International and Comparative Law Quarterly (2026), **75**, 193–219
doi:10.1017/S0020589326101493

British Institute of International and Comparative Law

ARTICLE

Towards a Principle-Based Framework for an Equitable Global Fossil Fuel Phase-Out

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Abstract
This article examines the legal foundations of an equitable global fossil fuel phase-out under international law and considers how legal principles could shape the scope of existing obligations and development of a future regime limiting the production of fossil fuels. While fossil fuel production remains largely unregulated in the international climate regime, emerging scientific, political and normative pressures demand clearer legal guidance. The article argues that a principle-based approach, grounded in established norms of international law, can clarify what equity entails in this context, and offer a coherent framework for a managed phase-out. Drawing on principles of permanent sovereignty over natural resources, common but differentiated responsibilities, cooperation, prevention, precaution and non-regression, it is demonstrated that the substantive and procedural obligations needed for an equitable transition away from fossil fuels are already part of existing international law.

Keywords: fossil fuels; climate change; equity; fossil fuel phase-out; legal principles; due diligence; sovereignty over natural resources; differentiation; cooperation; prevention

1. Introduction

Studies of the available data on fossil fuel reserves and resources have calculated regional shares of fossil fuels as 'unburnable' between 2010 and 2050 under the 2°C and the 1.5°C global warming scenarios.[1] Under the latter, 58 per cent of oil, 56 per cent of fossil methane gas and 89 per cent of coal must remain unextracted to keep within a 1.5°C carbon budget.[2] This provides a clear working measure of how many of the remaining fossil fuel stocks can be extracted for the global community to keep climate change within relatively safe limits. But this raises questions about which States exploit their

[1] C McGlade and P Ekins, 'The Geographical Distribution of Fossil Fuels Unused When Limiting Global Warming to 2°C' (2015) 517 Nature 187; D Welsby et al, 'Unextractable Fossil Fuels in a 1.5°C World' (2021) 597 Nature 230.

[2] Welsby et al (n 1) 231.

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https://doi.org/10.1017/S0020589326101493 Published online by Cambridge University Press

remaining stocks, which strand their fossil fuel assets (which means they are abandoned or become unusable) and how this is determined.

This article outlines a principle-based approach to an *equitable* global fossil fuel phase-out (FFP) in international law, where FFP refers to the gradual, planned reduction in production (or extraction) and, as a consequence, use of fossil fuels. Equity is recognised to be central to the global response to climate change[3] and, by extension, to any international legal regimes governing fossil fuel extraction and use, and any FFP. However, in the context of many competing ideals of equity and many indicia, it could be difficult to discern what this means. While there are many equity issues that arise in the context of the FFP, the starting point for clarifying existing obligations under international law and/or developing any future legal regime should be an understanding of what comprises equitable production of existing global fossil fuel stocks.

Furthermore, the meaning and content of what is needed for an equitable FFP is already reflected in existing principles of international law; in other words, an analysis of what established legal principles might require provides insight into what equity entails in this context and which legal obligations arise. The FFP regime would need to include general legal principles, the rules to which these might give rise and the operational indicators needed to put the principled proposals in place.[4] Principles of international law are a good place to start an enquiry of this nature, because they are largely accepted globally as giving rise to various obligations and guiding the interpretation of existing rules. Principles of international environmental law are largely issue-specific normative principles that have developed through environmental treaties, soft law instruments and State practice to guide environmental governance and fill gaps in treaty obligations. As emphasised by the International Court of Justice (ICJ) in its Advisory Opinion on *Obligations of States in respect of Climate Change* (*Climate Change* AO), such principles of international law, finding expression as customary obligations on States, apply irrespective of the climate change treaties;[5] therefore, the value of relying on existing principles of international law is that they can apply to all States, irrespective of whether they are signatories to a treaty.[6] It is important to note that in this article, the term 'principles' means principles of international environmental law which derive their legal power either from a customary rule (e.g. prevention of environmental harm) or from treaties (e.g. non-regression). This is not the same as the general principles of international law as recognised under Article 38(1)(c) of the ICJ Statute, which refers to principles derived from domestic jurisdictions and operating across all fields of international law rather than being confined to a specific regulatory regime.

[3] United Nations Framework Convention on Climate Change (adopted 9 May 1992, entered into force 21 March 1994) 1771 UNTS 107 (UNFCCC) art 3; W Scholtz, 'Equity' in L Rajamani and J Peel (eds), *The Oxford Handbook of International Environmental Law* (OUP 2021) 335; P Lawrence and M Reder, 'Equity and the Paris Agreement: Legal and Philosophical Perspectives' (2019) 31 JEL 511.

[4] See F Soltau, *Fairness in International Climate Change Law and Policy* (CUP 2009) 229.

[5] *Obligations of States in respect of Climate Change* (Advisory Opinion) (General List No 187, 19 July 2025) (*Climate Change* AO) paras 170–172, 315.

[6] ibid para 315.

https://doi.org/10.1017/S0020589326101493 Published online by Cambridge University Press

This research builds on van Asselt's framing of the international law of 'leaving it in the ground' where he 'sketched the possible contours' of an FFP regime,[7] recognising the importance of reconciling it with legal principles. It provides a detailed analysis of the principles which correspond with the core objectives of international environmental law: (a) equitable use of resources; and (b) avoidance of transboundary harm from the exploitation of fossil fuel resources. It discusses core principles, including permanent sovereignty over natural resources, differentiation, cooperation, prevention and precaution and non-regression. The relevance of many of these principles has now been emphasised in the *Climate Change* AO.[8]

An international regime addressing fossil fuel production would face remarkable challenges. It would need to bridge the long-standing disconnect between climate change and fossil fuel governance,[9] and would be the first to address the use of natural resources through the lens of equity and sustainable development, across both intragenerational and intergenerational dimensions. The article argues that using the existing legal principles, and the concept of equity reflected in those principles, can show what is needed for a balanced and equitable FFP legal regime and could be instructive in forming the basis of the future regime. These principles generate a suite of substantive and procedural obligations requiring States to cooperate in good faith towards a shared objective of an equitable FFP. In a context where the meaning of equity can be contested, legal principles reflect a vision of equity that could balance the competing priorities and interests within any such regime or treaty.

The article is structured as follows. After briefly explaining the governance of fossil fuels in international law and specifically within the climate regime, Section 2 outlines the current challenges of constructing a legal regime for an equitable FFP and explains why a principle-based approach is both necessary and helpful. Sections 3 and 4 examine the role of legal principles in an equitable FFP. Section 3 addresses principles relating to the equitable use of resources, including permanent sovereignty over natural resources and the equitable utilisation thereof, differentiation and cooperation. Section 4 turns to the (seemingly) competing objective of harm avoidance and environmental protection, considering the principles of prevention, precaution and non-regression. Section 5 contains a critical discussion on the implications of a principle-based framework for an equitable FFP, concluding the article and outlining priorities for future research.

2. Understanding the FFP and the role of principles of international law

2.1. Fossil fuel production and international law

Fossil fuel phase-out generally refers to the reduction of the production (or extraction) of fossil fuels and, as a consequence, their use across different sectors.[10] Fossil fuel production and use are interrelated but are separated by processes of transportation and

[7] H van Asselt, 'Governing Fossil Fuel Production in the Age of Climate Disruption: Towards an International Law of "Leaving It in the Ground"' (2021) 9 Earth System Governance 100118, 6.

[8] The structure and choice of principles is explained in more detail in Section 2. This article was largely researched and written before the *Climate Change* AO (n 5) was handed down. The approach does not conflict with the ICJ's *Climate Change* AO, which has informed the final stages of research.

[9] van Asselt (n 7).

[10] S Wolf et al, 'Scientists' Warning on Fossil Fuels' (2025) 5(1) Oxford Open Climate Change 1.

https://doi.org/10.1017/S0020589326101493 Published online by Cambridge University Press

processing, and often occur in different States, governed by different legal regimes. References to FFP in this article primarily reflect a focus on fossil fuel *production*—the process of extracting oil, gas and coal for the purpose of its subsequent processing and use.

Fossil fuels contribute a substantial share of global emissions, with 78 per cent of the total greenhouse gas (GHG) emissions increase from 1970 to 2010 coming from fossil fuel and industry CO_2.[11] Fossil fuel production has been a moving and contentious target at the climate negotiations.[12] While the United Nations (UN) Framework Convention on Climate Change (UNFCCC) and the Paris Agreement do not contain direct provisions requiring a reduction of fossil fuel production, they acknowledge the specific needs of States with fossil fuel dependent economies.[13] The Forum on the Impact of Implementation of Response Measures provides institutional support on this matter to the Conference of the Parties (COP) of both the UNFCCC and the Paris Agreement, focusing in part on the implications of climate action on fossil fuel-producing States.[14]

Recent COP decisions have begun to address fossil fuels directly. At COP26 in Glasgow, there was agreement for 'accelerating efforts towards the phase-down of unabated coal power and phase-out of inefficient fossil fuel subsidies'.[15] This was a significant first, albeit softened from the originally proposed 'phase-out'.[16] The implications of this are mixed, with the new wording implying a 'slower, incomplete transition',[17] but also giving rise to more immediate obligations of conduct.[18] The outcome text for COP28 in Dubai included a reference to fossil fuels collectively, and reiterated the need to accelerate the phase-down of unabated coal use,[19] again with watered down language in the final version.[20] Nevertheless, given the inclusion of the reference to fossil fuels into the UNFCCC COP's First Global Stocktake, parties will now be expected to demonstrate how their

[11] IPCC, *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (CUP 2014) 46.

[12] On fossil fuel subsidies in climate negotiations, see H van Asselt, L Merrill and K Kulovesi, 'Fossil Fuel Subsidies and the Global Climate Regime' in H van Asselt and J Skovgaard (eds), *The Politics of Fossil Fuel Subsidies and Their Reform* (CUP 2018) 140, 144–46.

[13] UNFCCC (n 3) arts 4.8(h), 4.10; Paris Agreement (adopted 12 December 2015, entered into force 14 November 2016) 55 ILM 740 (Paris Agreement) art 4.

[14] UNFCCC Subsidiary Body for Scientific and Technical Advice, 'Work of the Improved Forum on the Impact of the Implementation of Response Measures' (7 November 2018) UN Doc FCCC/SB/2018/INF.4, paras 43, 47, 53.

[15] UNFCCC Conference of the Parties (COP), 'Decision 1/CMA.3: Glasgow Climate Pact' (8 March 2022) UN Doc FCCC/PA/CMA/2021/10/Add.1, para 36.

[16] International Institute for Sustainable Development (IISD), 'A Brief Analysis of COP 26' (2021) 12(793) Earth Negotiations Bulletin 37, 38 <https://enb.iisd.org/sites/default/files/2021-11/enb12793e_1.pdf>.

[17] ibid.

[18] J Depledge, M Saldivia and C Peñasco, 'Glass Half Full or Glass Half Empty? The 2021 Glasgow Climate Conference' (2022) 22 Climate Policy 147, 150.

[19] UNFCCC COP, 'Decision 1/CMA.5: First Global Stocktake' (20 November 2023) UN Doc FCCC/PA/CMA/2023/L.17, para 28(b).

[20] UNFCCC COP, 'Draft Text on CMA Agenda Item 4: First Global Stocktake under the Paris Agreement' (8 December 2023) <https://unfccc.int/sites/default/files/resource/GST_1_0.pdf>.

https://doi.org/10.1017/S0020589326101493 Published online by Cambridge University Press

Nationally Determined Contributions (NDCs) are informed by it.[21] The COP29 outcome, in contrast, made no reference to fossil fuels in the final text.[22]

The wording and commitments in COP decisions carry interpretative significance. As 'subsequent practice' or 'subsequent agreement' under the Vienna Convention on the Law of Treaties,[23] they inform the understanding of parties' legal obligations under the UNFCCC and the Paris Agreement.[24] The question of the legal effect of COP decisions, specifically when it comes to fossil fuels, was challenged by some States' submissions during the *Climate Change* AO on climate change, arguing that COP decisions 'do not affect the scope and content of State obligations',[25] specifically in relation to fossil fuels. These submissions asserted, for example, that the decision from COP28 did not create 'new or distinct obligations'[26] for fossil fuel producing States. As the ICJ has recently confirmed, in some circumstances the decisions of these bodies 'have certain legal effects' including the creation of legally binding obligations.[27] This arguably includes decisions of COP26 and COP28 directly related to fossil fuels. ICJ Judges Bhandari and Cleveland in their joint declaration noted that, as a result, 'actions by States that reinforce continuing dependence on fossil fuels run directly contrary to these obligations'.[28]

Against the lack of political will to address fossil fuel production in the international climate change arena, fossil fuel moratoria emerged domestically,[29] although few of the States committed to such measures are large reserve holders or producers.[30] International initiatives (such as the Beyond Oil and Gas Alliance and Powering Past Coal Alliance) remain largely informal, notwithstanding ongoing discussions for a standalone treaty, or for provisions to be incorporated into existing regimes.[31] The Fossil Fuel Non-Proliferation Treaty initiative, endorsed by some States and non-governmental organisations, calls for a

[21] Paris Agreement (n 13) art 4(9); H van Asselt, '"Historic" or "Historic Failure"? Fossil Fuels at COP28' (*EJIL:Talk!*, 28 December 2023) <https://www.ejiltalk.org/historic-or-historic-failure-fossil-fuels-at-cop28/>.

[22] IISD, 'COP 29 Outcome Moves Needle on Finance' (*IISD*, 23 November 2024) <https://www.iisd.org/articles/statement/cop-29-moves-needle-on-finance>.

[23] Vienna Convention on the Law of Treaties (adopted 23 May 1969, entered into force 27 January 1980) 1155 UNTS 331, art 31(3)(a)–(b).

[24] *Climate Change* AO (n 5) paras 184, 224.

[25] Russian Federation, 'Written Reply of the Russian Federation to the Questions Put by Judges Cleveland and Aurescu at the End of the Hearing Held on 13 December 2024' (20 December 2024) 3–4 <https://www.icj-cij.org/sites/default/files/case-related/187/187-20241220-oth-51-00-en.pdf>.

[26] Saudi Arabia, 'Written Reply of Saudi Arabia to the Questions Put by Judges Cleveland, Tladi, Aurescu and Charlesworth at the End of the Hearing held on 13 December 2024' (20 December 2024) 1–17 <https://www.icj-cij.org/sites/default/files/case-related/187/187-20241220-oth-55-00-en.pdf>.

[27] *Climate Change* AO (n 5) para 184.

[28] ibid (Joint Declaration by Judges Bhandari and Cleveland) para 20.

[29] See J Gupta et al (eds), *Leaving Fossil Fuels Underground: Actors, Arguments and Approaches in the Global South and Global North* (Amsterdam University Press 2024).

[30] Except Colombia and Denmark.

[31] H van Asselt and P Newell, 'Pathways to an International Agreement to Leave Fossil Fuels in the Ground' (2022) 22(4) Global Environmental Politics 28; P Newell, H van Asselt and F Daley, 'Building a Fossil Fuel Non-Proliferation Treaty: Key Elements' (2022) 14 Earth System Governance 100158; A Burke and S Fishel, 'A Coal Elimination Treaty 2030: Fast Tracking Climate Change Mitigation, Global Health And Security' (2020) 3 Earth System Governance 100046; GB Asheim et al, 'The Case for a Supply-Side Climate Treaty' (2019) 365 Science 325.

https://doi.org/10.1017/S0020589326101493 Published online by Cambridge University Press

binding treaty akin to the nuclear non-proliferation regime.[32] Advocates of this approach stress the need for an effective combination of supply and demand-side measures, to avoid displacement of production outside of the coalition.[33]

2.2. Equity and the FFP

A growing body of literature addresses approaches to organising global mechanisms to reduce fossil fuels.[34] Often framed in economic terms, these studies typically advocate targeting high-cost carbon reserves,[35] focusing on limiting new projects rather than closing existing ones early.[36] Some incorporate equity considerations, calling for countries historically benefitting from fossil fuels to take the lead, or identifying support mechanisms for low-capacity fossil fuel-dependent States,[37] although equity is not always central to these discussions.[38] Many studies prioritise cost efficiency, framing equity narrowly around States' historical benefits from fossil fuel extraction and the need for developed States to support those with high dependency on fossil fuel resources, but limited transition capacity.[39] For example, Pye et al use a global energy systems model incorporating a redistribution mechanism based on economic development and historical benefits.[40] While the authors acknowledge the 'crucial role' for equity considerations,[41] they express scepticism around the economic, ethical and practical case for redistribution, suggesting that the potential benefits of an equitable FFP 'may be overstated'.[42]

Despite their technical framing,[43] these models can influence policy and global norms, reinforcing a status quo where current producers phase out last.[44] A more qualitative body of work, including that by Muttitt and Kartha, proposes criteria for equitable curbing of extraction based on the 1.5°C temperature goal, just transition, environmental justice and

[32] See *Fossil Fuel Treaty* <https://fossilfueltreaty.org/>; Newell, van Asselt and Daley (n 31); Burke and Fishel (n 31).

[33] Asheim et al (n 31).

[34] S Pye et al, 'An Equitable Redistribution of Unburnable Carbon' (2020) 11 Nature Communications 3968; L Pellegrini et al, 'The Atlas of Unburnable Oil for Supply-Side Climate Policies' (2024) 15 Nature Communications 2318; S Kartha et al, 'Whose Carbon Is Burnable? Equity Considerations in the Allocation of a "Right to Extract"' (2018) 150 Climatic Change 117.

[35] M Hoel, 'Supply Side Climate Policy and the Green Paradox' (CESifo Working Paper No 4094, 2013) <https://www.econstor.eu/bitstream/10419/69548/1/735723818.pdf>; B Harstad, 'Buy Coal! A Case for Supply-Side Environmental Policy' (2012) 120 Journal of Political Economy 77.

[36] F Green et al, 'No New Fossil Fuel Projects: The Norm We Need' (2024) 384 Science 954.

[37] Welsby et al (n 1).

[38] See, e.g. Harstad (n 35); Green et al (n 36).

[39] Welsby et al (n 1).

[40] Pye et al (n 34). Energy systems modelling uses mathematical representations to describe the complex interactions between energy supply and demand, with various factors like levels of development included as assumptions or variables.

[41] ibid 5.

[42] ibid 3; Green et al (n 36).

[43] See, e.g. Pye et al (n 34) 'this mechanism is not being proposed as a policy instrument, but as a modelling device to set up an illustrative equity-based scenario'.

[44] Green et al (n 36).

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fair burden-sharing.[45] Lenferna highlights the intersection of equity and efficiency, pointing to additional challenges such as political inertia in resource-rich States.[46]

Some scholars further argue that equity must consider not only reserves but also fossil fuel consumption and the distribution of benefits derived from it.[47] However, these criteria are not consistently integrated into modelling work. This highlights a core challenge for an equitable FFP: the complexity of defining what constitutes a 'benefit' or a 'burden' for determining equity in an FFP.[48] The assumption that fossil fuel production is always a benefit (and phase-out is always a burden) is oversimplified, especially where revenue flows involve multinational corporations or opaque ownership regimes.[49] Equity issues also arise at the domestic level,[50] as well as in relation to specific communities.[51] While all of these are important considerations, and national policies must ensure that burdens are not disproportionately borne by the most vulnerable,[52] this article focuses on the international distribution of fossil fuel stocks.

A further limitation in much of the existing literature is its limited engagement with international law. Some studies draw on legal concepts, such as Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC), but none treat legal principles as foundational. International law will, however, be essential to both the legitimacy and operationalisation of an equitable FFP regime.

Emerging legal scholarship has assessed the viability of an FFP treaty in light of the existing legal regimes on climate, investment protection, human rights and energy law.[53] Most of this work focuses on the need for a realisation of the phase-out. Less attention has been paid to the legal mechanisms that could ensure equity in such a regime.[54] Considerations of equity have mostly focused on the means to ameliorate the 'unintended and inequitable consequences' of supply-side policies, acknowledging that these could have distributional consequences.[55] There is insufficient reflection of the need for distributional equity as a central design feature of the FFP, including what equity entails and how this could be reconciled with other priorities. This conceptual gap risks undermining implementation, with potential consequences particularly for

[45] G Muttitt and S Kartha, 'Equity, Climate Justice and Fossil Fuel Extraction: Principles for a Managed Phase Out' (2020) 20 Climate Policy 1024.

[46] GA Lenferna, 'Can We Equitably Manage the End of the Fossil Fuel Era?' (2018) 35 Energy Research and Social Science 217.

[47] Welsby et al (n 1); Muttitt and Kartha (n 45).

[48] Lenferna (n 46) 220.

[49] Muttitt and Kartha (n 45) 1026. See more detail in Section 3.

[50] Civil Society Equity Review, 'A Fair Shares Phase-out: A Civil Society Equity Review on an Equitable Global Phase-out of Fossil Fuels' (2021) 17 <https://www.equityreview.org/s/CSOEquityReview-2021-AFairSharesPhaseOutOfFossilFuels.pdf>.

[51] Pellegrini et al (n 34).

[52] Muttitt and Kartha (n 45); P Le Billon and B Kristoffersen, 'Just Cuts for Fossil Fuels? Supply-Side Carbon Constraints and Energy Transition' (2019) 52(6) Environment and Planning A: Economy and Space.

[53] van Asselt (n 7).

[54] See, however, A Rempel and J Gupta, 'Equitable, Effective, and Feasible Approaches for a Prospective Fossil Fuel Transition' (2022) 13 WIREs Climate Change 756.

[55] A Nazareth et al, 'The Equity Dimensions of Anti-Fossil Fuel Norms' (Stockholm Environment Institute, 2022) <https://www.sei.org/publications/equity-dimensions-anti-fossil-fuel-norms/>.

https://doi.org/10.1017/S0020589326101493 Published online by Cambridge University Press

developing countries that may face pressure to strand assets, i.e. leave their reserves undeveloped or infrastructure unused.[56]

Equity is a concept which emanated from the idea of justice and can serve a useful function in supporting the derivation of good solutions from existing principles of law.[57] Understanding equity and the FFP through international climate, environmental and natural resources law is essential, but also presents challenges. Equity holds several meanings in international law,[58] including corrective and distributive—the latter historically being linked to the allocation of resources, benefits and burdens.[59] In international environmental law, equity is often expressed through intergenerational and intragenerational dimensions.[60] It plays both substantive and procedural roles. Substantively, it underpins principles like CBDR-RC,[61] fair burden-sharing[62] and the duty to cooperate for the common good.[63] Procedurally, it requires fair representation of States in international bodies and courts.[64]

While equity has been the fundamental principle of the climate regime from its inception, it does not have a settled meaning. Article 3(1) UNFCCC and multiple provisions of the Paris Agreement embed equity as a key principle alongside intergenerational equity and CBDR-RC.[65] While these references are 'open-textured' (and uncertain), they remain relevant to interpretation, implementation and future instrument negotiations.[66] Yet the specific normative value of equity cannot be easily derived from its meaning, thus inviting concerns of subjectivity in interpretation.[67] In the absence of a shared understanding of equity, States may take on and deliver less than their fair share of the transition burden.[68]

This raises the question of what equity means and requires in the research context, and from whence a legal framework based on equity could be developed

[56] Pye et al (n 34); G Semieniuk et al, 'Stranded Fossil-Fuel Assets Translate to Major Losses for Investors in Advanced Economies' (2022) 12 Nature Climate Change 532.

[57] E Scotford, *Environmental Principles and the Evolution of Environmental Law* (Hart Publishing 2017) 40.

[58] C Titi, *The Function of Equity in International Law* (OUP 2021) 1–14, 161–84; Lawrence and Reder (n 3).

[59] MW Janis, 'The Ambiguity of Equity in International Law' (1983) 9(7) BrookJIntlL 7, 19–22; Titi (n 58) 77–79.

[60] Scholtz (n 3); C Redgwell, 'Principles and Emerging Norms in International Law: Intra- and Inter-Generational Equity' in KR Gray, R Tarasofsky and CP Carlarne (eds), *The Oxford Handbook of International Climate Change Law* (OUP 2016) 185; EB Weiss, 'Climate Change, Intergenerational Equity, and International Law' (2008) 9 Vermont Journal of Environmental Law 615.

[61] Scholtz (n 3) 346–49.

[62] S Maljean-Dubois, 'Justice et Société Internationale: L'équité dans le Droit International de L'environnement', in A Michelot (ed), *Équité Et Environnement: Quel(S) Modèle(S) De Justice Environnementale?* (OUP 2012) 355.

[63] Lawrence and Reder (n 3) 516–18.

[64] Titi (n 58) 81–82.

[65] UNFCCC (n 3) art 3(1); Paris Agreement (n 13) preamble, arts 2(2), 4(1), 14(1). See D Bodansky, 'The United Nations Framework Convention on Climate Change: A Commentary' (1993) 18 YJIL 451, 501–05; Lawrence and Reder (n 3) 516.

[66] AE Boyle, 'Some Reflections on the Relationship of Treaties and Soft Law' (1999) 48 ICLQ 901, 908; A Boyle and C Redgwell, *Birnie, Boyle, and Redgwell's International Law and the Environment* (4th edn, OUP 2021) 122.

[67] Titi (n 58) 56.

[68] Lawrence and Reder (n 3) 529.

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that could avoid these challenges of subjectivity. This is where the role of legal principles comes in. Existing principles of international law provide a useful foundation for understanding and operationalising equity in the FFP. They represent ideals, creating a link between higher order moral concepts and potential legal rules.[69] Moreover, they reflect divergent versions of equity—for instance, the prevention principle provides guidance as to required conduct for the prevention of harm, whereas differentiation justifies the staggering of obligations between States for reasons relating to equity.

The aim of this research is to examine these principles to determine the obligations to which each might give rise, as well as how they might be reconciled with one another, to establish the coherent basis of an equitable FFP. Many of these principles are well-established, and the reconciliation of their seemingly competing demands is already embedded in international legal practice. Accordingly, the normative foundation for a legal FFP regime is already partially in place, and this article distils this to start the task of devising an equitable FFP. Relying on legal principles also offers an objective benchmark for interpreting equity, mitigating the risk of subjective or inconsistent applications.

2.3. Building a principle-based legal framework for an equitable FFP

Principles are compelling as legal concepts within and beyond environmental law.[70] Legal principles represent valuable legal ideals,[71] and as such can form a medium for the creation or shaping of legal rules.[72] Principles guide judicial reasoning and legal interpretation,[73] and can also form the basis for new laws and standards.[74] Moreover, they can play a key role in legitimising and unifying forms of law,[75] and offer 'legal solutions to legal problems' in environmental law,[76] including by accelerating the formation of environmental law.[77] In the FFP context, where understanding about what is fair, legally justified and necessary is likely to be contested, the ideals represented by legal principles provide a link or transmission pathway between ideals and binding legal duties.[78] In addition to providing guidance as to what equity demands, legal principles can both shape obligations in customary international law and guide the formation of any new regime, such as one dealing with fossil fuel production as a fundamental source of global warming.[79]

[69] J Verschuuren, 'Sustainable Development and the Nature of Environmental Legal Principles' (2018) 9 Potchefstroom Electronic Law Journal/Potchefstroomse Elektroniese Regsblad 208, 221–22.

[70] C Eggett, 'The Role of Principles and General Principles in the "Constitutional Processes" of International Law' (2019) 66 NILR 197; Verschuuren (n 69) 221.

[71] Verschuuren (n 69) 235.

[72] ibid 222; G Winter, 'The Legal Nature of Environmental Principles in International, EU, and Exemplary National Law' in G Winter (ed), *Multilevel Governance of Global Environmental Change* (CUP 2006) 587, 590.

[73] N de Sadeleer, *Environmental Principles: From Political Slogans to Legal Rules* (OUP 2002) 264–65.

[74] Verschuuren (n 69) 222, 238.

[75] Scotford (n 57).

[76] ibid 40.

[77] Winter (n 72).

[78] Verschuuren (n 69) 221.

[79] *Climate Change* AO (n 5) paras 142, 172, 315.

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Principles of international environmental law apply to all States and can be idenitifed from treaties, customary law, State practice, judicial decisions and soft law commitments.[80] Principles all have legal consequences but different legal statuses.[81] One could argue over whether, and the extent to which, principles would genuinely be useful in guiding agreement towards an equitable FFP treaty. Being highly abstract, it could be questioned whether principles have any legal core, whether they are simply policy signifiers or whether their diverse meanings in different domestic contexts deprive them of any true meaning. Yet the contingent nature of principles in different domestic legal systems does not necessarily undermine their content or validity as international legal principles; the second does not depend on the first, and it is also fairly well-established that the application of legal rules and principles is often—and indeed, should be—context-dependent when it comes to different legal systems.[82] What legal principles can offer is clarity as to a high-consensus range of ideals, the acceptable scope of their meanings and how they fit together; this, in turn, can form the basis and content for further lawmaking in the understanding and shaping of an equitable regime dealing with FFP. In the context of an equitable FFP regime, the role of these principles should be understood beyond their original objectives and meaning. As van Asselt would have it: 'the adaptation of existing legal principles … offers a way forward for developing specific obligations for States and non-State actors to achieve a fair and orderly transition away from fossil fuel production'.[83]

Identifying, interpreting and reconciling the relevant legal principles is an important starting point for building the future FFP regime. The fragmentation and wide implications of natural resource governance mean that a number of distinct fields, such as economic law, energy law and human rights law, may be relevant.[84] There is an increased understanding of fossil fuel extraction and use as a potential human rights issue.[85] For example, the obligation to phase out fossil fuel production and use are seen as a 'specification of States' duty to respect, protect and fulfil the right to life',[86] the duty to prevent discrimination and other human rights obligations.[87] There are further domestic issues that should form part of the future FFP regime, including the impacts of climate change responses, and the impact of the FFP on regions and workforces in countries historically engaged in fossil fuel production, as encompassed under the concept of 'just transition'.[88] These issues fall outside the scope of this article.

[80] P Sands et al, *Principles of International Environmental Law* (OUP 2018) 197. But see Scotford (n 57) 69.

[81] Sands et al (n 80) 198, 200.

[82] K Knop, 'Here and There: International Law in Domestic Courts' (2000) 32 NYUJIntlLaw&Pol 501; AJ Saiger, 'Domestic Courts and the Paris Agreement's Climate Goals: The Need for a Comparative Approach' (2020) 9 TEL 37.

[83] van Asselt (n 7) 7.

[84] ibid.

[85] *Climate Emergency and Human Rights* (Advisory Opinion) IACtHR Ser A No 32 (2025) (IACtHR AO); *Climate Change* AO (n 5) paras 372–404; UNGA, 'The Imperative of Defossilizing Our Economies: Report of the Special Rapporteur on the Promotion and Protection of Human Rights in the Context of Climate Change, Elisa Morgera' (15 May 2025) UN Doc A/HRC/59/42.

[86] UNGA (n 85) para 44.

[87] ibid paras 45–49.

[88] UNGA (n 85) paras 52–53; V Johansson, 'Just Transition as an Evolving Concept in International Climate Law' (2023) 35 JEL 229.

https://doi.org/10.1017/S0020589326101493 Published online by Cambridge University Press

This article centres around the recognition that rules (and principles) of international environmental law have developed within the context of 'two fundamental objectives pulling in opposite directions': that States have a sovereign right to their own resources, and that States must not cause damage to the environment.[89] Drawing on this, the article articulates an analysis of relevant principles of international law around two main objectives informing a legal regime on fossil fuel production: the *equitable use of resources* and the need for *avoidance of transboundary harm*. These priorities have become the 'cornerstone' of international environmental law,[90] and their joint importance is recognised in principle 21 of the Stockholm Declaration, which was one of the first international instruments to facilitate dialogue between developed and developing States in respect of environmental protection. These two objectives characterise the tension apparent in fossil fuel production between States' rights to use their own resources, and the need to phase out fossil fuel production to address climate change as a transboundary harmful impact of GHG emissions stemming from fossil fuels.

The following two sections deal with the legal principles related to the equitable use of resources in detail. The focus is on the principles most relevant to natural resource development and its impact on the environment and climate, namely the principles of permanent sovereignty over natural resources (PSONR), equitable utilisation, prevention and precaution, differentiation and CBDR-RC, international cooperation and progression. These principles are organised around the two above competing objectives of international law. From the perspective of equitable use of fossil fuel resources (discussed in Section 3), relevant legal principles of international law relate to the limitations to State sovereignty over natural resources, international cooperation and differentiation of responsibilities in terms of production and consumption of fossil fuels. From a harm avoidance perspective (discussed in Section 4), an approach based on precaution and prevention of transboundary harm, coupled with progression/non-regression in relation to existing and future commitments on fossil fuel extraction, is fundamental.

In addition, there is a recognition that some key principles of international law, namely CBDR-RC and international cooperation, could arguably cross-cut both objectives. The extent to which these principles are interwoven is also clearly illustrated by the *Climate Change* AO.[91] For the purposes of this article, they are placed under the equitable use of resources since these principles are primarily concerned with the distribution of rights, responsibilities and capacities among States in managing FFP. Moreover, all the above principles must be understood within the broader duty of States to exercise due diligence, as reiterated by both the International Tribunal for the Law of the Sea (ITLOS) and the ICJ in their recent Advisory Opinions.[92]

[89] P-M Dupuy and JE Viñuales, *International Environmental Law* (CUP 2018) 53–54.

[90] J Brunnée 'Harm Prevention' in L Rajamani and J Peel (eds), *The Oxford Handbook of International Environmental Law* (OUP 2021) 269.

[91] *Climate Change* AO (n 5) paras 140–142, 214–218, 300–304, 150–151, 290–291. On the role of international cooperation, see also *Request for an Advisory Opinion Submitted by the Commission of Small Island States on Climate Change and International Law* (Advisory Opinion) ITLOS Case No 31 (2024) para 296 (ITLOS AO).

[92] ITLOS AO (n 91) paras 241, 243, 248, 398–400, 441; *Climate Change* AO (n 5) paras 238, 290–291, 294.

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Most of the research, analysis and writing of this article pre-dated the *Climate Change* AO. However, the Court's guidance as to how the principles of law discussed should be interpreted has enriched the analysis in the final stages of preparation. A significant feature in the Court's analysis is the structuring of its discussion of customary international law around the duties to cooperate and to prevent significant harm to the environment, which the Court observes as requiring particular attention in the context of climate change.[93] There is a significant emphasis on due diligence as a required standard of conduct, informing the range of factors relevant to the implementation of duties, from applicable principles to scientific information.[94] At the same time, this approach was no doubt informed by the specific question that the Court was addressing.[95] The article's analysis responds to a different question, with a focus on the FFP part of the climate change regime. This drives a focus on a slightly different group of principles. For instance, PSONR is an unavoidable principle in FFP, but was not central to the analysis of the ICJ; similarly, this article does not deal with sustainable development as a distinct principle; rather, this informs the analysis of the implications of the prevention principle. It is to the analysis of the legal principles underpinning the equitable use of resources and harm avoidance that the article now turns.

3. Equitable use of resources

3.1. PSONR and equitable utilisation of resources

Two foundational principles of international law shaping an equitable FFP are the principle of PSONR and the related principle of equitable utilisation of resources.[96]

PSONR emerged from the postcolonial order, as newly independent States asserted their rights to control their natural resources to achieve economic independence and national development.[97] It is grounded in a global 'development ideology',[98] but, importantly, is also linked to environmental responsibility. This dual nature is reflected in principle 21 of the Stockholm Declaration and principle 2 of the Rio Declaration (established at the 1992 UN Conference on Environment and Development to inform States' action for sustainable development), which frame sovereignty alongside the need to manage natural resources in a way that prevents transboundary environmental harm.[99]

[93] *Climate Change* AO (n 5) para 131 (and throughout).

[94] ibid paras 280–300.

[95] ibid paras 88–111.

[96] UNGA Res 1803 (XVII) 'Permanent Sovereignty over Natural Resources' (14 December 1962) UN Doc A/RES/1803.

[97] P Cullet, 'Differential Treatment in International Law: Towards a New Paradigm of Inter-State Relations' (1999) 10 EJIL 549, 565.

[98] See UNGA Res 523 (VI) Integrated Economic Development and Commercial Agreements' (12 January 1952) UN Doc A/RES/523.

[99] UN, 'Declaration of the United Nations Conference on the Human Environment (Stockholm Declaration)' (5–16 June 1972) UN Doc A/CONF/48/14/REV1, principle 21; UN, 'Declaration of the United Nations Conference on Environment and Development (Rio Declaration)' (12 August 1992) UN Doc A/CONF151/26 (vol I), principle 2.

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Resource sovereignty is 'a basic constituent of the right to self-determination'.[100] It entails two relevant justice dimensions in the context of an equitable FFP, i.e. the right to political jurisdiction and the ownership of natural resources in a given territory.[101] Linking PSONR to human rights norms places limits on absolute sovereignty, imposing distributive obligations towards the State's population, including indigenous communities, and extending the responsibilities to the populations of other States.[102] PSONR thus provides for incumbent duties on States in terms of management of their natural resources. Accordingly, States must exercise their permanent sovereignty 'in the interest of national development and the well-being of the people of the State concerned', while also taking into account the interests of other States and those of current and future generations.[103] Thus, PSONR includes limitations and positive duties on States' extraction and use of natural resources to manage these resources equitably and sustainably.[104]

There are two significant implications of PSONR for an equitable FFP regime. First, the benefits from extracting fossil fuels and other resources should promote the realisation of human rights, particularly the social and economic rights, of States' citizens. Second, the permanent character of States' sovereignty over their natural resources needs to be understood in light of global climate constraints and equity considerations.

These implications become clearer when considering the complex benefit flows around fossil fuel production. Fossil fuel revenues often disproportionately benefit multinational corporations rather than host States or communities.[105] Licensing and contract structures create varied forms of ownership, control and revenue distribution. For example, in production sharing agreements common in the Global South, ownership often remains with the State, but the agreement terms are shaped by wider political and economic factors.[106] In contrast, concessionary models allow private companies to retain resource rights in exchange for royalties or taxes, often resulting in financial outflows from the host State.[107] A meaningful equity framework must consider not only where reserves are located, but also who profits, who bears the costs and how those flows are governed.

Even when States derive revenue from fossil fuels, benefits are uneven and contingent on careful economic management.[108] Norway exemplifies successful use of extraction revenues supporting public goods through strong governance with its Sovereign Wealth Fund and the so-called 'Society Benefit Principle'.[109] Yet many countries suffer from the

[100] UNGA Res 1803 (n 96).

[101] P Gümplová, 'Sovereignty over Natural Resources – A Normative Reinterpretation' (2020) 9 Global Constitutionalism 7.

[102] N Schrijver, *Sovereignty over Natural Resources: Balancing Rights and Duties* (CUP 1997).

[103] UNGA Res 1803 (n 96).

[104] *Indus Waters Kishenganga (Pakistan v India)* PCA Case No 2011-01, Award (20 December 2013) paras 78–116; J Moussa, 'Implications of the Indus Water Kishenganga Arbitration for the International Law of Watercourses and the Environment' (2015) 64 ICLQ 697, 711.

[105] Civil Society Equity Review (n 50) 17.

[106] T Hunter, 'Access to Petroleum under the Licensing and Concession System' in T Hunter (ed), *Regulation of the Upstream Petroleum Sector: A Comparative Study of Licensing and Concession Systems* (Edward Elgar Publishing 2015) 36, 37–40.

[107] ibid 43.

[108] WM Corden, 'Booming Sector and Dutch Disease Economics: Survey and Consolidation' (1984) 36 Oxford Economic Papers 359.

[109] JAP Chandler, *Petroleum Resource Management: How Governments Manage their Offshore Petroleum Resources* (Edward Elgar Publishing 2018) 214, 223–24.

https://doi.org/10.1017/S0020589326101493 Published online by Cambridge University Press

so-called 'resource curse' associated with poor progress on democracy, gender equality, local wealth generation or economic reforms.[110] Therefore, leaving fossil fuels in the ground does not necessarily worsen community welfare, particularly if robust measures accompany the phase-out to mitigate negative socioeconomic impacts.[111] Broader regulatory, political and socioeconomic contexts must inform any equitable benefit distribution.[112]

These legal and technical constraints on absolute and permanent State sovereignty underscore the principle of equitable utilisation of these resources in the context of FFP. This principle is recognised in treaties, authoritative writings and ICJ jurisprudence.[113] Accordingly, States must use their natural resources in a manner that allows other States to use theirs, or at least to obtain a reasonable and equitable share while minimising transboundary harm.[114] This principle is intrinsically linked to the principle of intragenerational equity,[115] and requires cooperation for the 'optimum use' of shared resources (such as freshwater resources, land, fisheries resources and gas and oil deposits),[116] as well as prevention of significant transboundary harm.

Applied to fossil fuels, equitable utilisation is central to an equitable FFP regime. It requires that fossil fuel exploitation reflects both current circumstances and historic differentiation. Yet, taken at face value, the concept of equitable utilisation of resources could be seen as potentially antagonistic for an equitable FFP if each State asserted a right to extract resources beyond what is permissible in terms of a global extraction budget. However, both the inherent purpose of the principle, as well as its interpretation in international law, suggest that it can be applied in a way consistent with the other principles explored in this article. What it cannot be understood to mean is that a State can exploit its own resources without giving any thought to global constraints.[117]

Finally, international environmental law, including the UNFCCC, explicitly constrains PSONR, with the responsibility to prevent environmental harm to other

[110] M Ross, *The Oil Curse: How Petroleum Wealth Shapes the Development of Nations* (Princeton University Press 2012).

[111] T Princen, JP Manno and PL Martin, 'On the Way Down: Fossil Fuel Politics in the Twenty-First Century' in T Princen, JP Manno and PL Martin (eds), *Ending the Fossil Fuel Era* (MIT Press 2015) 333. See also MJ Burke and JC Stephens, 'Political Power and Renewable Energy Futures: A Critical Review' (2018) 35 Energy Research and Social Science 78.

[112] Ross (n 110) 201–03.

[113] World Commission on Environment and Development, *Our Common Future* (OUP 1987) principle 9; *Gabcikovo-Nagymaros Project (Hungary v Slovakia)* (Judgment) [1997] ICJ Rep 7, para 78; *Pulp Mills on the River Uruguay (Argentina v Uruguay)* (Judgment) [2010] ICJ Rep 14, para 77; Convention on the Law of the Non-Navigational Uses of International Watercourses (adopted 21 May 1997, entered into force 17 August 2014) 2999 UNTS 77, arts 5–6; Convention on Biological Diversity (adopted 5 June 1992, entered into force 29 December 1993) 1760 UNTS 79, preamble, arts 1, 8; United Nations Convention on the Law of the Sea (adopted 10 December 1982, entered into force 16 November 1994) 1833 UNTS 397 (UNCLOS) preamble, arts 69, 70, 82.

[114] See International Law Association (ILA), 'Berlin Rules on Water Resources' (2004) art 12(1).

[115] Boyle and Redgwell (n 66) 124.

[116] UNCLOS (n 113) art 83(1); *Continental Shelf (Tunisia v Libya)* (Judgment) [1981] ICJ Rep 3; *Continental Shelf (Libya v Malta)* (Judgment) [1985] ICJ Rep 13.

[117] In recent ICJ hearings, some States claimed there is no basis to limit fossil fuel extraction: IISD, 'International Court of Justice Hearings on the Obligations of States in Respect of Climate Change' (*IISD*, 2–13 December 2024) <https://enb.iisd.org/international-court-justice-climate-summary>.

https://doi.org/10.1017/S0020589326101493 Published online by Cambridge University Press

States or areas beyond their jurisdiction.[118] Consequently, any limitations on States' sovereignty arising from an FFP-oriented application of PSONR must be balanced by the principles of differentiation and international cooperation, which will now be examined.

3.2. Differentiation and common but differentiated responsibilities (and respective capabilities)

The purpose of differentiated commitments is for States to seek to give effect to justice considerations by staggering contributions between States in different stages of development.[119] This also fosters partnership, and supports the effective implementation of international agreements.[120] While all States agree to common burdens and benefits through multilateral negotiations, differentiation acknowledges that their respective contributions should reflect equity concerns between States, their capacities and responsibilities. This ensures that global efforts to achieve goals, such as FFP or reducing emissions, are distributed fairly.[121] Environmental treaties incorporate differential treatment through provisions that distinguish between obligations on developed and developing countries, allow flexible implementation schedules and provide financial and technological assistance.[122]

Differentiation is a principle of international law and international environmental law,[123] which can be understood as reflecting the need to distribute equitably 'burdens and obligations with respect to climate change', taking into account both States' historical contributions to the problem and also their current capabilities, including their development status.[124] Within the climate change regime, it is a 'fundamental part of the conceptual apparatus', forming both the basis for the interpretation of existing obligations and the elaboration of future international legal obligations, including the determination of rules of customary international law.[125] Differentiation is already integrated in the UNFCCC and the Paris Agreement and, by virtue of that, is universally accepted by States Parties in some respects. In terms of understanding the normative basis of an equitable FFP, the principle of differentiation is a useful foundational concept and starting point, but careful thought needs to be given to which version of it is most appropriate for an FFP.

Differentiation in the climate regime finds expression as CBDR-RC based on differing national circumstances.[126] It is identified as a key principle, requiring developed countries to 'take the lead' when it comes to tackling climate change and

[118] Stockholm Declaration (n 99); Rio Declaration (n 99) principle 2; UNFCCC (n 3) preamble para 8.
[119] Cullet (n 97).
[120] Soltau (n 4) 118.
[121] L-A Duvic-Paoli, *The Prevention Principle in International Environmental Law* (1st edn, CUP 2018) 287, 291.
[122] L Rajamani, *Differential Treatment in International Environmental Law* (OUP 2006) 93–114.
[123] CD Stone, 'Common but Differentiated Responsibilities in International Law' (2004) 98 AJIL 276, 299; Soltau (n 4).
[124] *Climate Change* AO (n 5) para 148.
[125] J Scott and L Rajamani, 'EU Climate Change Unilateralism' (2012) 23 EJIL 469, 477. See also *Climate Change* AO (n 5) para 151.
[126] UNFCCC (n 3) preamble paras 6, 23, arts 3(1), 4(1); Paris Agreement (n 13) art 2(2).

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the adverse effects thereof,[127] so that developing countries do not have to bear a 'disproportionate or abnormal burden' of doing so.[128] Further, the version of CBDR-RC as manifested in the Paris Agreement is a 'distinct'[129] or 'nuanced'[130] version. Under the Agreement, all parties are now expected to make some contribution towards mitigation, based in part on an understanding that parties must contribute according to their own capabilities based on 'national circumstances', and that support will be provided to countries that need it.[131]

As any FFP regime would be based in international environmental and climate law, there is no question that differentiation must form the basis of the future FFP treaty.[132] While differentiation itself creates no obligation on States, it must inform and guide the interpretation of existing principles of law, as well as treaties and customary law.[133] A programme of self-differentiation is not suitable for an FFP treaty. For one reason, while it did ensure close to universal ratification, the climate regime under the Paris Agreement is falling short in some respects, most notably in ambition and the trajectory to meet the temperature goal.[134] Also, the nature of the two regimes (climate change and FFP) is inherently different, foremost because the climate change regime is a demand-side regime, where the FFP would be a supply-side regime. Further, because of the permanence, durability and long-term features of fossil fuel extraction, burden-sharing should be determined upfront on a top-down basis, rather than self-determined then left to peer-review under a stocktake system. The potential danger of this old-fashioned approach is, of course, that it could result in high recusal rates, providing the world's largest emitters with 'a mechanism to delay action in ways that doom global efforts'[135] to mitigate climate change.[136]

The differentiation concept consists of two parts—responsibilities and capabilities—but determining what this means in context is challenging. There is currently no consensus on either of these for FFP. Core to differentiation is common responsibility; responsibility itself can be interpreted in at least two ways: first, as historic responsibility for emissions or extraction of fossil fuels in which there is an (implicit or explicit) implication of fault for causing climate change; second, as obligation or leadership due to better resourcing or past benefits from undertaking an activity. As discussed in Section 3.1, fossil fuel production does not always benefit the country of origin and, therefore, it is not blame or moral accountability that should be assigned. Instead, those who benefited from specific activities and already extracted a portion of global

[127] UNFCCC (n 3) art 3(1).
[128] ibid art 3(2).
[129] L Rajamani, 'Ambition and Differentiation in the 2015 Paris Agreement: Interpretive Possibilities and Underlying Politics' (2016) 65 ICLQ 493, 509.
[130] *Climate Change* AO (n 5) para 226.
[131] P Cullet, 'Differential Treatment in Environmental Law: Addressing Critiques and Conceptualizing the Next Steps' (2016) 5 TEL 305; Rio Declaration (n 99) principle 7.
[132] As Scott and Rajamani explain, it is difficult to imagine any regime in environmental law not taking account of differentiation: see Scott and Rajamani (n 125) 477.
[133] *Climate Change* AO (n 5) para 151.
[134] First Global Stocktake (n 19) paras 1(2), 1(5).
[135] Burke and Fishel (n 31) 5.
[136] See further in Section 5.

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fossil fuel stocks have a responsibility to show leadership in adhering to the global carbon budget and in determining how the remaining stocks will be distributed. The common responsibility of the parties could be to achieve agreement on what can safely be extracted in the most equitable way and, for parties which have already had their share, to show leadership when it comes to allocating the remaining reserves.

States' common responsibility could be better encompassed by a broader duty to cooperate in order to subdivide/allocate the remaining stocks in the most equitable way based on current capabilities.[137] For this reason, gross benefit from fossil fuel use should be assessed, as the use to which fossil fuel revenues are put is contingent on States' choices. At the same time, it must be acknowledged that not all factors are within the control of States—particularly when it comes to former colonies with governance challenges. This is why the discussion of capacity must be nuanced. The capacity of each State to contribute to an equitable FFP should comprise two elements: the State's *capability to phase out fossil fuels*, and the State's *capability to provide financial contributions* to support phase-out in other States lacking capability either to phase out and/or to contribute to compensation payments for other States.

The capability to phase out fossil fuels should revolve around both the vulnerability of given countries against transitional disruptions and their actual socioeconomic capability to deal with the FFP.[138] More generally, a framework informed by equity should encompass an array of sub-elements, such as sustaining domestic sustainable development and wellbeing. There would be at least two relevant factors in this respect, which would vary depending on the State. The first relates to the capacity to meet or continue to meet energy needs without the extraction of fossil fuels—i.e. each State's dependency on fossil fuels for provision of domestic energy needs.[139] Dependency has been explored in the literature as anchored to different matrices, including Gross Domestic Product[140] and the Human Development Index.[141] Yet other criteria could be included, which apply at a country or project-specific level, such as energy intensity, overall affordability, developmental efficiency etc.[142] This is particularly relevant to questions about whether increasing support for renewable energy projects would be suitable to meet this dependency. This may be the case in relation to energy needs, but not in relation to revenues from fossil fuels, which would be needed for economic development. Thus, even though the entire FFP framework aims to reduce fossil fuel use, the position of countries that depend on fossil fuel revenue for development remains important, particularly due to countries' need to achieve the UN Sustainable Development Goals on energy access[143] and safeguarding energy justice.[144]

[137] See Newell, van Asselt and Daley (n 31).

[138] Civil Society Equity Review (n 50).

[139] Le Billon and Kristoffersen (n 52).

[140] Muttitt and Kartha (n 45).

[141] Pye et al (n 34). The Human Development Index is a UN-developed composite statistic ranking countries by level of human development, rather than just economic growth. It measures three key dimensions: life expectancy, education and a decent standard of living.

[142] Le Billon and Kristoffersen (n 52).

[143] F Fuso Nerini et al, 'Mapping Synergies and Trade-Offs between Energy and the Sustainable Development Goals' (2018) 3 Nature Energy 10.

[144] A McHarg, 'Energy Justice: Understanding the "Ethical Turn" in Energy Law and Policy' in I del Guayo et al (eds), *Energy Justice and Energy Law* (OUP 2020) 15.

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As to the capability to provide financial contributions, an FFP regime should revolve around both financial support for replacement of fossil fuels, the creation of jobs in phase-out affected communities and, where needed, compensatory payments for the stranding of existing stocks. This pillar of capability should hence be informed by the determination of each country's 'capacity to pay'. In this sense, a precedent for making these kinds of determinations is provided in the climate regime.[145] A truly differentiated and equitable regime should deal with overall funding levels, but also with the distribution of funds amongst beneficiaries.[146]

3.3. International cooperation

An equitable FFP cannot be reached without an effective framework for international cooperation to deal with existing and future fossil fuel reserves globally. The principle of cooperation is at the heart of balancing different legal principles and rights and, in doing so, fulfilling the problem-solving function of the law.[147] As the ICJ emphasised, cooperation lies at the core of the UN Charter and the duty to cooperate is 'a central obligation under the climate change treaties and other environmental treaties'.[148] The importance of cooperation through multilateral agreements, preventing new and compensating for existing pollution and raising support for developing countries, was emphasised in the Stockholm Declaration.[149] The Rio Declaration builds on this in a number of provisions culminating in principle 27, which requires that States and people 'cooperate in good faith and in a spirit of partnership in the fulfilment of the principles embodied in the same Declaration'.[150] The ICJ noted how the duty to cooperate is 'intrinsically linked to the duty to prevent significant harm to the environment'.[151] Moreover, the duty to cooperate is also 'derived from the principle that the conservation and management of shared resources and the environment are based on shared interest and governed by the principle of good faith'.[152] For example, in the context of transboundary environmental harm, the ICJ has emphasised that States should collaborate in environmental impact assessments (EIAs) in relation to resources within their territory.[153] The duty to cooperate is also given substance from principles of international environmental law, including sustainable development.[154]

International cooperation has been consistently emphasised as an important principle and a prerequisite of the climate change regime.[155] The importance of global cooperation through institutions is highlighted in the preamble of the

[145] UNFCCC (n 3) art 4(3)–(4).

[146] S Herr, 'Conflicts over the Institutional Landscape of Climate Finance' in K Dingwerth et al (eds), *The Unmaking of Special Rights* (Edward Elgar Publishing 2024) 234, 239.

[147] FG Sourgens and L Sempértegui, *Principles of International Energy Transition Law: Law as an Instrument of Development in the 21st Century* (OUP 2023) 236.

[148] *Climate Change* AO (n 5) para 140.

[149] Stockholm Declaration (n 99) preamble para 7, principles 22, 24.

[150] Rio Declaration (n 99) principles 5, 7, 9, 12–14, 24, 27.

[151] *Climate Change* AO (n 5) para 141.

[152] ibid.

[153] *Pulp Mills* (n 113) para 102.

[154] *Climate Change* AO (n 5) para 303.

[155] ILA Committee on Legal Principles relating to Climate Change, 'Declaration of Legal Principles relating to Climate Change' (2014) arts 8–9; UNGA, 'Report of the Special Rapporteur on the Issue of

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UNFCCC[156] and, in the climate change context, has recently been emphasised by both the ICJ and ITLOS.[157] As stressed in the recent ITLOS Advisory Opinion on climate change (ITLOS AO),[158] the proper operationalisation of international environmental law principles must take place within the broader duty of cooperation under general international law.

International cooperation and the related duty of States to cooperate in good faith are key to the ICJ's recent *Climate Change* AO. According to the ICJ, the duty to cooperate requires 'sustained and continuous'[159] forms of cooperation, and it informs the fulfilment of States' substantive obligations to prevent significant harm in their unilateral contributions to collective action against climate change. This requires 'good faith efforts to arrive at appropriate forms of collective action' even if this falls short of agreeing treaties, as well as an agreement on bona fide forms of cooperation, such as the Paris Agreement - although agreeing treaties cannot per se discharge the duty to cooperate.[160] Thus, cooperation entails 'not a matter of choice for States but a pressing need and a legal obligation'.[161]

In addition to requiring broad collaboration between nations, and between States and international organisations, cooperation is fundamental for differentiation.[162] In turn, the concept of differentiation determines what can be expected from cooperation. In the climate change context, cooperation encompasses assistance from developed to developing countries to support the latter's climate mitigation and adaptation efforts, to improve scientific knowledge, to develop emission reduction standards, to adopt new legal frameworks and to ensure the adequacy of international law in dealing with the threat of climate change for all.[163] In practice, international cooperation mandates for the exchange of information between States, capacity building, technology transfer as well as voluntary, project-based cooperative approaches—for example, under Article 6 Paris Agreement.[164] Differentiation builds on ideas of solidarity and inter-State partnership, with the understanding that States' interests converge on certain issues.[165] As the ICJ has made clear, the duty to cooperate applies to all States, but what the duty requires may vary based on various criteria, including differentiation.[166]

As applied to a framework to address FFP, the principle of cooperation could also require States to engage in good faith negotiations and collaborate in developing a legal regime to achieve the FFP, but in a way that ensures equity in the use of global fossil fuel

Human Rights Obligations Relating to the Enjoyment of a Safe, Clean, Healthy and Sustainable Environment, John Knox' (2016) UN Doc A/HRC/31/52, paras 42–46.

[156] UNFCCC (n 3) preamble para 6.

[157] *Climate Change* AO (n 5) paras 214–218, 260–267; ITLOS AO (n 91) paras 294–320.

[158] ibid.

[159] *Climate Change* AO (n 5) para 457.

[160] ibid para 304.

[161] ibid para 308.

[162] ILA (n 155) art 8(3); UNGA (n 155) para 46.

[163] ILA (n 155) art 8.

[164] Paris Agreement (n 13) art 6. See CP Carlarne and JD Colavecchio, 'Balancing Equity and Effectiveness: The Paris Agreement and the Future of International Climate Change Law' (2019) 27 NYUEnvtlLJ 107, 181.

[165] Cullet (n 97) 558–62.

[166] *Climate Change* AO (n 5) para 305, with reference to the temperature goal.

https://doi.org/10.1017/S0020589326101493 Published online by Cambridge University Press

stocks. Where discretion is left to States as to how to regulate GHG emissions from fossil fuel production, such discretion is limited by the expected level of due diligence to be exercised against the transboundary harm due to the release of GHG emissions and the need for States jointly to develop ambitious and equitable climate policies, based on CBDR-RC.[167] As mentioned in Section 3.2, in the context of fossil fuel production this mandate requires developed States to show leadership and take more ambitious action on limiting fossil fuel production given both their prior extraction and enjoyment of the benefits thereof as well as their higher capabilities to mitigate GHG emissions.[168] Importantly, the ICJ affirmed the existence of a legal standard to assess States' conduct both under the obligations established under existing treaties and more generally under bona fide cooperation, which in turn entails a limitation on States' sovereignty over the use of natural resources which are harmful for the climate system, such as fossil fuels.[169]

An underlying tension exists between notions of sovereignty and the need for cooperation.[170] The UNFCCC specifically affirms the sovereignty of States in 'international cooperation to address climate change'.[171] It is clear that solidarity is needed to overcome global problems,[172] and this entails on occasion understanding the limits of an international system based on reciprocal obligations in a formal sense.[173] The need for cooperation carried out in accordance with differentiation and State sovereignty is confirmed in the foundational documents of the climate change regime.[174] But the duty to cooperate is also consistent with a comprehensive understanding of equity, as explored in this section.[175] This demands that actors have a moral attitude of aiming to achieve real justice,[176] which requires good faith,[177] a commitment to work in collaboration to develop legal principles into legal rules and to operationalise those rules.

4. Harm avoidance

4.1. Prevention and precaution

As previously noted in Section 3.1, it has long been recognised that States' sovereignty over natural resources is not absolute and is linked to obligations not to cause damage to the environment of other States, including erga omnes obligations.[178] Harm avoidance

[167] ibid.
[168] *Climate Change* AO (n 5) (Joint Declaration by Judges Bhandari and Cleveland) para 24.
[169] *Climate Change* AO (n 5) para 307.
[170] Sourgens and Sempértegui (n 147) 235–36.
[171] UNFCCC (n 3) preamble para 9.
[172] Cullet (n 97) 550.
[173] ibid 552–56.
[174] UNFCCC (n 3) preamble paras 6, 9, art 2.
[175] See Lawrence and Reder (n 3) section II; *Climate Change* AO (n 5) para 305.
[176] Lawrence and Reder (n 3) 517–19.
[177] *Climate Change* AO (n 5) para 115.
[178] *Trail Smelter Arbitration (US v Canada)* (1952) 3 RIAA 1905; *Lake Lanoux Arbitration (France v Spain)* (1957) 24 ILR 101; *Barcelona Traction, Light & Power Co (Belgium v Spain)* (Judgment) [1970] ICJ Rep 3; *Corfu Channel (UK v Albania)* (Judgment) [1949] ICJ Rep 4, 22; *Legality of the Threat or Use of Nuclear Weapons* (Advisory Opinion) [1996] ICJ Rep 226, para 29; *Gabcikovo-Nagymaros* (n 113) para 53; *Pulp Mills* (n 113) para 101.

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is chiefly addressed in international environmental law through the principles of prevention and precaution. Incorporated into many international treaties,[179] prevention is widely acknowledged as a customary rule of international law.[180] While the principle does not incorporate an obligation of result, it includes a duty to take preventative measures and to exercise due diligence.[181]

A strong articulation of the principle of prevention is absent from the operational provisions of climate treaties. The UNFCCC includes it in the preamble rather than Article 3.[182] The Paris Agreement does not make express reference to prevention at all, but its provisions are reflective of it, not least because it creates a system of reporting and accountability in relation to measures to prevent harm. This possibly contributed to debates in relation to the principle's role in the climate change regime, with scholarly opinion overwhelmingly pointing towards its applicability.[183]

The recent ITLOS AO has confirmed that prevention does entail stringent obligations to take all necessary measures to control pollution resulting from GHG emissions,[184] taking into account relevant science, international rules and standards on climate change and the respective capabilities of States.[185] ITLOS noted that the reference to the duty to preserve the environment must be seen 'as a constraint upon States' exercise of their sovereign right [to exploit natural resources]'.[186] ITLOS' arguments about prevention carry weight in relation to the understanding of prevention for climate change more generally.[187] The ICJ in the *Climate Change* AO confirmed that in the context of climate change, prevention must be interpreted within the stringent standard of due diligence stemming from the customary duty to prevent significant harm to the environment.[188] It was core to the ICJ's reasoning that prevention, along with cooperation, gives rise to duties and responsibilities and that this requires the adoption of rules and measures, vigilance in enforcement and an exercise of administrative control.[189] The Court also noted that, in the context of climate change, due diligence entails that all States' measures, whether substantive or procedural, be taken to achieve emissions reductions.[190]

The pillar of the equitable FFP that governs environmental harm avoidance can be based on the principle of prevention as the principle suited to the avoidance of risks which are known and foreseeable.[191] Health and environmental harm stemming from

[179] e.g. UNCLOS (n 113) art 194 includes an obligation on States to prevent marine pollution.

[180] Duvic-Paoli (n 121) 91–136; Sands et al (n 80) 211–13.

[181] RL Johnstone, *Offshore Oil and Gas Development in the Arctic under International Law: Risk and Responsibility* (Brill Nijhoff 2015) 31; Sands et al (n 80) 211.

[182] UNFCCC (n 3) preamble para 8.

[183] B Mayer, 'State Responsibility and Climate Change Governance: A Light through the Storm' (2014) 13 ChineseJIL 539; A Zahar, 'Methodological Issues in Climate Law' (2015) 5 Climate Law 25; B Mayer, 'The Applicability of the Principle of Prevention to Climate Change: A Response to Zahar' (2015) 5 Climate Law 1; Duvic-Paoli (n 121) 287–91.

[184] ITLOS AO (n 91) paras 197–200, 203–205, 252–257.

[185] ibid para 207.

[186] ibid para 187.

[187] J Qian, K Sun and YC Chang, 'The Impact of the ITLOS Climate Change Advisory Opinion on the Development of International Law' (2024) 170 Marine Policy 106406.

[188] *Climate Change* AO (n 5) paras 132–136.

[189] ibid para 138.

[190] ibid paras 282–298.

[191] Duvic-Paoli (n 121) 265.

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the extraction of fossil fuels constitute actual and foreseeable harm and risks, which States have a duty to prevent.[192] The principle of prevention requires a high standard of due diligence from States to prevent transboundary environmental harm, including the need to take 'urgent, transformative action that has realistic, scientifically backed prospects of stabilizing global temperatures'.[193] In the context of fossil fuel production, prevention can be understood as requiring States to prevent unabated fossil fuel production and exercise due diligence when granting new oil, gas or coal licenses or supporting fossil fuels with public finance.[194] The scientific understanding of the incompatibility of unabated fossil fuel production with climate goals has advanced significantly in the last decade;[195] as the ICJ has clarified, the standard of due diligence becomes all the more stringent in light of the advance of scientific knowledge.[196] This scientific consensus further resulted in the acknowledgment of the need to phase down unabated coal power and inefficient fossil fuel subsidies at successive meetings of the COPs to climate treaties.[197]

Yet questions remain as to the understanding of 'transboundary harm' in the context of climate change,[198] and the risks of fossil fuel production. Here, understanding prevention in tandem with the precautionary principle would be sensible, as prevention and precaution anticipate risks in different ways.[199] The legal status of the precautionary principle is less consolidated in international law, but its content is better understood.[200] Recognised in principle 15 of the Rio Declaration, the precautionary principle requires States not to 'use scientific uncertainty as a reason to postpone cost-effective measures to prevent environmental degradation'.[201] Prevention seems to require more stringent action, and does not restrict relief based on measures of cost-benefit, unlike precaution.

The need to take precautionary measures is reflected in the climate change regime,[202] which requires States to take 'measures to anticipate, prevent or minimise the causes of climate change and mitigate its adverse effect'.[203] The International Law Association's Draft Articles on Legal Principles relating to Climate Change are intended to guide

[192] UNGA (n 85) para 43. See also Wolf et al (n 10).

[193] L Rajamani, 'Due Diligence in International Climate Change Law' in H Krieger, A Peters and L Kreuzer (eds), *Due Diligence in the International Legal Order* (OUP 2020) 163.

[194] O Hailes, 'The Customary Duty to Prevent Unabated Fossil Fuel Production: A Tipping Point for Energy Investment Arbitration?' (2023) 1 Transnational Dispute Management 1; van Asselt (n 12) 6; *Climate Change* AO (n 5) (Joint Declaration by Judges Bhandari and Cleveland) para 16.

[195] Stockholm Environment Institute et al, 'The Production Gap: Phasing down or Phasing Up?' (2023) <https://www.sei.org/publications/production-gap-report-2023/>; Hailes (n 194) 16–19.

[196] *Climate Change* AO (n 5) paras 283–284.

[197] See Glasgow Climate Pact (n 15); First Global Stocktake (n 19).

[198] C Schwarte and W Frank, 'The International Law Association's Legal Principles on Climate Change and Climate Liability under Public International Law' (2014) 4 Climate Law 201, 207–08.

[199] Duvic-Paoli (n 121) 266.

[200] ibid 263–65; J Peel, 'Precaution' in L Rajamani and J Peel (eds), *The Oxford Handbook of International Environmental Law* (2nd ed, OUP 2021) 302; D Bodansky, 'Deconstructing the Precautionary Principle' in DD Caron and HN Scheiber (eds), *Bringing New Law to Ocean Waters* (Brill Nijhoff 2004) 381.

[201] Rio Declaration (n 99).

[202] UNFCCC (n 3) art 3(3).

[203] IPCC (n 11) 1268.

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States on the meaning and interrelationship of foundational legal principles relating to climate change. They include prevention and precaution together, noting that these are closely linked and part of a continuum, reflecting the lack of clear division between the certainty and uncertainty of scientific risks.[204] Once again, the approach taken by the ICJ strengthens the understanding of the relationship between the two, clarifying that the precautionary approach is an integral part of the due diligence standard.[205] This results in States' due diligence obligations in relation to the prevention of climate change,[206] as well as positive duties to prevent harm-causing activities.[207]

The ICJ clearly recognised that the duty to prevent transboundary harm, combined with a precautionary approach, gives rise to a concrete obligation to conduct EIAs.[208] In an equitable FFP regime, the prevention principle would require States to assess longer-term impacts of fossil fuel production and use, taking into account past circumstances and future generations. It would also potentially give rise to duties to prevent unabated fossil fuel use, according to States' present capabilities and circumstances. Finally, it entails a good faith obligation to cooperate with other States with respect to the risks and adverse effects of its conduct.[209] The requirement of cooperation combined with the procedural obligations—specifically, to conduct an EIA—suggests that States would need to assess downstream emissions even where this entails assessing the implications on other States of projects on their own territory.[210] The European Court of Human Rights has noted that a State is required to conduct an adequate, timely and comprehensive assessment of emissions from hydrocarbon projects under the EIA procedure before authorising any extraction, and that a failure to do so may constitute a breach of the procedural rights protected by the European Convention of Human Rights.[211]

But does the principle of prevention/precaution trump equity through its absolute nature? It has been argued that the principle 'has no capacity to distinguish between the particular circumstances of States'.[212] However, this is not a universally held view.

[204] ILA (n 155) art 7 commentary. See also N de Sadeleer et al, 'The Principles of Prevention and Precaution in International Law: Two Heads of the Same Coin?' in M Fitzmaurice, M Brus and P Merkouris (eds), *Research Handbook on International Environmental Law* (2nd ed, Edward Elgar Publishing 2021) 152.

[205] *Climate Change* AO (n 5) para 294.

[206] Schwarte and Frank (n 198) 208–09.

[207] ibid 208.

[208] *Climate Change* AO (n 5) paras 295–296.

[209] ibid para 229.

[210] This is suggested in the *Climate Change* AO (n 5) (Joint Declaration of Judges Bhandari and Cleveland) paras 11–19, in which they follow the reasoning in the UK Supreme Court case *Finch v Surrey County Council* [2024] UKSC 20 (and the decision of the European Free Trade Association (EFTA Court) in *Norwegian State v Greenpeace Nordic, Nature and Youth Norway* (Judgment of 21 May 2025) E-18-24).

[211] This is a reference to the recent decision of the European Court of Human Rights (ECtHR) in *Greenpeace Nordic v Norway* App No 34068/21 (ECtHR, 28 October 2025) in which the court noted (paras 320–324) the advisory opinions also referenced herein and the preventative function of procedural environmental rights, in determining what art 8 requires in this context. The court specified that the assessment must be conducted in good faith, rely on the best available science, and be sufficiently concrete and detailed to inform the authorities' decision (para 318) and that this requires assessment of downstream emissions, compatibility with the State's climate obligations and also meaningful public participation (paras 319–320).

[212] Zahar (n 183) 33.

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Prevention in the context of FFP can interact with, rather than counteract, the different conceptions of equity. In an equitable FFP, differentiation does not negate prevention—indeed, this would not make sense as any FFP regime has a preventative rationale.[213] In the context of intragenerational equity, differentiation does not 'displace prevention' but, rather, transforms it into a relative duty 'based on the level of developmental and technological advancement'[214] and other factors. In more concrete terms, the approach taken by the ICJ is that the standard of due diligence is subject to differentiation, in particular with the standard being determined by the capabilities of respective States.[215] As such, harm avoidance in international law is balanced with principles which support equitable use of resources, in order to lead to equity.[216]

4.2. Progression (or non-regression)

Actions taken under an FFP agreement should also be consistent with the principle of progression (or non-regression). The progression principle in environmental law has been developed from human rights law, and has since been adopted in many domestic constitutions and court decisions.[217] In its broader environmental conceptualisation, it entails that environmental gains shall not be reversed against changes in governmental, social or economic circumstances.[218] In the climate change regime, the principle of progression was adopted in the Lima Call for Climate Action in 2010,[219] and enshrined in the Paris Agreement as an overarching expectation for the parties' successive NDCs to represent progression and reflect their highest level of ambition.[220] Progression thus aims to 'bridge the gap between the sum of what national politics are able to deliver and what is needed to achieve the ambition expressed in the Paris Agreement'.[221] Moreover, progression reinforces differentiation under the Paris Agreement, as the highest level of ambition must be reflected in the States' evolving domestic circumstances for the purposes of the drafting and implementation of their NDCs.[222] It has been noted that progression and the connected high level of ambition set a standard of due diligence upon States akin to the broader standard established under international law.[223]

[213] Duvic-Paoli (n 121) 287.

[214] ibid.

[215] *Climate Change* AO (n 5) paras 137, 247, 290–292. This is also the approach taken in ITLOS AO (n 91) para 241.

[216] Dupuy and Viñuales (n 89) 53–54.

[217] AD Mitchell and J Munro, 'An International Law Principle of Non-Regression from Environmental Protection' (2023) 72 ICLQ 35; M Vordermayer-Riemer, *Non-Regression in International Environmental Law: Human Rights Doctrine and the Promises of Comparative International Law* (Intersentia 2020); L Collins and D Boyd, 'Non-Regression and the Charter Right to a Healthy Environment' (2016) 29 JELP 285.

[218] Mitchell and Munro (n 217).

[219] UNFCCC COP, 'Decision 1/CP.20' (2 February 2015) UN Doc FCCC/CP/2014/10/Add.1, para 10.

[220] Paris Agreement (n 13) preamble para 4, arts 3, 4(3), 9(3). See *Climate Change* AO (n 5) paras 247–249.

[221] See L Rajamani and E Guérin, 'Central Concepts in the Paris Agreement and How They Evolved' in D Klein et al (eds), *The Paris Agreement on Climate Change: Analysis and Commentary* (OUP 2017) 74, 78.

[222] L Rajamani and J Brunnée, 'The Legality of Downgrading Nationally Determined Contributions under the Paris Agreement: Lessons from the US Disengagement' (2017) 29 JEL 537.

[223] C Voigt, 'The Paris Agreement: What Is the Standard of Conduct for Parties?' (2016) 26 QIL 17.

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Nevertheless, the normative status of the progression principle is still uncertain.[224] Applied in the FFP context, this principle could bear normative force as it would inform States' domestic actions and policies towards the use of both existing and prospective fossil fuel resources. Under an equitable progression framework, all countries would need to refrain from taking actions that increase global fossil fuel production and, specifically, adhere to the commitments that they have made under an equitable FFP instrument in the long term.

5. Conclusion

This article proposes a principle-based approach to governing the phase out of global fossil fuel production, analysing existing principles of international law applicable in this context. Taken together, these principles enshrine a two-fold normative underpinning of an equitable FFP, namely equitable use of resources and harm avoidance. As result of this research, it can be concluded that to apply principles of international law to a future FFP regime has at least four key implications.

First, developing an FFP regime relying on legal principles can embed an objective framing of equity in the regime. Equity reflects more than a moral aspiration; as a principle of international law, equity can be understood as an expression of justice rooted in existing concepts, rights and duties. Yet to determine equity under international law is a challenging exercise as numerous distributive principles can be debated and invoked in the context of fossil fuel production. Legal principles express equity in binding form; whereas equity contributes by deriving equitable solutions from applicable principles and rules.[225] These principles can fill legal gaps, guide treaty development and embed justice into the global phase-out effort. This means that binding legal duties can be developed using the normative force of legal principles.

Second, differentiation must underpin the structure of an FFP regime. While all States share a common duty to phase out fossil fuels, they do not share equal responsibility or capacity.[226] Proposals for an FFP treaty rightly advocate differentiation based on historic production and wealth accrued from fossil fuel use, including present capabilities.[227] This entails that economically advanced or historically high-emitting States may phase out production sooner and provide financial and technical support to others, particularly where economies remain dependent on fossil fuels.[228] Differentiation thus requires tailoring obligations while maintaining collective ambition.

Third, differentiation must interact with established principles governing natural resources and harm prevention. PSONR is pivotal to any regime dealing with fossil fuel production, as such a regime inherently counters the premise that every State entertains absolute sovereignty over their own natural resources. PSONR entails a series of duties on States, primarily related to the prohibition of causing transboundary harm and the

[224] E Rehbinder, 'Ambition as a Legal Concept in the Paris Agreement and Climate Litigation: Some Reflections' (2022) 52 EP&L 377.

[225] *Climate Change* AO (n 5) paras 144–145.

[226] This is reiterated in *Climate Change* AO (n 5) para 129, and Joint Declaration by Judges Bhandari and Cleveland, paras 24–25.

[227] *Fossil Fuel Treaty* (n 32); Newell, van Asselt and Daley (n 31).

[228] UNFCCC (n 3) art 4(8)(h), 4(10).

https://doi.org/10.1017/S0020589326101493 Published online by Cambridge University Press

duty to protect their citizens' health, as well as to respect indigenous and local communities. These obligations are reinforced by international and domestic human rights frameworks, which increasingly recognise climate change—and fossil fuel use—as a human rights issue.[229] Notably, the *Climate Change* AO referred to fossil fuel production as a potential source of State responsibility where 'the granting of fossil fuel exploration licences or the provision of fossil fuel subsidies—may constitute an internationally wrongful act which is attributable to that State'.[230] Additionally, the prevention principle requires States to consider long-term impacts and future generations, obliging States to avoid further fossil fuel lock-in according to their respective capacities. The ICJ has emphasised how differentiation and prevention are not contradictory as they underpin the standard of due diligence imposed upon States in preventing transboundary harm from GHG emissions, as well as the procedural and substantive legal obligations stemming therefrom.[231] Due to differentiation, the climate change legal framework envisages a longer pathway towards emissions peaking for developing countries,[232] which presumably would accommodate a longer period of entitlement to fossil fuel use in some circumstances by these countries. Considering the preventative rationale of the climate change and FFP regimes, it is clear that prevention and differentiation can coexist in a way that global effort required to achieve what it demands is fairly distributed.

Fourth, the success of an equitable FFP regime ultimately rests on international cooperation. Cooperation is a cross-cutting principle embedded in both the use of natural resources and the collective effort of States to prevent transboundary harm from GHG emissions, thus informing PSONR, prevention and differentiation. It requires good faith engagement in designing and implementing FFP pathways and sharing information on fossil fuel reserves and associated climate risks. While current global agreements, including COP26 and COP28 outcomes, have only begun to acknowledge fossil fuel production explicitly, initiatives such as the proposed Fossil Fuel Non-Proliferation Treaty offer pathways toward cooperative norm development.

It must be acknowledged that implementing a principle-based FFP regime presents political and practical challenges. Consensus-building on the criteria of equity may be slow, and equitable approaches may be less cost-efficient compared to market-led solutions. Yet these challenges cannot undermine the 'normative attractiveness' of an ideal,[233] and the value of the well-established principles considered herein. Furthermore, what political theorists have called 'institutional' constraints on feasibility are neither permanent nor absolute;[234] circumstances change all the time, and what might seem impossible today

[229] See *Verein KlimaSeniorinnen Schweiz v Switzerland* App No 53600/20 (ECtHR, 9 April 2024); UNGA (n 85). See also IACtHR AO (n 85) para 337.

[230] *Climate Change* AO (n 5) para 427.

[231] ibid paras 289, 290, 291, 294, 409.

[232] Paris Agreement (n 13) arts 2, 4(1).

[233] C Barry and L Valentini, 'Egalitarian Challenges to Global Egalitarianism: A Critique' (2009) 35 RevInt'lStud 485, 511.

[234] P Gilabert and H Lawford-Smith, 'Political Feasibility: A Conceptual Exploration' (2012) 60 Political Studies 809, 813.

https://doi.org/10.1017/S0020589326101493 Published online by Cambridge University Press

could be feasible tomorrow or further in the future.[235] Where a proposal is 'extremely desirable', it could end up being viable due to political will and advocacy.[236]

Similarly, reliance on established legal principles could guide negotiators towards a result that is not only fairer but also more coherent with existing international law. Legal principles are meant to give effect to equity considerations.[237] In particular, principles offer ideals guiding political reforms that may appear to have low feasibility in the short term.[238] At a minimum, the principles of international law reviewed in this article do not hinder the development of an equitable FFP regime. At best, they offer a foundation for building it. The application of some principles—for instance, PSONR and cooperation—is fairly straightforward. Others—such as differentiation and CBDR-RC or equitable utilisation—might require further interdisciplinary research and clarification in order properly to understand what they entail in this context.

Further research is also required to develop specific implementation criteria for an equitable FFP, with engagement across disciplines and geographies. The appropriateness and specific models for payments and/or compensation for undeveloped fossil fuel resources should be examined for consistency with legal principles. Finally, the interplays between the developing FFP regime and its envisaged principles and other regimes of international law must be appraised. The often overlapping and fragmented nature of the regimes set up to address other governance problems, such as international investment law or human rights law, means that the normative guidance emanating from international law in this context may not be entirely coherent with the equitable FFP.

Acknowledgments. Earlier versions of this article were presented at the Eighth Energy Transitions Conference hosted by the University of Eastern Finland in Joensuu on 27 June 2024; the Distributive Justice in International Law Conference hosted by UniLUISS, University of Cambridge and the European University Institute in Rome on 3 October 2024; and in a research seminar hosted by the University of Glasgow Just Transition Hub in Glasgow on 29 October 2024. We are grateful to everyone present for their helpful comments and suggestions, and their interest in our developing ideas. We are also very appreciative of Kaisa Huhta, Aileen McHarg, Annalisa Savaresi, Armando Rocha, Olivia Woolley and the two anonymous reviewers for their helpful comments on earlier versions of the article. All mistakes remain our own. We acknowledge financial support from the Durham University Institute of Advanced Study and the University of Aberdeen Just Transition Lab.

[235] ibid 815–16.
[236] ibid 816.
[237] V Lowe, 'The Role of Equity in International Law' (1988) 12 AustYBIL 54, 56.
[238] Barry and Valentini (n 233) 507–11; Gilabert and Lawford-Smith (n 234) 819–21.

Cite this article: K Bouwer, D Shapovalova and M Fermeglia, 'Towards a Principle-Based Framework for an Equitable Global Fossil Fuel Phase-Out' (2026) 75(1) ICLQ 193–219. https://doi.org/10.1017/S0020589326101493

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