RTAs and BTAs, economic partnership agreements (EPAs), and BITs highlighting the role played by provisions relating to improved environmental protection, non-regression, incorporation of multilateral environmental agreements (MEAs), governance of investor behaviour, sustainable management of terrestrial and marine resources, removal of barriers for green goods and services, expropriation, and dispute settlement. Each plays an important role in supporting, creating, or enhancing the international legal architecture of market mechanisms in the climate and biodiversity regimes and calibrating legitimate expectations of investors.

### *Enhancing Environmental Protection Standards*

Prioritising robust environmental protection and providing for a ratcheting up of standards in bilateral or multilateral instruments provides the basis to develop and operationalise climate and biodiversity-related market measures.

Identification of sustainable development as an investment priority is included in the EFTA States-Indonesia EPA (2018) providing a basis for mobilisation of investment to support the 2030 Agenda for Sustainable Development.<sup>826</sup> Insertion of the SDGs as a frame to the economic relationship of the Parties is found in a

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<sup>826</sup> *Comprehensive Economic Partnership Agreement between The Republic of Indonesia and The EFTA States*, 16 December 2018 (not in force), Article 8.1(1), 8.1(6) [EFTA States-Indonesia EPA]; See Article 8.1(6): “Except as otherwise provided for in this Chapter, this Chapter applies to trade-related and investment-related aspects of sustainable development in all its dimensions.”

number of agreements including EU-Japan EPA (2018),<sup>827</sup> the CARIFORUM-UK FTA (2019),<sup>828</sup> and the EU-Canada CETA (2016), with the latter also utilising procedural practices including stakeholder consultation and impact assessment to align practices with sustainable development priorities.<sup>829</sup> Prioritisation of investment that enables sustainable development is found in the preamble of numerous modern investment agreements.<sup>830</sup>

Providing modalities for the progressive enhancement of environmental protection is a critical factor. The Parties to the BLEU (Belgium-Luxembourg Economic Union)-Mozambique BIT (2006) emphasised the need to cooperate to increase environmental standards, including using expert consultation.<sup>831</sup> EU-Canada CETA (2016) provides for the establishment of standards for environmental protection in accordance with agreed international obligations, aiming to maintain requirements at a high-level, and striving to increasingly ratchet up levels of protection.<sup>832</sup> Both EC-Japan (2018) and EFTA States-Indonesia EPA (2018) acknowledge the right of each Party to establish respective environmental policies, with the aim to strive for progressive improvement over time and ongoing alignment with respective international priorities and standards.<sup>833</sup> The EU-UK Trade and Cooperation Agreement (2020) provides a commitment for carbon pricing, with the systems expected to cover GHG emissions from power and heat generation, industry, and aviation.<sup>834</sup>

The investment chapter of CP-TPP (2018), as well as the Korea-New Zealand FTA (2015), affirms the Parties' right to develop, implement, and enforce measures to ensure investments undertaken by virtue of the agreement advance environmental objectives.<sup>835</sup> Through prioritisation of sustainable development,

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<sup>827</sup> *Agreement between the European Union and Japan for an Economic Partnership*, 17 July 2018 (entered into force 2019), Article 16.1. [EU-Japan]

<sup>828</sup> *Economic Partnership Agreement between the CARIFORUM States, of the one part, and the United Kingdom of Great Britain and Northern Ireland, of the other part*, 22 March 2019 (not in force), preamble, Article 3 [CARIFORUM-UK]; Article 3: "The Parties reaffirm that the objective of sustainable development is to be applied and integrated at every level of their economic partnership... the application of this Agreement shall fully take into account the human, cultural, economic, social, health and environmental best interests of their respective population and of future generations."

<sup>829</sup> CETA, *supra* note 891, Article 22.1(3)(d).

<sup>830</sup> *Agreement between the Government of Hungary and the Government of the Republic of Cabo Verde for the Promotion and Reciprocal Protection of Investments*, 26 March 2019 (not in force), preamble [Hungary-Cabo Verde]; *Agreement between the Government of the Republic of Uzbekistan and the Government of the Republic of Korea for the Reciprocal Promotion and Protection of Investments*, 19 April 2019 (not in force), preamble [Uzbekistan-Korea BIT]; *Bilateral Investment Treaty between the Government of the Kyrgyz Republic and the Government of the Republic of India*, 14 June 2019 (not in force), preamble [India-Kyrgyzstan BIT]; *Investment Protection Agreement between the EU and its Member States and the Socialist Republic of Viet Nam*, 30 June 2019 (not in force), preamble [EU-Viet Nam]; *Agreement between the Government of the Republic of Singapore and the Government of the Republic of the Union of Myanmar on the Promotion and Protection of Investments*, 24 September 2019 (not in force), preamble. [Myanmar-Singapore]

<sup>831</sup> *Agreement between the Belgium-Luxembourg Economic Union and the Government of the Republic of Mozambique on the Reciprocal Promotion and Protection of Investments*, 18 July 2006 (entered into force 1 September 2009), Article 7.4. [BLUE- Mozambique BIT]

<sup>832</sup> CETA, *supra* note 891, Article 24.3.

<sup>833</sup> EFTA States-Indonesia EPA, *supra* note 913, Article 8.2; EU-Japan, *supra* note 914, Article 16.2(1).

<sup>834</sup> *Trade and Cooperation Agreement between the European Union and the United Kingdom*, 25 December 2020 (entered into force 1 January 2021), Article 7.3. [EU-UK TCA]

<sup>835</sup> *Comprehensive and Progressive Agreement for Trans-Pacific Partnership*, 8 March 2018 (entered into force 30 December 2018), Article 9.16 [CP-TPP]; *Free Trade Agreement between New Zealand and the Republic of Korea*, 23 March 2015 (entered into force 20 December 2015), Article 10.13. [New Zealand-Korea]

maintenance of environmental protection, encouragement to increase domestic standards, and alignment of investment with environmental objectives these approaches create a nurturing backdrop for incorporation of market mechanisms.

### *Non-Regression Clauses*

Finding increasing inclusion in trade and investment instruments,<sup>836</sup> non-regression clauses which come in variable formulations, lay the groundwork for operationalisation of market mechanisms that advance strong environmental outcomes. The Parties to CARIFORUM-UK FTA (2019) agreed to maintain domestic regulatory standards and acknowledged that foreign direct investment may not be pursued through the relaxation of environmental or social measures.<sup>837</sup> Similarly, EU-Korea FTA (2010) notes that environmental laws may not be waved, weakened, or reduced, nor may a Party fail to enforce or offer to “waive or otherwise derogate” domestic regulations in the promotion of trade and investment activity.<sup>838</sup> Similar formulations are observed in other instruments agreed in the region, including the Transpacific Partnership (2015),<sup>839</sup> Korea-New Zealand FTA (2015),<sup>840</sup> New Zealand Taiwan FTA (2013),<sup>841</sup> and Korea-Peru FTA (2011).<sup>842</sup> An important innovation, the EU-UK TCA (2020) provides the additional commitment to not weaken levels of climate protection as well.<sup>843</sup>

The EFTA States-Indonesia EPA (2018) provides for the rights of the Parties to regulate domestic environmental protection levels while affirming that such regulations shall not be altered, weakened, or reduced to provide a comparative advantage to domestic industries.<sup>844</sup> Adopting a similar approach, the EU-Japan FTA (2015) prohibits a reduction of environmental legislative standards, through either act or omission, to foster investment, or by way of disguised or discriminatory trade-restrictive practices.<sup>845</sup>

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<sup>836</sup> Markus Gehring & Freedom-Kai Phillips, “Legal Options for Post-Brexit Climate Change and Energy Provisions in a Future UK-EU Trade Agreement (ECF/CISDL, 2019), at 25, 30-31 [Gehring & Phillips]; Markus Gehring & Emily Morison, “Climate and Energy Provisions in Trade Agreements with Relevance to the Commonwealth” International Trade Working Paper (Commonwealth Secretariat 2020), at 10-11. [Gehring & Morison]

<sup>837</sup> CARIFORUM-UK, *supra* note 915, Article 73: See: Article 73: “The United Kingdom and the Signatory CARIFORUM States shall ensure that foreign direct investment is not encouraged by lowering domestic environmental, labour or occupational health and safety legislation and standards or by relaxing core labour standards or laws aimed at protecting and promoting cultural diversity.”

<sup>838</sup> *Free Trade Agreement between the European Union and its Member States and the Republic of Korea*, 2 October 2010 (entered into force 1 July 2011), Article 13.7. [EU-Korea]

<sup>839</sup> CP-TPP, *supra* note 922, Article 20.3; See generally, Gehring & Phillips, *supra* note 857, at 31.

<sup>840</sup> New Zealand-Korea, *supra* note 856, Article 15.2(4).

<sup>841</sup> *Agreement between New Zealand and the Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu on Economic Cooperation*, 10 July 2013 (entered into force 1 December 2013), Article 16.2. [NZ-Taiwan]

<sup>842</sup> *Free Trade Agreement between the Republic of Korea and Peru*, 14 November 2010 (entered into force 1 August 2011), Article 19.5.

<sup>843</sup> EU-UK TCA, *supra* note 921, Article 7.2.

<sup>844</sup> EFTA States-Indonesia EPA, *supra* note 913, Article 8.3.

<sup>845</sup> EU-Japan, *supra* note 914, Article 16.2(2-3).

Older agreements include a number of less robust formulations, acknowledging “it is inappropriate” rather than prescribing the Parties “shall not” regress or derogate environmental standards. Stringent constructions provide increased stability to advance sound market mechanisms over the long-term.

### *Respect and Recognition of Multilateral Environmental Agreements*

A common inclusion in regional and bilateral trade and investment agreements, direct reference to the advancement of obligations under multilateral environmental agreements (MEAs) properly positions the relationship to foster and not frustrate market mechanisms advancing environmental goals. While multiple variations can be observed, greater levels of specificity provide enhanced legal certainty.

The USMCA (2018) recognises the important role played by MEAs, affirms a collective commitment to advance implementation, and asserts the Parties’ commitment to consult and cooperate, in both bilateral and multilateral fora, on trade-related environmental issues of mutual interest. It also share views during international negotiations, and exchange information pertaining to the status of implementation.<sup>846</sup> Adopting a similar textual formulation, EU-Canada CETA (2016) additionally recognises the Parties’ right to develop environmental measures related to international obligations which are in accordance with the trade-related obligations under the WTO and in compliance with GATT Article XX.<sup>847</sup>

Recognising the right of Parties to develop domestic measures to implement commitments under MEAs, the EU-Japan FTA (2015) explicitly recognises the importance of advancing the objectives of the United Nations Framework Convention on Climate Change (UNFCCC) and effective implementation of the Paris Agreement through the prioritisation of cooperation towards transitioning to a low carbon economy and climate-resilient development.<sup>848</sup> Predating the Paris Agreement, the EU-Korea FTA (2010) notes the advancement of the UNFCCC and the Kyoto Protocol as core objectives, as well as coordinating efforts in line with the Bali Action Plan.<sup>849</sup> Interestingly, the EU-Moldova FTA (2014) contains a climate change chapter that, while also predating the Paris Agreement, commits to coordinate efforts towards adaptation, mitigation, transfer of carbon offsets, low-carbon R&D, technology transfer, mainstreaming of climate considerations into decision-making, climate-related education, awareness-raising, and capacity building.<sup>850</sup> The Parties further agree to cooperate through the exchange of technical expertise, joint

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<sup>846</sup> USMCA, *supra* note 891, Article 24.8.

<sup>847</sup> CETA, *supra* note 891, Article 24.4, 28.3.

<sup>848</sup> EU-Japan, *supra* note 914, Article 16.4.

<sup>849</sup> EU-Korea, *supra* note 925, Article 13.5(3).

<sup>850</sup> *Association Agreement between the European Union and the European Atomic Energy Community and their Member States the Republic of Moldova, 2 July 2014* (entered into force 23 July 2014), Article 92-93. [EU-Moldova]

activities and initiatives, mutual development of low carbon development strategic planning, legal preparedness for carbon trading, integration of climate-related planning into sectoral policies, and advancement of approaches to phase-out use of ozone depleting substances.<sup>851</sup>

The EU-UK TCA (2020) agrees to effective implementation of the Paris Agreement goals, supports emission reduction efforts under the ICAO and IMO frameworks, and incorporates explicit climate targets under the definition of “climate level protection.” The EU additionally committed to an economy-wide 40% reduction of carbon emissions and the use of carbon pricing by 2030, with the UK accepting their share of the economy-wide target and carbon pricing scheme.<sup>852</sup> In addition, environmental and climate principles are integrated, with reference to the Rio Declaration, the UNFCCC, and the CBD. This also included a commitment to take “preventative action to avert environmental damage” as well as including aviation travel from the EU to the UK under the carbon pricing scheme within two years of the agreement.<sup>853</sup>

Regarding ozone depleting substances specifically, USMCA (2018) includes a dedicated chapter on the protection of the ozone layer furthering cooperation among the Parties to support advancement of the Montreal Protocol.<sup>854</sup> The EU-UK TCA (2020) also supports an ambitious phase out of ozone depleting substances through constrained trade and inclusion of environmentally friendly alternatives.<sup>855</sup>

### *Governance of Investor Behaviour*

A unique aspect found in the CARIFORUM-UK EPA (2019) governs the conduct of investors, whereby the Parties agree to cooperate in the establishment of domestic measures which forbid and hold liable investors for providing or offering any type of advantage, directly or indirectly, to public officials, family members, or associates, to unduly influence the performance of their duties to receive any favour relating to the investment which encompasses applicable licences, permits, or contracts.<sup>856</sup> Operation of the investment must comply with applicable labour and environmental standards ensuring their operation does not circumvent applicable international obligations, and may establish a local community liaison process where the investment involved relates to natural-resources-based activities.<sup>857</sup>

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<sup>851</sup> *Ibid*, EU-Moldova, Article 94-96.

<sup>852</sup> EU-UK TCA, *supra* note 921, Article 7.1(3), 8.5(1-3).

<sup>853</sup> *Ibid*, EU-UK TCA, Article 7.3(4), 7.4.

<sup>854</sup> USMCA, *supra* note 891, Article 24.9.

<sup>855</sup> EU-UK TCA, *supra* note 921, Article 8.5(3)(d).

<sup>856</sup> CARIFORUM-UK, *supra* note 915, Article 72(a).

<sup>857</sup> *Ibid*, CARIFORUM-UK, Article 72(b-d).

While a novel example, this approach lays the groundwork for sound development and maintenance of natural resource-based investments (including nature-based solutions) which underpin climate and biodiversity-related market mechanisms.

### *Sustainable Management of Forestry and Fisheries*

The inclusion of core sustainable management priorities relating to terrestrial and marine resources provides a mutually supportive framework for the architecture of market mechanisms that positively incentivise conservation and sustainable use. The EU-Japan FTA (2015) sees Parties identify trade and investment as playing a central role in forest governance and commit to promoting conservation and sustainable use of forest-based resources, to combatting illegal trade in timber products through bilateral and multilateral collaboration, information exchange, and implementing of domestic sustainable management measures.<sup>858</sup> Recognising the environmental, economic, and social functions played by forests for both present and future generations, the Parties to EU-Canada CETA (2016) agree to advance sustainable management of timber resources, the implementation of international measures such as CITES, and bilateral dialogues relating to forest management.<sup>859</sup>

Stressing the critical role forestry and peatlands play in sequestration of GHGs and prevention of biodiversity loss, the Parties to EFTA States-Indonesia FTA (2018) committed to promote effective implementation of CITES. Additionally, they sought to develop and deploy forest-related certification programs, implement the terms agreed in the Forest Law Enforcement Governance and Trade (FLEGT) program Voluntary Partnership Agreement, and further cooperation relating to REDD+ programs.<sup>860</sup> Similarly, the EU-Colombia and Peru FTAs (2012) sees Parties pledge to advancing trade in sustainably harvested forest products through utilisation of CITES permits, promoting certification and verification schemes confirming the country of origin of timber products, enhancing transparency and public participation in forest management, and utilising independent institutions to strengthen compliance and control mechanisms.<sup>861</sup>

Relating to fisheries, the EU-Canada CETA (2016) emphasises the need for conservation and sustainable use of fisheries and aquaculture through the deployment of responsible management measures in light of the important social, environmental, and economic considerations for present and future generations. In

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<sup>858</sup> EU-Japan, *supra* note 914, Article 16.7.

<sup>859</sup> CETA, *supra* note 891, Article 24.10.

<sup>860</sup> EFTA States-Indonesia EPA, *supra* note 913, Article 8.8.

<sup>861</sup> *Trade Agreement between the European Union and Colombia and Peru*, 26 June 2012 (entered into force 1 June 2013), Article 273 [EU-Colombia and Peru]; Later acceded to by Ecuador, 11 November 2016.

this context, the Parties agree to develop and maintain vessel monitoring and control measures, port controls to avert overfishing, cooperative programs and engagement with regional fisheries management organisations (RFMOs) to combat illegal, unreported, and unregulated (IUU) fishing to ensure sustainable management of the fisheries and aquaculture sector.<sup>862</sup> With a similar aim to foster conservation and sustainable management of marine resources and ecosystems, under EU-Japan FTA (2015) the Parties reiterate the role of compliance with the obligations found the *United Nations Convention on the Law of the Sea* (UNCLOS) and fisheries management agreements.<sup>863</sup> This included the adoption of enforcement measures to monitor and control IUU fishing, and the promotion of sustainable production of aquaculture products.<sup>864</sup> Substantive alignment may be observed with obligations found in EFTA States-Indonesia EPA (2018), supplemented by the addition of alignment of fisheries subsidies objectives with the 2030 Agenda for Sustainable Development.<sup>865</sup>

Acknowledging the urgent governance challenges relating to regional and global fisheries, the Parties to the CP-TPP (2018) affirm to take collective and coordinated measures to address IUU fishing while developing fisheries management measures that reduce overfishing and bycatch. Additionally, they affirm to provide for species recovery, remove fisheries subsidies, and promote long-term measures for conservation of marine mammals, turtles, and sharks including a ban on finning.<sup>866</sup> Parties to the CARIFORUM-UK EPA (2019), with the aim to foster sustainable development and poverty eradication, identify preservation of rare and fragile biodiversity-rich ecosystems from overexploitation as a central objective. They additionally look to deploy science-based ecosystem management practices, maximise local benefits for employment, food security, and poverty alleviation with an aim to maintain stability fish production sector.<sup>867</sup> Encouraging regional policy alignment among CARIFORUM Member States, the Trade and Development Committee is empowered to identify policy options that are least trade-restrictive and recommend time-limited policy options in exceptional circumstances to protect food security within the region.<sup>868</sup> Exchange of information and promotion of consultations are also prioritised to advance

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<sup>862</sup> CETA, *supra* note 891, Article 24.11.

<sup>863</sup> See: the UN Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, done, the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and the Food and Agriculture Organisation Code of Conduct for Responsible Fisheries.

<sup>864</sup> EU-Japan, *supra* note 914, Article 16.8.

<sup>865</sup> EFTA States-Indonesia EPA, *supra* note 913, Article 8.9.

<sup>866</sup> CP-TPP, *supra* note 922, Article 20.16.

<sup>867</sup> CARIFORUM-UK, *supra* note 915, Article 37.

<sup>868</sup> *Ibid*, CARIFORUM-UK, Article 25(6)(b-d), 25(7-8), 38, 40.

investment in the marine-resource sector, consider institutional developments and refinements, and the integration of new technologies to modernise the sector.<sup>869</sup>

The EU-Viet Nam FTA (2019) intriguingly provides an exemption from MFN and NT for designated measures developed by Viet Nam relating to forestry and fisheries to provide specific protections to those domestic industries.<sup>870</sup>

### *Biodiversity and Marine Ecosystems*

Strong measures to foster conservation and sustainable use of biodiversity and marine ecosystems are integral to advance bio-based trade and investment and enable biodiversity-focused market mechanisms to effectively function.

The Parties to the EU-Japan FTA (2015) recognise the important role played by trade and investment in advancing the implementation of the CBD and CITES and affirm their commitment to adopt law and governance frameworks to address the utilisation of biological resources. They look to ensure that they contribute to conservation and sustainable use, specifically by including eco-labelling, monitoring and enforcement, biodiversity mainstreaming, awareness-raising to combat illegal trade in endangered species, and bilateral and multilateral cooperation.<sup>871</sup> Reiterating their commitment to effective implementation on the CBD, the Parties to EU-Colombia and Peru FTAs (2012) agree to maintain and effectively manage protected areas, both marine and terrestrial, jointly promote programs that positively incentivise conservation and sustainable use of biodiversity, recognise the importance of respecting, preserving and maintaining TK through utilisation grounded in PIC and MAT, and foster fair and equitable benefit-sharing derived from utilisation.<sup>872</sup> The EU-UK TCA (2020) aims to encourage trade in products resulting from the sustainable use of biodiversity, sees the Parties commit to take measures to reduce pressures from trade and investment on biodiversity, and commit to cooperate on the valuation of ecosystem services and enabling access in accordance with the Nagoya Protocol.<sup>873</sup> Numerous other agreements observed reflect the need to foster legality of access and utilisation of GRs and TK through PIC and MAT, as well as equitable sharing of benefits, in line with obligations under the CBD and the Nagoya Protocol.<sup>874</sup>

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<sup>869</sup> *Ibid*, CARIFORUM-UK, Article 41.

<sup>870</sup> EU-Viet Nam, *supra* note 917, Article 2.4, Annex 2.

<sup>871</sup> EU-Japan, *supra* note 914, Article 16.6.

<sup>872</sup> EU-Colombia and Peru, *supra* note 948, Article 273.

<sup>873</sup> EU-UK TCA, *supra* note 921, Article 8.6(3).

<sup>874</sup> *Free Trade Agreement between Colombia and the EFTA States*, 25 November 2008 (entered into force 1 July 2011: Colombia, Liechtenstein and Switzerland; 1 September 2014: Norway; 1 October 2014: Iceland), Article 6.5(5) [Colombia-EFTA]; *Free Trade Agreement between Peru and the EFTA States*, 24 June 2010 (entered into force 1 July 2011: Peru, Liechtenstein and Switzerland; 1 October 2014: Iceland; 1 July 2012: Norway), Article 6.5(7A); *Free Trade Agreement between the Peoples Republic of China and the Government of the Republic of Korea*, 1 June 2015

In agreeing to promote conservation and sustainable use of biodiversity, the Parties to CP-TPP (2018) recognise the need to preserve and protect TK, promote the application of PIC and MAT for utilisation of GRs and TK in accordance with national measures, and identify both regional cooperation and public participation as integral to effective implementation of biodiversity governance frameworks.<sup>875</sup> Similarly, the CARIFORUM-UK FTA (2019) provides recognition of the need to respect, maintain, and protect TK, with the Parties supporting the international development of a *sui generis* system to be interpreted and applied in conformity with the CBD. The Parties also sought to regularly exchange views in relevant international fora, including the CBD, the WTO, and the WIPO, and support cooperation on modalities for the application of geographic indicators for products derived from TK.<sup>876</sup> When filing for intellectual property protection through the use of a patent, the Parties further agreed to require the applicant to disclose the source of the biological material utilised as a component of the invention,<sup>877</sup> with disclosure of the country of origin for bio-based patents further observed in a limited number of instruments,<sup>878</sup> and with obligations to disclose utilisation of TK also identified.<sup>879</sup>

While marine governance provisions often find overlap with provisions relating to biodiversity and marine resources, several trade and investment agreements integrate specific sections to address marine pollution and ecosystem protection relating to climate change. As a component of the broader Cooperation Framework, the CP-TPP (2018) acknowledges the critical importance of marine protection, with Parties agreeing to put in place measures to address vessel-source marine pollution, identifying the key role public participation plays in the development and effective implementation.<sup>880</sup> Additional areas of cooperation of relevance include: addressing deliberate, accidental, or operational deleterious discharge, technological development to reduce or minimise waste generated by maritime vessels or vessel-based emissions,

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(entered into force 20 December 2015), Article 15.17(2); *Free Trade Agreement between Guatemala and Taiwan Province of China*, 22 September 2005 (entered into force 1 July 2006), Article 15.05(2).

<sup>875</sup> CP-TPP, *supra* note 922, Article 20.13.

<sup>876</sup> CARIFORUM-UK, *supra* note 915, Article 164(2)(c).

<sup>877</sup> *Ibid*, CARIFORUM-UK, Article 150(4).

<sup>878</sup> Colombia-EFTA, *supra* note 961, Article 6.5(5); *Economic Partnership Agreement between CARIFORUM States and the European Community*, 15 October 2008 (entered into force 29 December 2008), Article 150(4).

<sup>879</sup> *Free Trade Agreement between Guatemala and Peru*, 6 December 2011 (entered into force 4 July 2013), Article 9.5(7); See Article 9.5(7): “in patent applications developed from biological, genetic resources and/or associated traditional knowledge [...] there is evidence of legal access to such resources or knowledge, as well as disclosure of the origin of the accessed resource and/or traditional knowledge, if required by the national legislation of the Party.”

<sup>880</sup> CP-TPP, *supra* note 922, Article 20.6(1-2); In specifying marine pollution, the Parties included direct reference to: “the *International Convention for the Prevention of Pollution from Ships*, done at London, November 2, 1973, as modified by the Protocol of 1978 relating to the *International Convention for the Prevention of Pollution from Ships*, done at London, February 17, 1978, and the Protocol of 1997 to *Amend the International Convention for the Prevention of Pollution from Ships*, 1973 as Modified by the Protocol of 1978 relating thereto, done at London, September 26, 1997 (MARPOL), including any future amendments thereto, as applicable to it.”

assessment and enhancement of port facilities, increased utilisation of marine protected areas, and monitoring and enforcement measures through flag State and port State authorities.<sup>881</sup>

A number of other instruments adopt a broader view of marine pollution advancing cooperative measures to control land-based pollution,<sup>882</sup> fostering regional pollution-control mechanisms,<sup>883</sup> enhancing scientific knowledge relating to the impacts of climate change on the marine environment,<sup>884</sup> addressing transboundary water governance measures through upstream riparian governance,<sup>885</sup> and improving efforts for ecological conservation and marine and coastal areas.<sup>886</sup> Parties to the USMCA (2018), supplementing provisions governing vessel-source marine pollution, prioritise coordinated efforts to combat marine litter, encompassing both plastic and microplastic waste, with the aim to preserve and protect human life and marine ecosystems, as well as preventing biodiversity loss.<sup>887</sup> Additional provisions address land-based discharge, development of waste management installations, and prevention of disposal of fishing gear at sea.<sup>888</sup>

Overall, these provisions work in synergy to both preserve the marine environment and support bio-based industries utilising marine genetic resources, while also enhancing efforts relating to ecosystem conservation and restoration efforts in line with goals related to adaptation and mitigation to climate change as well as maintaining marine-based carbon sinks.

### *Promotion of Green Goods and Services*

Creating an enabling environment for trade and investment in environmentally sound goods and services through the removal of barriers to mobilisation of capital and technology flows is central to the operationalisation of market mechanisms relating to climate and biodiversity.

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<sup>881</sup> *Ibid*, CP-TPP, Article 20.6(3).

<sup>882</sup> *Euro-Mediterranean Agreement establishing an Association between the European Community and its Member States and the People's Democratic Republic of Algeria*, 22 April 2002 (entered into force 1 September 2005), Article 52(2).

<sup>883</sup> *Euro-Mediterranean Agreement establishing an Association between the European Community and its Member States and the Arab Republic of Egypt*, 25 June 2001 (entered into force 1 June 20014), Article 44(2); "Cooperation shall focus, in particular, on: [...] quality of Mediterranean water and the control and prevention of marine pollution"

<sup>884</sup> New Zealand-Korea, *supra* note 922, Article 14.6(2)(c).

<sup>885</sup> *Europe Agreement establishing an Association between the European Communities and their Member States and the Republic of Lithuania*, 12 June 1995 (entered into force 19 December 1997), Article 83(2); See: "The Parties shall develop and strengthen their cooperation on environment and human health.... combating local, regional and cross-border air and water pollution... water quality, particularly in cross-border waterways..."

<sup>886</sup> *Free Trade Agreement between the Republic of Chile and the Republic of Turkey*, 14 July 2009 (entered into force 1 March 2011), Article 37(8)(g); *Euro-Mediterranean Agreement establishing an Association between the European Community and its Member States and the Republic of Lebanon*, 17 June 2002 (entered into force 2006), Article 45(2)(d).

<sup>887</sup> USMCA, *supra* note 891, Article 24.12(1-2).

<sup>888</sup> *Ibid*, USMCA, Article 24.12(3).

In an effort to forge investment channels in green goods and services, the Parties to the EU-Canada CETA (2016) prioritise the removal of tariff and non-tariff barriers to advance action on climate change and investment in low-carbon and renewable energy technology.<sup>889</sup> The Parties to the EU-Singapore FTA (2015) similarly commit to facilitating expanded trade and investment in low-carbon and climate-friendly goods and services, with a particular focus on renewable energy technology, related materials and support services, and energy efficient products, through collaborative development of policy priorities, and standards for deployment of best available technological solutions.<sup>890</sup>

Endorsing similar priorities, the CP-TPP (2018) sees the Parties agree to the development of bilateral and multilateral cooperative approaches to respond to environmental challenges,<sup>891</sup> with comparable priorities adopted in USMCA (2018).<sup>892</sup> Parties to the New Zealand-Chinese Taipei FTA (2013), in acknowledging that the removal of barriers to green goods and services may enhance both economic and climate-related priorities more broadly,<sup>893</sup> commit to promote enhanced trade in environmental goods and services defined as “those which positively contribute to the green growth and sustainable development objectives of the Parties,” with an applicable list indicated in an Annex, coupled with free movement of business professionals in the green-technology sector, and application of regulatory best practices to foster uptake.<sup>894</sup>

Aiming to foster sustainable development outcomes, Parties to CARIFORUM-UK (2019) express the importance of enabling eco-innovation and agree to foster trade and investment in environmentally-friendly products and technology. They sought to do this by leveraging the Clean Development Mechanism, bolstering deployment of renewable energy and energy efficient technology, and creating networks which support innovation, public-private partnerships, knowledge transfer, and capacity building to empower innovation and pilot deployment of new technological solutions.<sup>895</sup> With a view to transitioning their economies to a low-carbon pathway, the EU-Colombia and Peru FTA (2012) sees the Parties prioritise

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<sup>889</sup> CETA, *supra* note 891, Article 24.9.

<sup>890</sup> *Free Trade Agreement between the European Union and the Republic of Singapore*, 19 October 2018 (entered into force 21 November 2019), Article 12.11(1-2).

<sup>891</sup> CP-TPP, *supra* note 922, Article 20.18.

<sup>892</sup> USMCA, *supra* note 891, Article 24.24.

<sup>893</sup> NZ-Taiwan, *supra* note 928, Chapter 17, Article 3.1.

<sup>894</sup> *Ibid*, NZ-Taiwan, Chapter 17, Article 3.2, Annex 7: See Annex 7: environmental goods and services include “bicycle tyres and parts, fishing nets that incorporate turtle excluder devices, iron or steel pipes, iron, steel or aluminium containers (tanks, casks, drums, cans boxes), water conserving showers, Steam or other vapour generating boilers, steam, hydraulic, and gas turbines, wind turbine blades, hubs and related materials, sewage and wastewater treatment pumps, industrial hoods for transportation or extraction of air pollutants (air vacuum pumps), machinery, plant or laboratory equipment (solar water heaters, sludge driers, biogas refinement equipment, heat exchangers), centrifuges, waste presses, dish washing machines, solar power generation equipment including photovoltaic cells, electric transformers, electromagnets, LED screens, ozone production system, ultraviolet water disinfection/treatment systems, air quality/pollution and dust emissions monitors, thermostats, and lighting fittings using led lamps.”

<sup>895</sup> CARIFORUM-UK, *supra* note 915, Article 138.

dissemination of the best available technologies for clean energy production, removal of barriers for trade and investment in applicable sectors, promotion of energy efficient and renewable energy technology, and development of programs which are responsive to the unique domestic energy needs within the jurisdictions to reduce technical obstacles to deployment.<sup>896</sup>

Systemic prioritisation of green goods and services, mobilisation of trade and investment in technology-based solutions, and creation of pathways for climate readiness play an important role in establishing an enabling environment for technology and finance flows to buttress the goals and initiatives initiated under market mechanisms.

### *Expropriation*

As the effective design and implementation of market mechanisms require calibration of legal modalities at the national level often grounded in a learning by doing approach, concerns over breach of legitimate expectations of investors resulting in direct or indirect expropriation come to the forefront. Broadly defined as a legislative taking through direct nationalisation, or indirectly via a change in the domestic legal framework resulting in a deprivation of beneficial rights of an investor,<sup>897</sup> this concern remains a live issue in environmental governance.<sup>898</sup> Progressive approaches, both pre-existing as well as new and emerging, found in trade and investment instruments illustrate an increasing level of latitude to respond to environmental concerns.

A definition of both direct and indirect expropriation is provided in the EU-Canada CETA (2016) along with a formula for evaluation of where a measure or collection of measures is tantamount to expropriation, including an adverse economic impact (although this facet is not determinative), duration and extent of interference, and the objective and content of the governance shifts.<sup>899</sup> Significantly, with the exception of circumstances where a governance measure is manifestly excessive, otherwise non-discriminatory measures developed and deployed to achieve legitimate governance objectives relating to health, safety, and the environment are explicitly noted as not constituting indirect expropriation.<sup>900</sup> Substantively similar

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<sup>896</sup> EU-Colombia and Peru, *supra* note 948, Article 275(4-5).

<sup>897</sup> A Reinisch, "Expropriation" in P Muchlinski, F Ortino & C Schreuer, eds., *The Oxford Handbook of International Investment Law* (Oxford: Oxford University Press, 2008), at 408-423.

<sup>898</sup> J M Wagner, "International Investment, Expropriation and Environmental Protection" *Golden State Law Review* (1999) 29:3, 465-538; Simon Baughen, "Expropriation and Environmental Regulation: The Lesson of NAFTA Chapter Eleven" *Journal of Environmental Law* (2006) 18:2, 207-228; Viñuales 2012, *supra* note 897, 293-315.

<sup>899</sup> CETA, *supra* note 891, Annex 8-A(2).

<sup>900</sup> *Ibid*, CETA, Annex 8-A(3).

formulations are found in several other recent agreements including RCEP (2020),<sup>901</sup> EU-Viet Nam FTA (2019),<sup>902</sup> CP-TPP (2018),<sup>903</sup> and USMCA (2018),<sup>904</sup> among others.<sup>905</sup>

Draft amendments proposed by the EU to the Energy Charter Treaty (ECT) with a view to modernising the framework to calibrate investment priorities to appropriately reflect global concerns relating to biodiversity loss and climate change, provide that non-discriminatory measures designed to attain legitimate public objectives explicitly including adaptation and mitigation to climate change are exempted from a classification of indirect expropriation.<sup>906</sup> Affirming the rights of Contracting Parties to establish domestic legislation protecting the environment and addressing climate change, proposed amendments to the ECT provide for legal refinements which may have negative impacts on the operations of investments, including discontinuance of subsidies except where included in contractual clauses or regulations.<sup>907</sup> Additional amendments updating the ECT are intended to foster trade and investment in climate change mitigation and adaptation, support achievement of the Paris Agreement goals, and integrate Sustainable Development Impact Assessment procedures to evaluate the potential impact on biodiversity, water, and climate change of a proposed investment.<sup>908</sup>

While conventional formulations provide a level of latitude to address environmental challenges, the proposed refinements to the ECT offer an increased level of legal clarity in support of market mechanisms for the advancement of climate and biodiversity goals.

### *Dispute Settlement Provisions*

Integration of environmental provisions under the scope of dispute settlement, or inclusion of facilitative compliance measures, enables potential impacts of the development, implementation, and refinement of market mechanism to be ameliorated, providing legal certainty for private actors while supporting broader environmental goals.

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<sup>901</sup> *Regional Comprehensive Economic Partnership Agreement*, 15 November 2020 (not in force), Annex 10B. [RCEP]

<sup>902</sup> EU-Viet Nam, *supra* note 917, Annex 4(3).

<sup>903</sup> CP-TPP, *supra* note 922, Annex 9-B.

<sup>904</sup> USMCA, *supra* note 891, Annex 14-B(3).

<sup>905</sup> *Free Trade Agreement between the Government of the Republic of Korea and the Government of the Socialist Republic of Viet Nam*, 5 May 2015 (entered into force 20 December 2015), Annex 9-B(c)(ii) [Korea-Viet Nam]; Hungary-Cabo Verde, *supra* note 917, Article 6(4)(c); *Malaysia-Australia Free Trade Agreement*, 22 May 2012 (entered into force 1 January 2013), Article 12, Annex [Malaysia-Australia]; *New Zealand-Malaysia Free Trade Agreement*, 29 October 2009 (entered into force 1 August 2010), Annex 7(5) [New Zealand-Malaysia]; Myanmar-Singapore, *supra* note 917, Annex II.

<sup>906</sup> European Union, "EU text proposal for the modernisation of the Energy Charter Treaty" (27 May 2020), Annex X(3), online: <[https://trade.ec.europa.eu/doclib/docs/2020/may/tradoc\\_158754.pdf](https://trade.ec.europa.eu/doclib/docs/2020/may/tradoc_158754.pdf)>. [Modernization of the ECT]

<sup>907</sup> *Ibid*, Modernization of the ECT, New Article "Regulatory Measures."

<sup>908</sup> *Ibid*, Modernization of the ECT, New Article "Sustainable development - Climate change and clean energy transition" New Article "Sustainable Development – Impact Assessment."

Dispute settlement under USMCA (2018) applies to interpretation, application, and evaluation of the consistency of measures with the agreement, and consideration if an enumerated benefit has been impaired relating to core provisions including NT, market access, rules of origin, agriculture, and intellectual property.<sup>909</sup> Regarding environmental matters, a triage process is included that allows for progressive escalation from senior representatives to ministerial consultations,<sup>910</sup> with the inclusion of a formal dispute settlement procedure to review inconsistent measures or cases of discrimination,<sup>911</sup> and having the panel empowered to seek expert participation from CITES-accredited organisations specifically where the issue at hand involves trade in an endangered species.<sup>912</sup> While investor-State dispute settlement was a predominant feature of the North American Free Trade Agreement, its successor, the USMCA (2018), provides for conciliatory procedures going forward following the conclusion of legacy or pending claims, and retaining asymmetrical dispute settlement for investment claims between the US and Mexico.<sup>913</sup>

A similar consultative approach is adopted by the Parties in the EU-Canada CETA (2016), including through the removal of fisheries claims from dispute settlement.<sup>914</sup> Leveraging the Committee on Trade and Sustainable Development as the principal institutional mechanism for overseeing progress on implementation as a fora for constructive dialogue, the Parties are empowered to seek consultations through the Committee which, where appropriate, may include solicitation of civil society views.<sup>915</sup> Where disputes persist, a three-person expert panel may be established to examine the matter, seek perspectives from relevant MEAs where appropriate, and provide both an interim and final report to the Parties summarising reasoning. This aids in determining whether the Parties have conformed with obligations under the Agreement, and providing recommendations, with the Parties expected to determine a mutually agreed remedy based on the findings and notify the Committee.<sup>916</sup> With regard to investments, decisions by Canadian authorities pertaining to investment approval is exempted from the dispute settlement procedure.<sup>917</sup> The dispute settlement process integrated into EU-Canada CETA (2016), while not prejudicing alternative remedies through the WTO, allows for consultation and mediation,<sup>918</sup> and the establishment of a three-person panel for arbitration of disputes unresolved through conciliatory methods.<sup>919</sup>

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<sup>909</sup> USMCA, *supra* note 891, Article 31.2.

<sup>910</sup> *Ibid*, USMCA, Article 24.29-24.31.

<sup>911</sup> *Ibid*, USMCA, Article 31.2, 31.4, 31.6, 31.15.

<sup>912</sup> *Ibid*, USMCA, Article 24.32(2).

<sup>913</sup> *Ibid*, USMCA, Annex 14-C, 14-D.

<sup>914</sup> CETA, *supra* note 891, Article 7.9, Article 24.16.

<sup>915</sup> *Ibid*, CETA, Article 24.13-14.

<sup>916</sup> *Ibid*, CETA, Article 24.15(1), (3), (9-12).

<sup>917</sup> *Ibid*, CETA, Annex 8-C.

<sup>918</sup> *Ibid*, CETA, Article 29.3-5.

<sup>919</sup> *Ibid*, CETA, Article 29.6, 9-10.

Similarly, the Parties in the Korea-US FTA (2007) agree to consultations with regards to issues pertaining to fulfilment of obligations under a stipulated list of international agreements,<sup>920</sup> with further consultation available, as well as escalation to a ministerial-level Joint Committee to advance talks and determine a resolution, or formal dispute settlement channels.<sup>921</sup> Uniquely, the environmental provisions under Korea-US FTA (2007) are included under the scope of the formal dispute settlement procedure.<sup>922</sup> Amendments proposed to the ECT envision incorporation of environmental matters under the dispute settlement procedures, including issues relating to domestic regulation in response to climate change, clean energy, obligations derived from MEAs, business practices, and findings of the Sustainable Development Impact Assessment procedure.<sup>923</sup>

Under the USMCA (2018), as in its predecessor, NAFTA, a citizen submission procedure exists to initiate a review under the Commission for Environmental Cooperation (CEC) suggesting a Party has failed to fulfil an environmental obligation under the agreement and empowering the CEC Secretariat to begin a dialogue and, if needed, dispute settlement procedures.<sup>924</sup> Similar procedures leveraging the CEC system are found in both the US-Panama FTA and the US-Colombia FTA.<sup>925</sup> A parallel approach can be observed through the public compliance communications procedure found in the Aarhus Compliance Committee that provides for non-judicial and consultative procedures to facilitate compliance which leverages public participation as a core component.<sup>926</sup>

Through the integration of facilitative consultations and inclusion of environmental provisions under formal dispute settlement, design and operationalisation of market mechanisms can be effectively enabled and discriminatory measures addressed in a constructive manner.

## Market Mechanisms and the Nexus with Trade and Investment

Obligations agreed under trade and investment relationships, while at first glance seemingly removed from the creation of market mechanisms under international law, play a central role in operationalising these

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<sup>920</sup> *United States-Korea Free Trade Agreement*, 30 June 2007, renegotiated 2010 (entered into force 15 March 2012), Article 20.9. [Korea-US]

<sup>921</sup> *Ibid*, Korea-US, Article 20.9, 22.7, 22.8-22.9.

<sup>922</sup> *Ibid*, Korea-US, Article 20.3(1), 20.11(b), Article 20 Confirmation Letter (Equivalence in Environmental Laws).

<sup>923</sup> Modernization of the ECT, *supra* note 993, New Article 28A "Settlement of disputes on trade and sustainable development provisions between Contracting Parties."

<sup>924</sup> USMCA, *supra* note 891, Article 24.27.

<sup>925</sup> *The United States-Panama Trade Promotion Agreement*, 28 June 2007 (entered into force 31 October 2012), Article 17.8; *United States-Colombia Free Trade Agreement*, 22 November 2006 (entered into force 15 May 2012), Article 18.8.

<sup>926</sup> *Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters*, 25 June 1998, 2161 UNTS 447 (entered into force 30 October 2001), Article 13 [Aarhus Convention]; Veit Koester, *The Compliance Committee of The Aarhus Convention: An Overview Of Procedures And Jurisprudence* (2007) 37 *Environmental Policy and Law*, 83-97; EU, *Commentary On The Convention*, 19.6.2018 OJ L 155/6, Council Decision (EU) 2018/881 of 18 June 2018.

instruments buttressing environmental frameworks with the financial architecture needed for them to flourish.

Created at the international level, the SDM and ABS systems established in the Paris Agreement and the Nagoya Protocol, respectively, must be implemented domestically in accordance with provisions established in the GATT and regional or bilateral trade and investment instruments. In practice, this translates to trade in ITMOs or IRCCs being conducted in a manner consistent with MFN and NT, domestic regimes established to generate ITMOs or IRCCs done so in a non-discriminatory way, and legal reforms to respond to ongoing climate change and biodiversity loss done to not breach legitimate expectations of investors. However, the nexus moves beyond a breach of international legal obligations, when the paradigm is shifted to view these frameworks not as restrictive but rather as facilitative channels for energising legal regimes across fora, subsequently creating pathways allowing for finance, technology, and capacity flows to be generated.

While each trade and investment relationship provide unique parameters, the components outlined create an enabling environment for the SDM under the Paris Agreement and ABS framework under the CBD and Nagoya Protocol to operate. Non-regression ensures that modalities for implementation are forward-facing and while refinement may occur, the overall system of environmental protection may not be regressed to generate investor activity. Working in synergy with the aim to enhance environmental protection standards, this mutually dependant relationship creates a floor rather than a ceiling for ambition. Despite divergences in treaty language relating to MEAs, operationalisation of these market mechanisms benefits from the legal certainty provided through the architecture of international trade and investment. As domestic sovereignty for environmental governance remains reinforced, the interface of international legal regimes ensures a level playing field for investments, favours climate-conscious trade, and empowers jurisdictions to implement robust environmental standards creating high-quality certified ITMOs, and conserving biodiversity allowing for expanded bioprospecting R&D. Integration of investor behaviour provides a unique governance layer to safeguard against predatory conduct in developing or emerging economies – where many of the CDM/SDM and ABS investments occur – and the allure of potential for circumvention of substantive or procedural requirements may exist.

Robust terms for sustainable management of forestry and fisheries, as well as conservation of biodiversity and ecosystems more broadly, provide a stable backdrop for mobilisation of economic infrastructure carbon offsetting projects and advance expanded conservation of species. Empowered through a mix of foreign direct investment and public/private finance and furthered through sustainably managed trade,

implementation of the obligations under the Paris Agreement and CBD creates new synergistic economic opportunities. Sustainable management of forestry provides for both trade in timber and forest-based non-timber products, application of agroforestry approaches increases agricultural yields, and ongoing generation of ITMOs through the SDM. More importantly, reforestation, ecosystem restoration, and broader ecosystem conservation practices are positively incentivised. As income streams are diversified, developing, and emerging economies are provided differential pathways for low carbon development, whereby rather than simply focusing on timber exports, natural resource extraction, or agricultural cash crops, circular economy practices may be implemented utilising residues of agroforestry and product production as feedstock for biofuel generation, while benefiting from income streams from the sale of ITMOs. Established partnerships generated through domestic access requirements – as is the case in many jurisdictions for ABS – support capacity building, knowledge transfer, and economy-wide growth in technological aptitude.

Specific recognition of the Nagoya Protocol and outlined interfaces with intellectual property protections, in particular inclusion of mandatory disclosure of origin requirements during patent applications in trade and investment agreements, goes beyond the agreed state of international law currently under negotiation at WIPO but supports agreed norms, best practices, and requirements found in many regions. Advancements in ABS greatly benefit from the legal certainty clarified through the economic relationship established, ensuring investment is made in a manner that provides stability for biobased innovations and protects often long-term biodiscovery R&D from concerns should the legal landscape evolve in line with current normative development from the time of bioprospecting to patent. Most importantly, the largescale investment that underpins the prospective patented innovation is protected from invalidation as the supply chain for utilisation of GRs and/or TK will be grounded in legality of access. Biobased innovations grounded in ABS are invigorated, reinforced, and secured through integration in trade and investment instruments clarifying legal requirements, ensuring long-term viability of investments made, and advancing the use of IRCC and global ABS compliance.

Sustainable management of fisheries and protection of marine ecosystems similarly carries mutually supportive outcomes. As climate change continues to impact the marine environment, increased application of sustainable fisheries management will be critical. Marine genetic resources, both in the broader ecosystem as well as in fisheries populations are critical to R&D and enhancing our understanding of broader biodiversity traits. Consideration of the marine environment through prohibitions on overfishing and IUU fishing, port control measures, and multijurisdictional cooperation as advanced through FTAs,

RTAs, and BTAs, lays a sound groundwork for collaboration on conservation measures and marine governance. Inclusion of plastics prohibitions and governance provisions relating to land-based and vessel source pollution support the operational environment for marine-related market mechanisms.

Promotion of trade and investment in green goods and services is central to the achievement of the goals established under the Paris Agreement and the CBD, and operationalisation of the SDM and ABS frameworks, specifically access to technology, be it for renewable energy generation, climate mitigation and adaptation, ecosystem conservation and restoration activities, and bio-survey, bioprospecting and biodiscovery activities. Inclusion of an annexed list of what constitutes a green good/service is beneficial but would benefit from a streamlined procedure for updating as technology and priorities advance. Regardless, integration of promotion channels for green goods and services fast tracks trade and investment pathways, prioritises low-carbon development, and supports domestic efforts to achieve progressively more ambitious NDCs over time. More importantly, inclusion establishes a clear indication to investors of the priorities of the agreement, calibrating legitimate expectations and positioning low-carbon priorities at the forefront of the economic partnership.

The inclusion of an expropriation clause provides a grounding for domestic refinement of environmental frameworks to respond to climate change and enable development of ABS measures. Integration of market measures such as the SDM or ABS requires flexibility to learn through a process of implementation, refinement, and operationalisation. Additionally, these measures may be coupled with expanded use of protected areas, biodiversity buffer zones, and IPLC co-management of ecosystem spaces, in conjunction with a reduction in exploitation rights for natural resources. Domestic legal refinements if conducted inelegantly could result in claims for damages by the investing State, and even if unsuccessful a straining of diplomatic relations. Proposed amendments to the expropriation clause that explicitly incorporate climate change and allow for the core facets to evolve over time as domestic priorities shift properly calibrate the economic relationship at the onset as one which must be responsive to the impacts of climate change. Additionally, while consultative approaches to the reconciliation of disputes are critical for long-term dialogue, incorporation of the environmental provisions under the dispute settlement provisions is important to allow the market mechanisms to operate effectively across jurisdictions.

Inclusion of a broad array of trade and investment pathways that support market mechanisms underpinning climate adaptation and biodiversity conservation reinforces the pivotal role finance, technology, and capacity flows play in operationalisation of market mechanisms and demonstrates a distinct example of how congruence of practice across international law is both observed and reinforced.

## Concluding Thoughts: Regional and Bilateral Trade and Investment Agreements

Trade and investment pathways formed through regional and bilateral trade and investment instruments provide critical regulatory space,<sup>927</sup> that when leveraged as supporting architecture can enable the function of market mechanisms illustrative of congruence of practice across international legal regimes. The relationship of trade and investment rules and obligations enshrined in treaty obligations, as well as priorities emphasised in NDCs and NBSAPs, demonstrate that successful achievement of climate and biodiversity goals are fundamentally dependent upon mobilisation of sufficient finance, technology, and human capacity. For market mechanisms to effectively address the pressing global challenges of climate change and biodiversity loss, transformative shifts to address climatic shifts and advance biodiversity conservation must be positively incentivised, sufficient finance must be made available for investment and infrastructure development, and low-carbon development pathways must be made available. Trade and investment agreements that advance sustainable development are central to illuminating these pathways, actualizing the market logic under the climate and biodiversity regimes, incentivising conservation activities, and enabling expansion of the green economy.

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<sup>927</sup> Markus Wagner, "Regulatory Space in International Trade Law and International Investment Law" (2014) 36:1 University of Pennsylvania Journal of International Law, online: <<https://scholarship.law.upenn.edu/jil/vol36/iss1/1/>>.

## Chapter 7 | The Role of Market Mechanisms as Enablers of Congruence of Practice

### Introduction

International law is not static but a living organism that continues to evolve.<sup>928</sup> This chapter discusses research findings that explore the normative growth of sustainable development through an interactional lens illustrating the role of market mechanisms in advancing congruence of practice among non-Party stakeholders and private actors leading to an operationalisation of principles and practice.

First, the interpretation and application of sustainable development is discussed. Second, market mechanisms created under the climate change and biodiversity regimes are reflected upon through an interactional lens demonstrating the enabling and constraining factors that foster rather than frustrate congruence of practice through private actors. Third, innovative approaches adopted by the Livelihoods Funds and the Union for Ethical Bio-Trade (UEBT) are highlighted as emblematic examples where private actors have animated the normativity of sustainable development. Finally, research findings and implications for interactional theory are discussed.

## Operationalisation and Interaction in International Environmental Law

### *Legal Obligations through the Interactional Lens*

Sustainable development has become an omnipresent policy consideration, evolving as a concept from recognition of the impact of humankind on the environment and finding roots in international policymaking discourse in the mid-twentieth century.<sup>929</sup>

While it remains contentious to suggest that sustainable development is a binding principle of international law which dictates the conduct of State practice,<sup>930</sup> that fact does not detract from the growing conceptual influence it holds as either an emerging area of international law and/or an emerging norm in and of

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<sup>928</sup> *in re Piracy jura gentium* [1934] AC 586: "International law was not crystallised in the 17th century, but is a living and expanding code."

<sup>929</sup> Cordonier Segger & Khalfan, *supra* note 453, at 1-30.

<sup>930</sup> V Lowe, "Sustainable Development and Unsustainable Arguments" in A Boyle & D Freestone, eds., *International Law and Sustainable Development: Past Arguments and Future Challenges* (Oxford: Oxford University Press, 1999).

itself.<sup>931</sup> Nor does it take away from its roles as a highly influential global policy objective in decision-making processes,<sup>932</sup> and a priority operationalised through market mechanisms. In the 1997 *Gabcikovo-Nagymaros* case before the ICJ, the Court identified environmental protection as a supporting measure of economic development, and emphasised the importance of environmental integrity as a key contributor to quality of life, and human health, including for present and future generations.<sup>933</sup> The Court noted the evolution of new policy norms that need to be afforded appropriate weight when considering the legality and efficacy of past, present, and future policies to “reconcile economic development with environmental protection” in light of sustainable development.<sup>934</sup> Where the refrained from indicating it was a binding international norm but rather recognised it as procedural in nature,<sup>935</sup> the separate opinion of Justice Weeramantry provided great detail on the concept of sustainable development noting it was a normative principle that required a balance to be struck between environmental protection and development, and forms an integral part of modern international law.<sup>936</sup>

The ongoing calibration of market mechanisms toward the achievement of sustainable development is a furtherance of the evolution of its normative influence. For Brunnée and Toope, such forms of normative development and ongoing reciprocal practice inform the scope of legal obligations and advance the understanding among States of what constitutes responsibilities under a specific regime or under international law more broadly.

The decision provided by the Permanent Court of Arbitration in the *South China Sea Arbitration* provides informative perspectives. The case concerns a boundary delineation dispute between two maritime States considering China’s performance of land reclamation activities on Scarborough Shoal and the Spratly Islands as well as marine exploitation on a number of reefs in a disputed region.<sup>937</sup> The ruling addressed several other matters including treaty interaction and scope of obligations under treaty provisions. The dispute hinged on a determination of the adequacy of marine features to be classified as islands for the

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<sup>931</sup> Cordonier Segger & Khalfan, *supra* note 453, at 46-47; CG Weeramantry, “Achieving Sustainable Justice through International Law” in MC. Cordonier Segger & Judge CG Weeramantry, eds., *Sustainable Justice: Reconciling Economic, Social and Environmental Law* (Leiden: Martinus Nijhoff, 2005) at 25-27; Sumudu Atapattu, *Emerging Principles of International Environmental Law* (New York: Transnational, 2006).

<sup>932</sup> Agenda 21, *supra* note 93, at 2.6, 5.45, 6.36, 8.1-8.12, 8.42.

<sup>933</sup> *Gabcikovo-Nagymaros Project* (Hungary v Slovakia), Judgement, 25 September 1997, ICJ Rep. 7, at 68. [*Gabcikovo-Nagymaros*]

<sup>934</sup> *Ibid*, *Gabcikovo-Nagymaros*, at 78.

<sup>935</sup> A. Boyle, “The *Gabcikovo-Nagymaros* Case: New Law in Old Bottles” (1997) 8 *Yearbook of International Environmental Law* 14, at 18.

<sup>936</sup> Weeramantry Separate Opinion, *supra* note 201, at 69, 88-90, 93-95, 104.

<sup>937</sup> *In the matter of the South China Sea Arbitration before an Arbitral Tribunal constituted under Annex VII to the 1982 United Nations Convention on the Law of the Sea (Republic of the Philippines v. People’s Republic of China)*, Award, 12 July 2016, PCA Case No. 2013-19, para 650-656, 718-721, 761-763, 994-1009 [*South China Sea, Award*]

purposes of delineation of an extended EEZ and consideration of the legality of marine activities conducted, with China choosing to abstain from proceedings outside of the jurisdictional phase.<sup>938</sup>

While the bulk of the analysis of the case focused on conventional matters under the United Nations Convention on the Law of the Sea (UNCLOS),<sup>939</sup> a key aspect concerning environmental protection related to the normative influence and relationship of provisions under related treaties at question: the CBD and CITES. In addition to the construction efforts conducted on the reefs, use of harmful and destructive marine harvesting practices by Chinese vessels in the claimed Philippine EEZ, including harvesting of endangered species (turtles, sharks, giant clams) and coal, as well as the use of dynamite and cyanide fishing techniques were central concerns raised in the case.<sup>940</sup> In their analysis, the Tribunal stressed the prominence of environmental protection under the Convention, with specific reference to the general obligation found in Article 192 for Parties to preserve and protect the marine environment carries with it the responsibility to both protect and maintain present environmental conditions.<sup>941</sup> Viewing this as a positive duty, the Tribunal noted the influence of obligations under Article 194 to prevent marine pollution, especially in rare and fragile ecosystems, the conduct-based requirement to exercise due diligence when conducting activities, and relevant aspects of both the CBD and CITES which make up the general corpus of international law.<sup>942</sup> Seen holistically, the Tribunal emphasised that the scope of obligations under the Convention were influenced and materially informed by other obligations within the treaty, relevant aspects of related instruments, and the general corpus of international law.

The Tribunal in the *Iron Rhine* case, which interpreted an 1839 rail treaty between Belgium and the Netherlands, found that economic and environmental law were mutually reinforcing, and, citing the principle of environmental protection as found in the Rio Declaration and articulated in the *Advisory Opinion on the Legality of Nuclear Weapons* decision, noted development activities which caused significant environmental harm were under a recognised duty to respect the environment, and as such to mitigate if not prevent the damage.<sup>943</sup> Referencing the reasoning in *Gabcikovo-Nagymaros* that new norms must be provided adequate consideration, the Tribunal imported the concept of sustainable development to update

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<sup>938</sup> *Ibid*, South China Sea, Award, para 116-118.

<sup>939</sup> *United Nations Convention on the Law of the Sea*, 10 December 1982, 1833 UNTS 3, 21 ILM 1261 (entered into force 16 November 1994).

<sup>940</sup> South China Sea, Award, *supra* note 1102, Award, para 894-898, 901-902.

<sup>941</sup> *Ibid*, South China Sea, Award, para 939-941.

<sup>942</sup> *Ibid*, South China Sea, Award, para 942-944, 956; citing *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Judgment, ICJ Reports 2010, p. 14; *Responsibilities and Obligations of States Sponsoring Persons and Entities with respect to Activities in the Area (Request for Advisory Opinion submitted to the Seabed Disputes Chamber)*, Advisory Opinion, 1 February 2011, ITLOS Reports 2011.

<sup>943</sup> *Arbitration regarding the Iron Rhine ('Ijzeren Rijn') Railway between The Kingdom of Belgium and The Kingdom of the Netherlands (Belgium v. Netherlands)*, Award, 24 May 2005, Vol XXVII 35, para 59, 222. [*Iron Rhine*]

and inform treaty interpretation and linked negative environmental externalities to the exercise of negotiated economic rights.<sup>944</sup>

In the *Pulp Mills* decision, the ICJ, in considering the “optimal and rational use” of a transboundary watercourse, noted the need to reconcile environmental protection and economic development as encapsulated in the concept of sustainable development. They concluded it was through the Parties’ cooperation and execution of the substantive and procedural aspects of the treaty that “equitable and rational utilization of a shared resource” was achieved.<sup>945</sup> On the facts, the Court stressed that due diligence, vigilance, and prevention warranted both an environmental impact assessment as well as ongoing environmental monitoring throughout the life of the project.<sup>946</sup> In referencing the previous decisions, the Tribunal in the *Indus Water Kishenganga* case, when considering the viability of a hydro-electric facility and the impact on downstream riparian ecosystems in light of obligations under customary international law, emphasised the evolutionary nature of treaty interpretation and similarly stressed both substantive and procedural elements underpinning the principle of sustainable development. They underscored how these elements are embodied by the duty of due diligence, vigilance, and prevention of significant environmental harm in activities under a treaty.<sup>947</sup>

The approaches adopted illustrate recognition of treaty interaction, the need for interpretation to be mutually supportive of obligations established across international fora, and importantly the role of international courts and tribunals in guiding the formulation of shared understandings and actualisation through State practice. In addition, the evolution and integration of new norms as informative, if not influential, is increasingly evident. Modalities that aim to incentivise behavioural shifts using market mechanisms operate within the guardrails established through treaty, practice, and customary international law. Operationalising market mechanisms is informed by the substantive and procedural processes and normative influence noted advancing tangible sustainable development outcomes not as an ancillary benefit but as a material goal, informed and inspired by obligations within and across respective treaties and the general corpus of international law. The normative significance of sustainable development under international law through integration in judicial reasoning, treaty provisions, and universal endorsement of the SDGs reiterates the need for market mechanisms developed under the climate and

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<sup>944</sup> *Ibid*, Iron Rhine, para 222-223.

<sup>945</sup> *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Provisional Measures, Order, 13 July 2006, ICJ Reports 2006, p. 113, para. 80, Judgment of 20 April 2010, ICJ Reports 2010 p. 14, para. 75–77, 177. [Pulp Mills]

<sup>946</sup> *Ibid*, Pulp Mills, para 204-205.

<sup>947</sup> *In the matter of the Indus Waters Kishenganga Arbitration before the Court of Arbitration constituted in accordance with the Indus Waters Treaty 1960 between the Government of India and the Government of Pakistan signed on 19 September 1960 (Islamic Republic of Pakistan v. Republic of India)*, Partial Award, 18 February 2013, PCA Case No. 2011-01, para 448-452.

biodiversity regimes to explicitly enable sustainable development outcomes or otherwise risk incompatibility with the purpose of the treaty itself.

## Fostering Congruence of Practice through Market Mechanism

As noted through the case studies profiled in Chapters 3 and 4, market mechanisms provide critical pathways to foster congruence of practice among private actors across a range of sectors, animating obligations created under international law, identifying and supplementing shortcomings, and creating operational pathways for sustainable development to be realised. This section explores experiences profiled to explicate the relationship of market mechanisms vis-à-vis their legal architecture under international law, the role of private actors, and how they enable the creation of shared understandings leading to normative internalisation realising sustainable development outcomes.

### *Identifying and Overcoming Misalignment Across Regimes*

A central tenet of the interactional approach noted by Brunnée and Toope was that formalistic rules intrinsically were insufficient in fostering compliance but through role acceptance of legitimacy among actors, actualisation of shared understandings could manifest. Observed in the context of ABS, given the temporal scope of the CBD and Nagoya Protocol and misalignment with IP regimes or market entry procedures lacking substantive disclosure requirements uptake of ABS has proven limited compared to the scale of bio-trade conducted, which is estimated to be valued at US\$ 14 billion in 2020 and projected to reach US\$ 87 billion by 2026.<sup>948</sup> Even where ABS agreements are established as was the case with *Teff* they fail to materialise the types of robust benefits initially envisioned. This finding demonstrates that creation of channels for development of shared understandings through a market mechanism is insufficient in and of itself to incentivize congruence of practice at a significant scale.

An illustrative example marking a potential watershed moment in the biobased sector was the Rooibos benefit-sharing agreement concluded in November 2019.<sup>949</sup> Previously, claims of misappropriation of GRs and TK were advanced by the San and Khoi communities of South Africa regarding the commercialisation of Rooibos, both as a tea and as an active ingredient in biobased supply chains.<sup>950</sup> Industry actors initially

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<sup>948</sup> Facts Factors, “Global Bio-Based Materials Market Size Is Expected To Reach About USD 87 Billion by 2026, at a CAGR of 26.5%: Facts & Factors” Press Release (17 December 2021), online: <[www.globenewswire.com/news-release/2021/12/17/2354362/0/en/Global-Bio-Based-Materials-Market-Size-Is-Expected-To-Reach-About-USD-87-Billion-by-2026-at-a-CAGR-of-26-5-Facts-Factors.html](http://www.globenewswire.com/news-release/2021/12/17/2354362/0/en/Global-Bio-Based-Materials-Market-Size-Is-Expected-To-Reach-About-USD-87-Billion-by-2026-at-a-CAGR-of-26-5-Facts-Factors.html)>.

<sup>949</sup> Republic of South Africa, Department of Forestry, Fisheries and the Environment, “Rooibos benefit sharing agreement rights a wrong for the Khoi and San communities of South Africa, says Creecy” Press Release (1 November 2019), online: <[www.dffe.gov.za/mediarelease/creecy\\_rooibosindustrywidebenefitsharing2019](http://www.dffe.gov.za/mediarelease/creecy_rooibosindustrywidebenefitsharing2019)>. [SA Press Release]

<sup>950</sup> R Wynberg, “Making sense of access and benefit sharing in the rooibos industry: Towards a holistic, just and sustainable framing” *South African Journal of Botany* 110 (May 2017), 39-51.

responded citing use was in the public domain and outside of the temporal scope of the CBD and Nagoya Protocol and that bioprospecting was no longer being conducted. Indigenous leaders argued that utilisation was grounded in shared TK, the domestic framework encompassed commercialisation of domestic GRs, advertisements emphasised the link to traditional Indigenous medicinal applications, and ongoing exploration of commercial applications in cosmetics, novel foods, and extracts.<sup>951</sup> Over the course of 9 years, negotiations were conducted leading to the eventual agreement of an industry-wide benefit-sharing agreement (BSA) that was endorsed by the domestic competent national authority, and approved by the representative councils of the San and Khoi peoples. Under the terms of the Rooibos BSA, which remains currently only available to negotiating parties, a 1.5% annual levy on the “farm gate price” was agreed equivalent to R12 million to be shared equally among the communities, in addition to other benefits both monetary – per sample fees, royalties, research funding, joint IP and ventures – and non-monetary – collaborative research, technology transfer, capacity building, and food and livelihood security benefits.<sup>952</sup> Demonstrating the establishment of shared understandings, the Rooibos experience illustrates the fluidity of normative influence, the crucial role normative internalization by actors plays in advancing desired outcomes, and how the guide rails provided by the market mechanism can enable congruence of practice. As discussed in Chapter 4, given the unique connection of TK and misalignment with IP regimes, advancements in technology in the biobased sector outpacing the legal framework, and the extended duration needed to see benefit-sharing actualise, ABS has not seen the manifestation of North-South capital flows underpinning the formulation of the regime. These findings speak to the characteristics needed for shared understandings to manifest; alignment of the international legal architecture towards the desired outcome proving a key consideration. Failure to establish a consensus framework at the international level for governance of IP intersections regarding GRs and TK remains a significant systemic barrier to actualizing the potential of the market mechanism embodied in ABS.

However, given the necessary social license to operate, coupled with increased consumer attention and expanded adoption of industry-leading ethical sourcing certifications, the Nagoya Protocol provides an ABS architecture that empowers Parties to establish forward-looking framework approaches,<sup>953</sup> and lays the groundwork for overcoming challenges of framework alignment and uptake by industry actors. Despite noted limitations, through the shared understandings established within and across fora, private actors are

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<sup>951</sup> Doris Schroeder, et al., “The Rooibos Benefit Sharing Agreement—Breaking New Ground with Respect, Honesty, Fairness, and Care” (2020) 29:2 Cambridge Quarterly of Healthcare Ethics, 285-301, at 288. [D Schroeder, et al 2020]

<sup>952</sup> *Ibid*, D Schroeder, et al 2020, at 289-293; SA Press Release, *supra* note 1114.

<sup>953</sup> Phillips 2019, *supra* note 206,157-178.

intervening to fill institutional misalignment advancing both sustainable development outcomes and providing enhanced legal certainty. Research findings demonstrate that market mechanisms carry with them significant ancillary benefits laying the groundwork and terms of reference for the formulation of shared understandings, industry engagement, and fidelity among private actors.

### *Fostering Enhanced Transparency, Environmental Integrity and Mobilising Finance*

Over the evolution of market mechanisms under the climate framework transparency has been a fundamental component. Chapter 4 highlighted that through national reports, publicly listed methodologies, and verified project outcomes the validity of CERs was reinforced and the global community began a process of review to ensure the scope of the Kyoto mechanism achieved the intended environmental outcomes. While presumptively fit-for-purpose to support carbon reductions for developed economies with supporting the growth of developing and emerging economies, scholars and civil society organisations raised concerns over the environmental integrity of CDM projects inquiring if they reflected real emission reductions, if the emission reductions satisfied the additionality requirement, and questioning the broader environmental impacts of projects.<sup>954</sup> The guidance provided to the EB at COP 20/CMP 10 to enable the review of project procedures to enable environmental integrity,<sup>955</sup> highlights both an evolving understanding by the international community of the critical aspects of the Kyoto framework based on previous experience but is also illustrative of the process by which shared understandings are formulated.

These findings demonstrate the inherent need for transparency and equity in the feedback loops underpinning the creation of shared understandings. Despite having issued over 2.1 billion CERs (2008-2021) under the CDM, the diminished success of the Kyoto framework following criticism by civil society around environmental integrity leading to import bans, diminished demand, and only 12% of projects being registered post-2012,<sup>956</sup> is emblematic of the need for legality and legitimacy of the market mechanism's institutional framework to be well established, carefully maintained, and aligned with normative expectations to further shared understandings.

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<sup>954</sup> Voigt 2009, *supra* note 172, 272-279; de Sepibus 2009, *supra* note 172.

<sup>955</sup> UNFCCC, 4/CMP.10: Guidance relating to the clean development mechanism, Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its tenth session, held in Lima from 1 to 14 December 2014, 2 February 2015, FCCC/KP/CMP/2014/9/Add.1.

<sup>956</sup> Axel Michaelowa Regina Betz, Philipp Censkowsky, Raphaela Kotsch, Aglaja Espelage, Tim Dzukowski, "Volumes and types of unused Certified Emission Reductions (CERs): Lessons learned from CDM transactions under Protocol, transparency gaps the Kyoto post and implications for 2020 international carbon markets" University of Zurich Perspectives Climate Group, (26 November 2021), 18-19, 40, online: <[www.perspectives.cc/public/fileadmin/user\\_upload/PCG-ZHAW\\_unused\\_CERs\\_final\\_updated.pdf](http://www.perspectives.cc/public/fileadmin/user_upload/PCG-ZHAW_unused_CERs_final_updated.pdf)>.

Normative development and reciprocal practice happen through market mechanisms at a pace that is uncommonly quick for consensus-based international legal instruments. Shortcomings in the intended application and outcomes of a mechanism, that could not be refined further through negotiations or were a product of the inevitable compromises that occur in multilateral frameworks, become glaringly evident in practice, incompatible outcomes are highlighted by non-Party stakeholders, and pressure grows crystallising in altered positions among Parties and adopted refinements. Critical aspects relating to operationalisation of Article 6 agreed at COP 26 regarding the use of corresponding adjustments, environmental integrity, and transitioning of CDM credits under the Kyoto Protocol including limitations placed on project approval dates and applicability to only the first crediting period up to 2025 demonstrate a clear intention of the Parties to remedy perceived flaws. Research findings demonstrate how the interactional lens informs our understanding of the evolution of the market mechanisms under the UNFCCC with CDM experiences (both positive and negative) developed through engagement by private actors and civil society informing creation of the SDM under Article 6 of the Paris Agreement advancing both normative operationalization and sustainable development outcomes in practice. These pillars enhance the legitimacy of the Paris mechanisms, demonstrate clear intentions among the Parties to ensure environmental integrity and restrict double counting, and lay the groundwork for appropriately aligned congruence of practice among private actors and relevant stakeholders to enable effective compliance.

An additional factor that results from the deployment of market mechanisms is the identification of knowledge gaps needed for supplemental aspects of the marketplace to actualise critical sustainable development outcomes with mobilisation of climate-related investment as discussed in Chapter 5 an informative example. As experience grew through the CDM, and action on climate change and sustainable development galvanised among the international community. With the agreement and rapid entry into force of the Paris agreement coupled with passage of the SDGs, the international financial community articulated in the TCFD a framework for corporate transparency that would enable the sector to mobilise capital sufficient to support the transition to a low carbon economy. Having entered into force in April 2022, the UK is the first G20 nation to have integrated the TCFD recommendations into domestic law in line with their Roadmap to Sustainable Investing.<sup>957</sup>

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<sup>957</sup> UK, *The Companies (Strategic Report) (Climate-related Financial Disclosure) Regulations 2021*, Draft Statutory Instrument (2006 c. 46, entry into force 6 April 2022); HM Treasury, et al., "Greening Finance: A Roadmap to Sustainable Investing" (October 2021), online: <[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1031805/CCS0821102722-006\\_Green\\_Finance\\_Paper\\_2021\\_v6\\_Web\\_Accessible.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1031805/CCS0821102722-006_Green_Finance_Paper_2021_v6_Web_Accessible.pdf)>.

A similar process has begun under the CBD with the passage of the Global Biodiversity Framework (GBF) at COP 15 which includes in Target 15 a call for integration of legal and policy measures to ensure transnational entities and financial institutions monitor and publicly report on biodiversity risks and dependencies as well as compliance with ABS regulations.<sup>958</sup> Coupled with development of the evolving framework provided by the Taskforce and Nature-related Financial Disclosure (TNFD),<sup>959</sup> a similar trajectory is being mapped for mainstreaming of biodiversity.

Fidelity among actors is nurtured using market mechanisms, enabling gaps in knowledge, processes, and mutual supportive elements that complement successful achievement of climate goals to be better understood, supplemented, and refined by impacted private actors. This evolution occurs with a degree of latitude and at a pace unable to be achieved in consensus-based multilateral negotiations alone allowing for experience to be gained through a learning-by-doing model, subsequently informing future refinements while enabling increased adoption and compliance.

### *Enabling Legal Certainty and Identifying Areas of Future Need*

Passage of the Paris Agreement and the Nagoya Protocol gave significant indicators to the respective climate and biodiversity communities of practice that clarified the legal framework, provided certainty for innovators, and allowed for mobilisation of investment going forward. However, to enable congruence of practice across all levels the validity enabled through agreement of the international framework is only a fraction of the puzzle, and proper alignment across trade, investment and sectoral instruments is also needed to enable functionality. Otherwise tensions inhibiting reciprocal participation can materialise. Trade and investment are crucial enablers as bilateral obligations or multilateral rules can either foster or frustrate transitional activities, technologies, and finance through market mechanisms.

As discussed in Chapter 6 trade and investment provisions play a crucial enabling function. Provisions relating to the promotion of strong environmental protection standards, non-regression, respect and recognition of

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<sup>958</sup> CBD, Kunming-Montreal Global Biodiversity Framework, CBD/COP/15/L.25 (18 November 2022), Target 15, online: <[www.cbd.int/doc/c/e6d3/cd1d/daf663719a03902a9b116c34/cop-15-l-25-en.pdf](http://www.cbd.int/doc/c/e6d3/cd1d/daf663719a03902a9b116c34/cop-15-l-25-en.pdf)>. [Kunming-Montreal GBF]

<sup>959</sup> Taskforce on Nature-related Financial Disclosures, “The TNFD Nature-related Risk and Opportunity and Disclosure Framework beta v0.3” TNFD (2022), online: <<https://framework.tnfd.global/>>.

MEAs specifically the Paris Agreement and the CBD, sustainable management of natural resources, governance of investor behaviour, biodiversity conservation and equitable utilisation of GRs and TK, promotion of trade in green goods and services, balanced dispute settlement, and restrict claims of expropriation where legal frameworks are amended to respond to climate change collectively cultivate actions under an architecture of inter-related and inter-dependant international norms and obligations under the Paris Agreement and the CBD. Synergistic alignment with priorities as identified in national NDCs and NBSAPs create a linkage between international trade and investment modalities and national planning and prioritisation procedures that create legal certainty for investors, private actors, and innovators allowing market mechanisms to practically function fostering congruence of practice grounded in mutually recognised shared understanding.

Climate-focused sectoral innovation benefit from aspirational targets and clear legal measures. Findings in Chapter 5 highlight the establishment of the aspirational goal of “carbon-neutral growth” has acted as a strategic driver for the aviation sector for transformation. Through the creation of CORSIA legal clarity was provided to the scale, scope, and modalities for carbon reduction available to operators. Development of the ASTM D7566 specification for regulation of synthesised hydrocarbons provided a clear avenue for the approval of alternative fuel types, and the continued refinement integrating new production methods and lifecycle values to allow for new technologies such as e-fuels to go to market. Collectively, these policy shifts at the international level provided the legal certainty needed to catalyse market momentum and mobilise availability of capital to support an expansion of the emerging alternative fuel sector. While the IMO has yet to formalise alternative fuel adoption targets arguably due to industry pressure, technological development coupled with increased emphasis on climate-responsive development continues to put pressure on Parties to advance the agenda forward. These research findings demonstrate that misalignment of this nature creates barriers to congruence of practice among private actors whereby the potential for engagement with market mechanisms under the Paris Agreement – in lieu of a dedicated sectoral system for the IMO – is disincentivised and congruence undermined. While legal certainty through the establishment of a clear policy framework coupled with a market mechanism to incentivise behavioural shifts will not individually stabilise a highly speculative sector, lacking such pillars will drastically exacerbate perceptions of instability which can have a chilling effect on the availability of capital and subsequently innovation.

Formulation of market mechanisms coupled with proper alignment of trade, investment, and sectoral approaches create clear pathways for mobilisation of finance and scale-up of innovative solutions to enable climate action across all levels of the economy. This systemic alignment is crucial to establish and advance shared understandings and ongoing congruence of practice. Incentivisation of action through clearly defined market mechanisms that are operationalised through appropriately aligned economic instruments allows for normative principles relating to sustainable development, climate action, and biodiversity conservation to be internalised by private actors fostering innovative thinking, removing barriers to sectoral uptake, and advancing compliance.

### *Conceptualising Sustainable Development Outcomes in Practice*

Development of legal architecture that prioritise sustainable development outcomes through market mechanisms provide modalities for collective conceptualisation, understanding, and establishment of lessons learned to inform channels for actualisation of sustainable development in practice. At the crux of the theoretical lens provided by Brunnée and Toope is a recognition that following the formation of an international environmental instrument the difficult task of actualisation of obligations begins. Integration of market mechanisms creates an incentive for experimentation among private actors guided by the treaty provisions who can more nimbly adapt and respond to economic realities to formulate conceptual understandings of how to actualise sustainable development outcomes animating treaty norms and obligations, thus illuminating ways forward.

The third-party endorsed certifications are illustrative as noted in Chapter 5, when administered and utilised by private actors to verify and validate strong sustainable development outcomes across several sectors. Grounded in robust methodologies, projects approved under stakeholder-developed and endorsed schemes such as Gold Standard, Verified Carbon Standard, and Climate, Community and Biodiversity Standards in the climate and AFOLU sectors, and International Sustainability and Carbon Certification and Roundtable on Sustainable Biomaterials standard in the alternative fuel sector move beyond the conventional approaches mapping and embedding sustainable development co-benefits into the approaches adopted. Broad uptake by project proponents and market premiums associated with project outcomes demonstrate formulation of shared understandings among Parties and private actors alike and reiterate the ability for market mechanisms to define in collaboration with expert stakeholder bodies such as WWF, IUCN, FSC, and Rainforest Alliance, how sustainable development co-benefits can be achieved in practice.

An alternative example as highlighted in Chapter 4 can be observed through the adoption of the Vessel Day Scheme under the Palau Arrangement that illustrated how a shift from Total Allowable Catch to Total Allowable Effort could significantly increase the value of available days at sea on the open market while reducing pressure on threatened species from overharvesting. The flexibility provided under the treaty in conjunction with the collaborative governance approach adopted by the Parties enabled experimentation in policy formulation to pilot a scheme that resulted in a region-specific approach with positive sustainable development outcomes. These examples illustrate ways in which market mechanisms engage communities of practice in cocreation and ongoing engagement of shared understandings nurturing continued practice of legality.

Market mechanisms which have embedded sustainable development co-benefits create channels for congruence of practicing leveraging the agility of private actors to manifest shared understandings through the creation of innovative solutions, the building of partnerships, and mobilisation of resources in a manner unencumbered by geo-political negotiating positions grounded in consensus-based bodies.

### *Enabling Collaboration Across Stakeholders*

Market mechanisms have proven uniquely adept at incentivising mobilisation of stakeholder engagement with a wide range of actors including IPLCs. The international legal architecture relating to climate and biodiversity prioritises innovation and opportunities for collaborations as a component of operationalisation, yet it is through market mechanisms that innovative approaches are provided specialised avenues to materialise.

Findings from Chapter 3 demonstrate first through the CDM and now Article 6, how private actors are provided pathways for collaboration in the deployment of technology-driven solutions in new jurisdictions, with various types of stakeholders including IPLCs for locally implemented projects, and specialty organisations to leverage technical knowledge in the execution of project outcomes. These collaborations allow for technology transfer and innovative solutions to address local needs that would be difficult to replicate without the incentivisation provided through the market mechanism. The scale of the Japanese Joint Crediting Mechanism consisting of 205 projects over 17 countries through the Article 6 pilot scheme illustrates the potential transformative power market mechanisms can have both domestically in prioritising clean technology and internationally in aiding sustainable development outcomes.

Similarly, as highlighted in Chapter 4 through implementation of the Nagoya Protocol, collaborations are fostered with local institutions, universities, and communities, allowing for capacity building, technology

transfer, and incentivisation of conservation activities. Experiences in Brazil with Natura whereby local communities have a direct role in the administration of the Medio Juruá Fund, including selection of local projects funded through benefit-sharing, in Malaysia where local communities were empowered to commercialise locally sourced biobased products, and Peru in the Potato Park where TK was harnessed to conserve and sustainability use local varieties are testaments to the deep and meaningful collaborations that can occur and are incentivised through the use of market mechanisms. Experiences developed under the climate and biodiversity frameworks demonstrate how creation and evolution of shared understandings advance congruence of practice among private actors and inform ongoing treaty design.

While international treaties provide a governance framework, it is through market mechanisms that collaborations are fostered at the local level providing tangible livelihood impacts and translating legal norms into practical outcomes. Generation of shared values among industry actors have a transformative effect on standard sectoral practice, but it is through local collaborations in implementations that sustainable development outcomes are actualised, and human impacts are realised. Without the incentive provided by market mechanisms these localised co-benefits could fail to manifest.

## Transformative and Innovative Approaches

While the case studies discussed in this research are informative to the relationship between the legal architecture of market mechanisms under international law and the role of private actors in them, and how this contributes to sustainable development, two institutional approaches with transformative impacts stand out and require special attention. The approaches adopted by Livelihoods Ventures and Union for Ethical Bio-Trade (UEBT) actively work to bridge legal divides, enable legal certainty, facilitate mobilisation of finance grounded in transparency, and collaboratively engage local stakeholders while fostering tangible sustainable development practices at the local level.

### *Livelihoods Funds | Investing in Sustainable Development*

Created in 2008 by Danone, with the guidance of IUCN and the Ramsar Convention Secretariat, the Danone Fund for Nature developed an alternative model to the commercial purchase of carbon credits. Through direct engagement with project proponents, a channel was provided to invest in ecosystem restoration and local economic development activities fostering sustainable development outcomes and yielding high-quality carbon credits.<sup>960</sup> In 2011, the Danone fund was transitioned to the Livelihoods Carbon Fund (LCF-

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<sup>960</sup> Livelihoods Funds, “Our History” (2020), online: <<https://livelihoods.eu/about-us/history/>>.

1) and opened to broader institutional investors, which led to the creation of the Livelihoods Fund for Family Farming (L3F) in collaboration with Mars in 2015 to assist in supply chain transition, and two additional funds (LCF-2 and LCF-3) established in 2017 and 2020 respectively with each targeted at €100 million aim collectively to support 3.5 million beneficiaries.<sup>961</sup> Focusing on agroforestry, mangrove restoration, and rural energy projects, and with 21 investors including Hermes, Chanel, Michelin, SAP, and the Global Environment Facility (GEF), LCF-1 and LCF-2 have invested US\$ 119 million, positively impacting 3.5 million people, reforesting 170 million trees, equipping 250,000 households with efficient cookstoves, and avoiding 24 MtCO<sub>2</sub>.<sup>962</sup>

Project examples highlight the unique approach adopted by the Livelihoods Funds and the transformative impact investments have on local communities. An agroforestry and sustainable livestock project in Kenya, launched in 2016 in collaboration with local NGO VI Agroforestry provides ecological and economic benefits in conjunction with carbon credit generation.<sup>963</sup> Through the local NGO, capacity building is provided to smallholder farmers enabling them to intermix crop types, conduct annual rotations, and utilise plant waste as mulch and feedstock increasing soil health and crop yields while also increasing the health of livestock enhancing productive capacity to 9-10 litres per day per cow and reducing methane release.<sup>964</sup> The project engages 30,000 local farmers, restoring 20,000 ha of farmland, has increased crop and milk yields by 30% and household income by 100%, and over the 10-year course will offset 1 million tonnes of CO<sub>2</sub>.<sup>965</sup>

Initiated in 2008 in collaboration with local NGO Oceanium, and registered under the CDM in 2011, a mangrove reforestation project in Senegal engaged 350 local villages and 100,000 people resulting in 7,920 ha restored (10,000 ha projected in total), 79 million mangroves replanted, and annual sequestration of 2,704 tonnes of CO<sub>2</sub> per year and over 500,000 tonnes of CO<sub>2</sub> over the project lifecycle.<sup>966</sup> In 2016, with the assistance of IUCN and the Ramsar Convention, a process of auditing the livelihood impacts was initiated.<sup>967</sup> Beyond carbon sequestration, 70% of villagers note a substantial increase in yield of marine resources (fish

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<sup>961</sup> *Ibid.*

<sup>962</sup> Livelihoods Funds, “The Livelihoods Carbon Funds” (2021), online: <<https://livelihoods.eu/lcf/>>; GEF, “Livelihoods Carbon Fund 3” Project Identification Form (PIF) entry – Full Sized Project – GEF – 7 (2020), at 28-29, online: <[www.thegef.org/sites/default/files/web-documents/10500\\_MFA\\_PIF\\_v1.pdf](http://www.thegef.org/sites/default/files/web-documents/10500_MFA_PIF_v1.pdf)>. [GEF LCF3]

<sup>963</sup> Livelihoods Funds, “Kenya (Mount Elgon): agroforestry & sustainable dairy cycle with 30,000 farmers” (2017), online: <<https://livelihoods.eu/portfolio/mount-elgon-kenya/>>; BBC, “Cutting Cow Farts to Combat Climate Change” People Fixing the World (18 July 2017), online <[www.bbc.co.uk/programmes/p058bypc](http://www.bbc.co.uk/programmes/p058bypc)>. [BBC 2017]

<sup>964</sup> *Ibid*; GEF LCF3, *supra* note 1127, 25-26.

<sup>965</sup> *Ibid.*

<sup>966</sup> CDM, “Project 5265: Oceanium mangrove restoration project” Project Design Form (23 September 2011), at 2-4, online: <<https://cdm.unfccc.int/Projects/DB/ErnstYoung1316795310.61/view>> [Senegal Project Design Form]; Livelihoods Funds, “Senegal: The largest mangrove restoration programme in the world” (2018), online: <<https://livelihoods.eu/portfolio/oceanium-senegal/>>.

<sup>967</sup> Tour du Valat, “Mangrove Restoration: Impacts after 10 years of the largest mangrove restoration project of the Livelihoods Carbon Fund in Senegal with Océanium” Summary Report (2018), online: <[www.livelihoods.eu/wp-content/uploads/2020/03/MANGROVE-RESTORATION-IN-SENEGAL-Impact-Summary-Report-LIVELIHOODS-FUNDS-March-19-2020.pdf](http://www.livelihoods.eu/wp-content/uploads/2020/03/MANGROVE-RESTORATION-IN-SENEGAL-Impact-Summary-Report-LIVELIHOODS-FUNDS-March-19-2020.pdf)>. [Oceanium Summary Report 2018]

and oysters) – estimated to have increased by 4,200 tonnes per year – improving food security and income, 49,763 households benefited through a healthier ecosystem and diet, and 22,524 households saw improved household income as a result.<sup>968</sup> In addition to increased food security both through fish and rice production and a reduction in poverty levels, local communities noted ecosystem health, protection from storms, availability of wood for local construction and sale, education, and empowerment of women as the prime livelihood benefits.<sup>969</sup> The Livelihoods Funds have also funded a similar project in India positively impacting 250,000 people, sequestering 700,000 tonnes of CO<sub>2</sub> over the project lifecycle,<sup>970</sup> and acting as a natural defence to recent extreme weather events in the region.<sup>971</sup>

Launched in 2014 in collaboration with local NGO Tiipaalga, the dissemination of efficient cookstoves to 30,000 households in Burkina Faso across 9 communities and 222 villages, has been certified by the Gold Standard Foundation and will result in a reduction of 689,000 tonnes of CO<sub>2</sub> and 40,000 tonnes of wood consumption over the 10-year project lifecycle.<sup>972</sup> Placing gender empowerment at the heart of the project, following appropriate training the mud-made stoves are handmade in each village by local women allowing the €1.7 million project funding to go directly to local artisans and livelihood development.<sup>973</sup> In addition to reducing timber use, the direct benefits of the project support poverty eradication (through alternative income streams and reduced timber costs), health improvements with a 90% reduction in household smoke inhalation and respiratory issues, increased education, gender empowerment, and affordable clean energy systems.<sup>974</sup>

While the international legal architecture of market mechanisms provides for the generation of carbon offsets, it is at the nexus of climate action, biodiversity conservation, and sustainable development that the Livelihoods Funds operate. The incentive created under the international system is leveraged as a unifying force, coupled with a commitment to bring on the ground benefits, providing feasible alternatives to simply buying credits on the open market. Investments made through the Livelihoods Funds bring about increased capacity building, reduced ecological pressures, generates enduring livelihood benefits, and creates

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<sup>968</sup> *Ibid* Oceanium Summary Report 2018, at 6-8.

<sup>969</sup> *Ibid* Oceanium Summary Report 2018, at 10-15.

<sup>970</sup> Livelihoods Funds, “India (Sundarbans): 16 million mangrove trees to protect local communities” (2020), online: <<https://livelihoods.eu/portfolio/news-india/>>.

<sup>971</sup> Livelihoods Funds, “Amphan Cyclone, Sundarbans: Mangroves Played a Bio-Shield Role & Protected Coastal Communities” (29 May 2020), online: <<https://livelihoods.eu/amphan-sundarbans-india-mangroves-bio-shield/>>.

<sup>972</sup> Livelihoods Funds, “Burkina Faso: fighting desertification & increasing food security with 30,000 families” (2016), online: <<https://livelihoods.eu/portfolio/tiipaalga/>>; Gold Standard, “GS1340: efficient Cookstoves in Burkina Faso – VPA 29 – Improved Cookstove F3PA Project in Nahouri” Gold Standard Impact Registry (2021), online: <<https://registry.goldstandard.org/projects/details/3061>>. [GS1340]

<sup>973</sup> *Ibid*.

<sup>974</sup> *Ibid*, GS1340; Gold Standard, “GS1340 Efficient cookstoves in Burkina Faso – VPA-29 – Improved cookstoves F3PA project in Nahour” GS11074 VPA Design Document (2021), at 3-7, online: <<https://platform.sustain-cert.com/public-project/2341>>.

tangible benefits for all involved. The establishment of market mechanisms under international law with the aim of advancing sustainable development can catalyse innovative approaches adopted by engaged market actors in a manner that aligns with their organisational values. This is transforming compliance narratives, establishing new sectoral norms, and illustrating the practicality of linking business and sustainability practices.

### *Union for Ethical Bio-Trade (UEBT) | Fostering Fair and Equitable Sourcing of Biodiversity*

Founded in 2007, the Union for Ethical Bio-Trade (UEBT) is a membership-based organisation comprised of companies across the biobased supply chain that utilise biodiversity-derived ingredients in their products (food, cosmetics, and natural pharmaceuticals), and governed by a General Assembly of all members and a Board of Directors with a minimum of one-third representation from specialist non-profit associations.<sup>975</sup> As of 2021, UEBT had 68 members sourcing from 81 countries, including industry leaders such as Yves Rocher, Natura, Givenchy and Moët Hennessy Louis Vuitton (LVMH), and encompassing 385 biobased ingredients across 944 supply chains.<sup>976</sup>

Adopting a facilitative approach, the cornerstone of UEBT membership is audited compliance with the UEBT Ethical BioTrade Standard, which was revised in 2020 and aligns with the Nagoya Protocol and the UN Guiding Principles on Business and Human Rights, coupled with institutionally supported capacity building.<sup>977</sup> UEBT through its standard and association support ethical sourcing and ingredient supply chain certifications, promote adoption and implementation among members of strategic policies that respect biodiversity, and supply chain due diligence programs (including ABS), and aim to positively impact brand value, improve biodiversity and local livelihoods, and enable sectoral transformation.<sup>978</sup> The UEBT Standard is structured around 7 core principles, criteria to guidance compliance, and indicators for monitoring and evaluation assessment, with the standard underpinning verification of ethical access to raw materials, and certifications relating to sourcing and chain of custody.<sup>979</sup>

Indicators are contextualised within the standard –as minimum requirements, critical indicators, stepwise, which provides three years for achievement, and regular –and based on the practices of the member

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<sup>975</sup> UEBT, “Articles of Association” GOV01 (2019), online: <[www.ethicalbiotrade.org/resource-pages/uebt-articles-of-association](http://www.ethicalbiotrade.org/resource-pages/uebt-articles-of-association)>; UEBT, “Boards of Directors terms of reference” GOV13 (2019), online: <[www.ethicalbiotrade.org/resource-pages/boards-of-directors-terms-of-reference](http://www.ethicalbiotrade.org/resource-pages/boards-of-directors-terms-of-reference)>.

<sup>976</sup> UEBT, “Annual Report 2020” (2020), online: <[www.ethicalbiotrade.org/annual-report-2020](http://www.ethicalbiotrade.org/annual-report-2020)>.

<sup>977</sup> UEBT “Ethical BioTrade Standard” (2020), online: <[www.ethicalbiotrade.org/resource-pages/standard](http://www.ethicalbiotrade.org/resource-pages/standard)>. [UEBT Standard]

<sup>978</sup> *Ibid*, UEBT Standard, at 6; UEBT, “Theory of Change” (July 2020), online: <[www.ethicalbiotrade.org/resource-pages/uebt-theory-of-change](http://www.ethicalbiotrade.org/resource-pages/uebt-theory-of-change)>.

<sup>979</sup> *Ibid*, UEBT Standard, at 8-11.

company as integrated into a strategy and reporting requirements that enable for verification and where the resource or supply chain is successfully certified use of the UEBT logo on products.

Conservation of biodiversity, identified in Principle 1, focuses on the collection of information on biodiversity in cultivation and wild collection, with critical information including areas of high biodiversity value (protected areas, wetlands/peatlands, habitats containing rare or threatened species, or of cultural value to IPLCs) and threats to local biodiversity (pollution, deforestation, habitat loss, ecosystem degradation).<sup>980</sup> The indication must also be provided regarding concrete commitments to regeneration or enhancement of ecosystems in line with the minimum standard of practices not contributing to deforestation from 2014 onward, and stepwise goal of establishment of targets for ongoing assessment and monitoring of impact.<sup>981</sup>

Sustainable use, integrated into Principle 2, requires that practices are in place to ensure sustainable use of cultivated or wild-sourced species and actions are established to prevent or mitigate negative impacts. This includes compliance with CITES, avoidance of sourcing from protected areas, and cultivation or collection practices do not introduce invasive species or genetically modified organisms.<sup>982</sup> Among other relevant reporting requirements for wild collection and cultivation,<sup>983</sup> corporate practices are to promote climate resilience, maintain and improve water and soil conditions, prevent negative impacts resulting from agrochemicals, improve energy efficiency, and reduce waste and contamination of sites.<sup>984</sup>

Fair and equitable benefit-sharing, encompassed in Principle 3, ensures producers are paid fairly for raw materials, sourcing arrangements are grounded in long-term trust-based collaborations, and consultations occur to define and prioritise local development needs.<sup>985</sup> Where ABS measures are in place, equitable access must be demonstrated. This includes appropriate permitting and sharing of benefits, with lack of ABS measures resulting in due diligence obligations on organisations, a commitment to follow ABS standards nonetheless (PIC and MAT), and ensure patent and IP practices respect rights of IPLCs including disclosure of origin of GRs and TK.<sup>986</sup> Socio-economic sustainability, grounded in Principle 4, ensures that ethical bio-trade practices are integrated throughout the organisation and management practices,

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<sup>980</sup> *Ibid*, UEBT Standard, 1.1 at 12.

<sup>981</sup> *Ibid*, UEBT Standard, 1.2-1.3 at 12.

<sup>982</sup> *Ibid*, UEBT Standard, 2.1.1-2.1.7 at 14.

<sup>983</sup> *Ibid*, UEBT Standard, 2.1.8-2.1.24 at 14-15.

<sup>984</sup> *Ibid*, UEBT Standard, 2.2-2.5 at 15-19.

<sup>985</sup> *Ibid*, UEBT Standard 3.1-3.3 at 20.

<sup>986</sup> *Ibid*, UEBT Standard 3.4-3.6 at 21.

resources are allocated for implementation, quality assurance procedures are established, and traceability of supply is comprehensively documented.<sup>987</sup>

Compliance with national and international law, embedded through Principle 5, requires organisational practices to conform to the laws related to biodiversity (including the CBD), air and water quality, human rights, land tenure, and rights of IPLCs.<sup>988</sup> In addition, specific reference is included that organisational practices align with obligations under several international agreements including the Nagoya Protocol, CITES, International Labour Organisation conventions, UNDRIP, and UN Guiding Principles on Business and Human Rights.<sup>989</sup> Respect for human, children, and workers' rights is further affirmed in Principle 6, both broadly and with regards to working conditions specifically.<sup>990</sup> Lastly, land tenure and rights related to access and utilisation are integrated into Principle 7, with disputes over land and resources in collection areas chronicled and monitored and collection activities restricted from negatively impacting food security.<sup>991</sup> In addition, the rights of IPLCs are to be respected in all forms including the establishment of PIC, rights to access and utilise traditional territories and natural resources, and alignment with relevant international instruments such as UNDRIP and ILO Convention 169.<sup>992</sup>

Progress of members is audited annually and tracked to note progress and foster compliance with the standard, also advancing industry practices as the terms of the standard evolve. In 2019, 90% of members had set bio-trade commitments, 80% had defined an ethical sourcing system, 90% had conducted a risk assessment and 85% had conducted ABS due diligence.<sup>993</sup> UEBT also provides resources for organisations providing an outline of ABS measures in key jurisdictions of operation (Brazil, India, South Africa) to support compliance.

The creation of the market mechanism under the CBD has informed the adoption of industry practice across both Nagoya and non-Nagoya Party jurisdictions. Through the creation and adoption of the UEBT Standard, transparency in sourcing has been established in a uniform manner, consistently reviewed, and elevated to an industry competitive standard. Organisations like Natura, which have over 40 supply chains certified, and Symrise, which have an integrated vanilla supply chain in Madagascar working with 7,000 families and

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<sup>987</sup> *Ibid*, UEBT Standard 4.1-4.4 at 22-23.

<sup>988</sup> *Ibid*, UEBT Standard 5.1 at 24.

<sup>989</sup> *Ibid*, UEBT Standard 5.2 at 24.

<sup>990</sup> *Ibid*, UEBT Standard 6.1-6.4 at 25-28.

<sup>991</sup> *Ibid*, UEBT Standard 7.1, 7.3 at 29.

<sup>992</sup> *Ibid*, UEBT Standard 7.2 at 29.

<sup>993</sup> UEBT, Monitoring and Evaluation Report, Part 3: Changes and effects prompted by UEBT requirements in the short, medium and long term for the period covering 2019" (2020), online: <[www.ethicalbiotrader.org/resource-pages/monitoring-evaluation-2020-report](http://www.ethicalbiotrader.org/resource-pages/monitoring-evaluation-2020-report)>.

creating jobs for 40,000 are illustrative of the progress that can be inspired.<sup>994</sup> Market mechanism under international law, as seen with adoption of the Nagoya Protocol, provided the impetus for congruence of practice in the biobased sector, not simply at the point of access but throughout the supply chain. Generation of industry-leading collaborations, standardised assessment procedures, and ongoing monitoring and evaluation has enabled private actors to foster livelihood benefits and, on the ground, sustainable development outcomes that would not have occurred but for the incentivisation and systemic response generated by ABS.

## Research Findings and Implications for Interactional Theory

Application of the interactional lens to the normative development of international law using market mechanisms relating to climate and biodiversity as put forward by Brunnée and Toope provides important new considerations for treaty creation, interpretation and design. Research findings identify architectural and institutional approaches which foster shared understandings related to sustainable development, outline additional considerations informing treaty interpretation as congruence of practice, and provide novel contributions our understanding interactional theory in relation to the role of market mechanisms in normative development.

### *On the Creation of Shared Understandings*

For Brunnée and Toope creation of shared understandings, through formal sources as well as collective and contested foundational underpinnings, is essential to inform our understanding of international law.<sup>995</sup> Evidence profiled from collected treaty practice illustrates the significant normative influence of sustainable development through market mechanisms. Both the climate and biodiversity frameworks provide for “sustained mutual engagement in communities of practice” in the formulation of sustainable development in operation under the respective treaty system and in turn the general corpus of international law. Market mechanisms as observed under the UNFCCC and CBD have proven integral in this regard providing social grounding for international legal obligations and in turn creating an informative microcosm to formulation and nurturing of shared understandings.

Consideration of experiences under each respective regime suggests the climate framework has been more successful at establishing shared understandings among private actors, defining sustainable developments

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<sup>994</sup> UEBT, “Natura’s Commitment to Ethical BioTrade” Impact Case Study (2019), online: <[www.ethicalbiotrade.org/resource-pages/impact-case-study-natura](http://www.ethicalbiotrade.org/resource-pages/impact-case-study-natura)>; Maria Julia Oliva, “Nature Your Inspiration for a New Product? Wait a Minute” Sustainable Brands (2019), online: <<https://sustainablebrands.com/read/product-service-design-innovation/nature-your-inspiration-for-a-new-product-wait-a-minute>>.

<sup>995</sup> Brunnée & Toope 2010, *supra* note 3, 350.

outcomes under the convention, and mobilizing resources through the creation of ecosystems throughout the treaty process for formulation of shared understandings. As highlighted in Chapter 3, through the iterative development under the Kyoto Protocol, the passage of the Paris Agreement and subsequent negotiations around Article 6, and work in parallel fora such as ICAO, we understand sustainable development in the context of emissions trading to include minimum criteria of additionality, environmental integrity, and corresponding adjustment, with application of stakeholder endorsed certifications (Gold Standard, VCS, CCB, etc) providing verifiable methodologies to measure and report on positive co-benefits. In addition, the market mechanism is complemented by the commitment made by developed Parties at COP 15 in 2009 to mobilize US\$ 100 billion annually to support climate finance.<sup>996</sup> Despite the international community remaining short, with OECD estimating the US\$ 83 billion mobilize in 2021 as our most ambitious result,<sup>997</sup> interlinking of the CDM/SDM with complementary funding schemes and broad adoption of TCFD reporting requirements advances an ecosystem-based approach to formulation of shared understandings.

While research findings in Chapter 4 aimed to identify ABS experiences that informed our understanding of sustainable development outcomes under the Convention, the inherent potential of the Nagoya Protocol remains thus far largely inadequately realised. Misalignment across the IP regimes related to GRs and TK, limitations to application resulting from the temporal (post-2014 upon entry into force) and substantive scope (failure to address synthetic biology), and a significant emphasis on capacity building since its inception has largely inhibited establishment of alignment across private actors to the same degree as observed in climate change. Continued failure by the Parties at COP 15 in 2022 to establish consensus on effectively addressing synthetic biology, transboundary benefit sharing, and digital sequence information illustrate remaining divergences across the respective communities of practice.<sup>998</sup> Prioritization in the GBF of significantly increasing benefits shared under the framework by 2030, inclusion of reporting on ABS compliance, and commitment to mobilize US\$ 30 billion by 2030,<sup>999</sup> are illustrative of the progression of shared understandings while holding parallels to the ecosystem-based approach observed in climate change.

An additional reflection point elucidated through this research pertains to the speed and frequency of feedback loops under the architecture of market mechanism. The accelerated timetable of climate change

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<sup>996</sup> Copenhagen Accord, *supra* note 815, para 8.

<sup>997</sup> OECD, *Aggregate Trends of Climate Finance Provided and Mobilised by Developed Countries in 2013-2020, Climate Finance and the USD 100 Billion Goal*, (OECD Publishing, Paris, 2022), online: <<https://doi.org/10.1787/d28f963c-en>>.

<sup>998</sup> Key decisions were all pushed to COP 16 in 2024; See: CBD/NP/MOP/4/L9, CBD/NP/MOP/4/L10, CBD/NP/MOP/4/L13.

<sup>999</sup> GBF, *supra* note 1123 Target 13, 15 19.

negotiations – annual (UNFCCC) versus biannual (CBD) – coupled with integration of dialogue-driven processes engaging private actors among other non-Party stakeholders has resulted in a perceived elevated level of ambition grounded in more solidified shared understandings.

### *Enabling a Practice of Legality*

Adherence to the criteria of legality for Brunnée and Toope is paramount noting “what distinguishes legal norms from other types of social norms is not form or pedigree, but adherence to specific criteria of legality.”<sup>1000</sup> As evidenced through these research findings the Paris Agreement and the Nagoya Protocol provide a basis for fulfilment of these criteria of legality and pathways to realise sustainable development. While the scale of ambition under both regimes it could be argued should be higher, the experience profiled throughout this research demonstrates adherence to legal norms related to sustainable development through climate adaptation and mitigation efforts and access and benefit sharing. More importantly for our understanding of international environmental law however is the unique role market mechanisms can play in evolving and embedding the criteria of legality iteratively among private actors in important ways.

Under each regime central aspects of sustainable development conceptually evolve through interaction with Parties and non-Party stakeholders both within and outside of the treaty framework. Through interfaces provided by market mechanisms, sustainable development outcomes become embedded into ITMO project documentation, ABS agreements, and respective certifications through conventional instruments such as the CER Purchase Agreement, or model benefit-sharing terms. This shroud of obligations has created a degree of verifiable treaty practice of ongoing, concurrent and material promulgation of sustainable development normative outcomes. While these conclusions do not translate into sustainable development broadly speaking being argued to be considered a legal norm. On balance sustainable development may remain only normative in character under international law. Notwithstanding, research findings illustrate that private actors are increasingly engaging with sustainable development through market mechanisms, interaction across fragmented regimes can help or hinder these outcomes, and greater appreciation, awareness, and attention remains needed in treaty negotiations, policy making, and legal research to understand this rich incubator more effectively for reciprocity and normative development.

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<sup>1000</sup> Brunnée & Toope 2010, *supra* note 3, 351-352.

### *Ongoing Congruence of Practice*

Lastly, for Brunnée and Toope an ongoing “practice of legality,” whereby iterative engagement is undertaken to maintain or expand foundational shared understandings and embed these practices into “day-to-day application,” is central to long-term normative development. Research findings mapping the terrain of treaty practice observe an underappreciation for the role market mechanisms play in treaty development and implementation.

Both the UNFCCC and the CBD experienced early procedural developments following the Rio Earth Summit, however, passage of instruments with market logic related to climate change (Kyoto Protocol, Paris Agreement) and biodiversity (Nagoya Protocol) saw an evolution of both normative development and substantive engagement. The formalities of COP and the subsidiary bodies provide milestones for ongoing reflection on the legal framework, but market mechanisms it is argued are the engines that drive congruence of practice as seen in mobilization of financing, innovation, and sustainable development outcomes – be these emission reductions or benefits shared. Agreed methodologies and reporting requirements under the respective regime provide communication conduits for ongoing normative engagement. Feedback loops created through market mechanisms provide the international environmental community opportunities to refine conduct, collaborate around a central modality, and mobilise resources, capacity, and policy alignment.

These architectural elements create a basis for an ongoing practice of legality both within and outside of the formal treaty framework. Legal scholars must be cautious to not be scornful of market mechanisms nor view them as a panacea. This research demonstrates that attempts at internalisation by private actors are indicators of organic normative growth towards a realisable equilibrium of sustainable development. Application of an interactional lens needs to be nuanced and respectful to the roles market mechanisms play in advancing sustainable development, and the various – at times subtitle – indicators of progress. For instance, the Livelihood Funds could be viewed by scholars as operating outside of the formal CDM system (like other registries) and thus not contributing to legality and legitimacy of the global climate framework. Viewed through an interactional lens, the Livelihoods Funds can more appropriately be recognized as an innovative modality that creates an ecosystem to mobilise finance, the archetype for the World Bank Ci-Dev fund, a conduit for generation of sustainable development-aligned A6.4ERs under the Paris Agreement. More importantly, the experience is emblematic of the deep normative internalization possible for sustainable development and the non-linear progression by which international law evolves.

### *Implications for Interactional Theory*

Application of an interactional lens to the evaluation of market mechanisms under climate change and biodiversity provides an informative evaluation of progress under each respective regime. Going forward these research findings suggest market mechanism when properly constructed may be beneficial to driving normative alignment, engagement with private actors, and fostering implementation of sustainable development outcomes.

First, the architectural design of international law should be given greater attention. The functions and tension points of market mechanisms highlighted in this research demonstrate that effective system design within a regime is crucial to establishing shared understandings. Institutional elements such as agreed project methodologies and reporting criteria provide legal certainty while allowing for shared understandings to dynamically evolve. Institutional modalities that create channels for feedback loops, both formal (institutional approaches like the SB) or informal (fora for dialogue on advancing standards) were identified as important to ongoing functionality. Noting transparency and equanimity as the basis of the reciprocity underpinning congruence of practice, the classification of benefit sharing terms under the ABS-CH as classified information and the increased call to do the same under the SDM unnecessary barriers.

Second, both intra and inter-regime interaction contributes to our understanding of the legal architecture of market mechanisms and how they promote sustainable development. Application of an interactional lens must be open to exploring beyond the regime in question and consider regime intersections which contribute to the functionality and feasibility of market mechanisms. Alignment of trade and investment treaty practice, developmental priorities (as found in NDC and NBSAPs for instance), and systemic approaches found in related regimes create the foundation for market mechanism to operate. This research contributes to our understanding of this rich ecosystem of relationships and further clarifies the role of private actors can play as enablers of sustainable development. Scholars, jurists and legal commentators should be cautious to not simply apply a realist critique to market mechanisms viewing them as inherently corrupted tools to address environmental challenges. To the contrary, these research findings demonstrate private actors operate as brokers of sustainable development solutions under an international legal architecture developing complementary modalities (certifications, registries), developing innovative solutions (UEBT), creating collaborations (ie Breakthrough Agenda, Race to Resilience), and opening the finance floodgates to channel resources towards the green economy.

Lastly, application of the interactional theory requires a nuanced investigation of where and how international law is created, crafted, and shaped. Private actors are developing standalone or

complementary service structures, solutions, certifications and governance arrangements that demonstrate a deep commitment to the principles of international law underpinning the treaty process yet are unencumbered by the limitations of international negotiations. As highlighted by these research findings, the nexus created by market mechanisms integrate private actors as enablers – and at times implementors – of treaty outcomes furthering the legality, influence, and importance of the international system. Ongoing congruence of practice by private actors towards combating climate change and biodiversity loss through market mechanisms activity contributes to the general corpus of international law relating to sustainable development.

## Concluding Thoughts: Enablers of Congruence of Practice

Actualising sustainable development through international law requires both an articulation of the norm and animation of the norm through internalisation, uptake, and action by a multiplicity of actors and to a degree significant enough that the norm transcends from scholarship into practice. Where legal jurisprudence and the establishment of the SDGs provided normative understanding and a common framework, the international legal architecture of market mechanisms provided the pathways and incentives necessary to allow for congruence of practice to organically occur and flourish. Formulation of treaty obligations benefits from observations informed by an interactional lens whereby private actors are provided opportunities to engage with legal norms guided by market factors and contextualised by a social license to operate.

Through identification and mitigation of misalignment across legal regimes, mobilisation of enhanced transparency and environmental integrity as essential to secure finance, promotion of legal certainty, conceptualisation of normative outcomes in practice, and collaboration with relevant stakeholders, in particular IPLCs, market mechanisms through their market logic can create the appropriate conditions to nurture actualisation of treaty obligations related to sustainable development. Innovative approaches established by the Livelihoods Funds and UEFT illustrate the type of transformative results that can occur when the appropriate legal architecture, market conditions, and economic incentives are established to foster congruence of practice across all levels.

## Chapter 8 | Market Mechanisms as Catalysts for Change

### Conclusions and Reflections

During congressional testimony before the Committee on Energy and Natural Resources of the United States Senate, Dr. James Hansen a researcher at the NASA Goddard Institute for Space Studies sharing research conclusions stressed that the rate of warming over the previous 25 years was the highest on record, with a high degree of confidence these observations could be ascribed to global warming, and modelling suggests it will exacerbate the likelihood of extreme weather events; the year was 1988.<sup>1001</sup> Since that day, over three decades ago, and despite our scientific understanding of the extent of climate change continuing to crystallise annually, the speed of our collective response has been strikingly less robust than the scale of the problem facing humanity. In 2022, the World Economic Forum published its annual report on global risks citing failure on climate action, extreme weather, and biodiversity loss as the three most immediate, damaging, and enduring over the coming decade.<sup>1002</sup> These findings come against the backdrop of 2021 seeing the hottest month on record, marking the 45<sup>th</sup> consecutive year of global temperature rise with the years 2013-2021 identified as the hottest in history, and the highest recorded ocean temperature, with 2015 to 2021 marking the 7<sup>th</sup> consecutive year of global ocean temperature rise.<sup>1003</sup>

This research explores the relation between the legal architecture of market mechanisms under international law and the role of private actors in them, and how this contributes to sustainable development in an effort to understand how market logic best engages the full range of non-Party stakeholders to advance comprehensive, robust, and decisive climate and biodiversity action. When the concept of sustainable development was incorporated into the Rio Treaties it was still in its relative infancy. However, it was this integration into the fabric of treaty discourse that provided an opportunity to mature and in time find itself complemented by the appropriate architecture under international law to flourish. As demonstrated in Chapter 3 and 4 through a doctrinal analysis of international instruments, provisions, and decisions across a range of fora informed through the application of an analytical lens grounded in the

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<sup>1001</sup> US Government, “Greenhouse Effect and Global Climate Change” Hearing before the Committee on Energy and Natural Resources of the United States Senate, One Hundredth Congress, First Session, S. Hrg 100-461 Pr. 2 (23 June 1988), online: <[www.sealevel.info/Hansen.0623-1988\\_oral.pdf](http://www.sealevel.info/Hansen.0623-1988_oral.pdf)>.

<sup>1002</sup> World Economic Forum, “The Global Risks Report 2022” 17th ed., Insight Report (Geneva, 2022), at 14, 18-19, 26, online: <[www3.weforum.org/docs/WEF\\_The\\_Global\\_Risks\\_Report\\_2022.pdf](http://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2022.pdf)>.

<sup>1003</sup> NOAA, “2021 was World’s 6th Warmest Year on Record” Press Release (13 January 2022), online: <[www.noaa.gov/news/2021-was-worlds-6th-warmest-year-on-record](http://www.noaa.gov/news/2021-was-worlds-6th-warmest-year-on-record)>; NOAA, “It’s Official: July was Earth’s Hottest Month on Record” Press Release (13 August 2021), online: <[www.noaa.gov/news/its-official-july-2021-was-earths-hottest-month-on-record](http://www.noaa.gov/news/its-official-july-2021-was-earths-hottest-month-on-record)>; Lijing Cheng et al., “Another Record: Ocean Warming Continues through 2021 despite La Niña Conditions” *Advances in Atmospheric Sciences* (2022), online: <<https://link.springer.com/article/10.1007%2Fs00376-022-1461-3>>.

interactional approach put forward by Brunnée and Toope, the history, evolution, and practices of market mechanisms under the UNFCCC and CBD are surveyed. Research observations identify the potential of market mechanism to engage private actors to advance sustainable development outcomes provided the international legal architecture is appropriately aligned across relevant instruments, encompasses technological solutions in a manner that allows for them to be enablers rather than impediments, provides clear guardrails to ensure environmental integrity and consultation of key stakeholders, in particular IPLCs, and fosters transparency of achieved outcomes.

As summarised in Chapter 5, sectoral approaches adopted in aviation and maritime transport, climate-related finance, and Agriculture, Forests and Other Land Uses (AFOLU) are reviewed to consider applicable market mechanisms, evaluate areas of convergence and divergence, and identify critical intersections that allow the latent potential of market mechanisms to positively engage private actors to be realised. International trade and investment obligations are discussed in Chapter 6 to identify progressive approaches adopted, critical pathways these instruments provide to buttress the architecture of market mechanisms, and modalities to empower actualisation of climate action, biodiversity conservation, and sustainable development outcomes that are legally compliant. Finally, as addressed in Chapter 7, observations on congruence of practice throughout the normative evolution of sustainable development, consideration and application through international courts and tribunals, and innovative and transformative approaches adopted illustrate how and under what conditions market mechanisms engage private actors to advance truly sustainable development-aligned outcomes.

Collectively, the findings of this research demonstrate the critical ways in which market mechanisms supplement shortcomings or limitations inherent in consensus-based negotiations, animate norms, and foster congruence of practice by private actors in the advancement of sustainable development. This includes through alleviation of regime misalignment, the connection of enhanced transparency and environmental integrity to financial support, enablement of legal certainty and identification of remaining gaps, conceptualisation of sustainable development outcomes in practice, and mobilisation of channels for collaboration across stakeholders. Keeping in mind market mechanisms are not a panacea, research conclusions illustrate a connection between sustainable development, creation of shared understandings and fostering convergence of practice in turn reinforcing international climate and biodiversity legal architecture through interactivity. Moreover, these findings suggest the formulation of market mechanisms under international law with the express goal of advancing sustainable development creates a nurturing environment for normative evolution incentivising the generation of private sector-driven innovative

solutions which provide authentic and transformative results at the local level as highlighted in the discussed case studies.

While Brunnée and Toope were correct to note the importance of treaty-based institutions as playing a crucial role in providing fora for the interface with legal norms allowing for the formulation of shared understandings, refinement of complementary modalities, and generation of congruence of practice among States, their conclusions may not have gone far enough. This research suggests it is the interaction of norms across the international legal architecture, informed by relationships within and across relevant treaty systems and the general corpus of international law, and actualised through engagement with private actors as a component of the guiderails offered by market mechanisms that provides the opportunity for the type of shared understandings, normative internalisation and ownership among communities of practice that stimulates both innovative solutions to global challenges and advances development of normative character in an accelerated manner. This work responds to the need in constructivist scholarship for broader research to understand how shared understandings are created, what is the role of Parties and non-Party stakeholders play in normative development through treaty implementations, and how congruence of practice can be best manifested.<sup>1004</sup> Research findings demonstrate that congruence of practice among private actors cannot be forced, it must instead be nurtured, cultivated, and inspired. Creation of ecosystems where shared understandings may be developed and congruence of practice can be nourished through robust support systems, shortened feedback loops, and mutually supportive collaborations are incentivized by incorporation of market mechanisms in treaty architecture. While private actors may not be direct subjects of international law, research findings suggest they play an essential role as constituent elements in animating and actualising international legal norms in application.

Beyond the application of market logic to address environmental challenges at the lowest possible cost, this research draws out the critical importance the design of the international architecture plays in enabling the achievement of sustainable development outcomes by private actors. As discussed in analysis relating to ozone depleting substances and regional fisheries, inclusion of a market mechanism in and of itself may bring about positive environmental ends and limited sustainable development benefits. However, as illustrated in the case studies relating to climate change and ABS summarised in Chapters 3 and 4, in conjunction with the buttressing elements provided by sectoral approaches and trade and investment instruments as seen in Chapters 5 and 6, the greater the degree the market mechanism prioritises

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<sup>1004</sup> Brunnée & Toope 2012, *supra* note 5.

sustainable development, the broader the sustainable development outcomes that will be manifested by private actors engaging in the framework. The architectural framework of market mechanisms as established under international law provides critical institutional design functions that engage private actors and leverages their ingenuity, creativity, and agility to actualise broad sustainable development outcomes. Where market mechanisms are deployed in treaty regimes, the market logic is beneficial to the environmental goals, but the architecture when appropriately designed can foster rather than frustrate sustainable development outcomes.

We are facing an unprecedented moment in history where we have the ingenuity, technical savvy, and scientific understanding to both comprehend and facilitate the economy-wide shifts necessary to address climate change and biodiversity loss; acknowledging we are unable to solve them in isolation but must solve them both in tandem. The architecture of market mechanisms under international law provides the initial incentive for action, which must be followed by an ongoing evaluation, refinement, and ratcheting up of ambition to ensure the desired outcomes continue to be realised and allowing sustainable development to transcend from a legal concept to a cultural norm. It is through this transcendence fostered initially through the international architecture that sustainable development ceases to need incentives but becomes standard operating practice across all sectors and operationalisation of the SDGs as a global developmental agenda can be released.

Mobilisation of the scale of innovation needed to combat climate change and halt biodiversity loss requires ambitious action at all levels. International law plays an essential component in this transformation providing the architecture underpinning multilateral discourse, market incentivisation, generation of compliance, and mobilisation of finance at a magnitude commensurate to the degree of transformation needed within the economy. Market mechanisms when appropriately grounded in sustainable development priorities hold immense potential to engage private actors to leverage creative talent, nimbly experiment with ideas, foster powerful collaborations, and actualise innovative solutions. For humanity to respond in the time required to address these generation-defining challenges, our response to which will define this generation and those that follow, sustainable development-driven market mechanisms may provide the galvanising force needed to actualise ambitious action.

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