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International Atmospheric Trust

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10.1 INTRODUCTION

Climate change litigation is surging in the face of scientific consensus that Earth's warming over the past century is dramatically interfering with human and natural systems.[1] Given the complexity of the problem, climate change plaintiffs often bring creative claims using 'unconventional' legal tools outside the realm of environmental statutes.[2] One such tool is the public trust doctrine, an ancient doctrine rooted in the writings of Justinian that exemplifies the democratic principle of anti-monopolisation over public resources.[3] The public trust doctrine recognises that sovereigns have an inherent duty as an incident of their sovereignty to act as a trustee over public resources.[4] Although the doctrine was traditionally invoked to protect navigable waters for public use[5] – particularly in England and

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1 'Scientific Consensus: Earth's Climate Is Warming' (*NASA Global Climate Change*, 2022) <https://climate.nasa.gov/scientific-consensus/> accessed 24 February 2024 (stating that at least 97% of climate scientists agree that climate change is 'extremely likely due to human activities').

2 See Mary Christina Wood and Charles W. Woodward IV, 'Atmospheric Trust Litigation and the Constitutional Right to a Healthy Climate System: Judicial Recognition at Last' (2016) 6 WJELP 633, 643–645 (describing the need for a 'macro approach' to climate change litigation and distinguishing such an approach from climate change litigation relying on statutory or nuisance law).

3 See generally Michael C. Blumm and Aurora Paulsen Moses, 'The Public Trust as an Antimonopoly Doctrine' (2017) 44 Boston College Environmental Law Affairs Review 1.

4 See Karl S. Coplan, 'Public Trust Limits on Greenhouse Gas Trading Schemes: A Sustainable Middle Ground?' (2010) 35 Columbia Journal of Environmental Law 311 ('Public trust principles have been described as an essential attribute of sovereignty across cultures and across millennia').

5 See Charles F. Wilkinson, 'The Headwaters of the Public Trust: Some Thoughts on the Source and Scope of the Traditional Doctrine' (1989) 19 Environmental Law 425, 428–430. ('A great many countries have legal rules that, in one fashion or another, give special treatment to major bodies of water' with roots including ancient Roman and Chinese law, medieval Spanish and French law, and Muslim and Native American cultures.)

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the United States[6] – courts across the globe have expanded the doctrine's scope in numerous contexts.[7] This ancient doctrine's continuing relevance to natural resources law demonstrates its adaptable nature.[8]

Plaintiffs bringing atmospheric trust[9] claims often face issues of justiciability that do not normally arise when courts apply the public trust doctrine to long-recognised, 'traditional' public trust resources – navigable waterways.[10] Nonetheless, understanding the impending threats posed by climate change, several courts have concluded that the atmosphere is within the doctrine's scope.[11] Numerous other courts have at least recognised the public's strong interest in a properly functioning climate system.[12] This chapter identifies and explores two analytical frameworks evident in international atmospheric trust jurisprudence as emerging best practices: constitutional recognition tied to intergenerational equity and inter-resource affectation.[13] International jurists can and should continue to employ these frameworks when they evaluate atmospheric trust claims.

This chapter will show that the public trust doctrine protects the atmosphere whenever constitutional language establishes public rights in or the sovereign's responsibility for air and climate, a healthy environment, or natural resources

[6] See e.g. *Ill Cent RR Co v Illinois* 146 US 387 (1892) (upholding a state legislature's invalidation of a former legislative grant of submerged lands beneath Chicago harbour to a private railroad company as inconsistent with the sovereign trust over navigable waters), but see *Georgia v Tenn Copper Co* 206 US 230, 237 (1907) (explaining, in a suit by one state to enjoin noxious gas discharges from another state, that each 'state has an interest independent of and behind the titles of its citizens, in all the earth and air within its domain').

[7] See Section 10.1.1.

[8] See Ved P. Nanda and William K. Ris Jr, 'The Public Trust Doctrine: A Viable Approach to International Environmental Protection' (1976) 5 Ecology Law Quarterly 291, 296 ('The doctrine has qualities of breadth and flexibility that make it particularly useful to the solution of complex international environmental problems').

[9] In this chapter, we refer to application of the public trust doctrine to the atmosphere as an 'atmospheric trust'. Cf Michael C. Blumm and Mary Christina Wood, 'No Ordinary Lawsuit: Climate Change, Due Process, and the Public Trust Doctrine' (2017) 67 American University Law Review 1, 21–30, 67–83 (detailing atmospheric trust litigation); Mary Christina Wood, 'Atmospheric Trust Litigation' in William C. G. Burns and Hari M. Osofsky (eds), *Adjudicating Climate Change: State, National and International Approaches* (Cambridge University Press 2009) 99.

[10] See e.g. *Clean Air Council v United States* 362 F.Supp.3d 237 (District Court of Pennsylvania) (dismissing plaintiffs' atmospheric trust suit for lack of standing and, in the alternative, as alleging a non-justiciable political question); *La Rose v Her Majesty the Queen* [2020] 2020 FCR 1008 [102] (Federal Court of Ontario) (granting government's motion to dismiss because 'the public trust doctrine, while justiciable, does not disclose a reasonable cause of action') (*appeal pending*, A-289–20).

[11] See Section 10.2.2.

[12] See Section 10.1.4.

[13] One expert noted that 'an increasing number of domestic courts around the world are considering the issue of climate change and citing to … the decisions of the courts of other countries'. Tiffany Challe-Campiz and Michale B. Gerrard, 'Taking Climate Change to the International Court of Justice: Legal and Procedural Issues' (*Sabin Center*, 2021) <http://blogs.law.columbia.edu/climatechange/2021/09/29/taking-climate-change-to-the-international-court-of-justice-legal-and-procedural-issues/> accessed 27 February 2024.

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generally. Many courts have rooted their support for an atmospheric trust in constitutional language, even absent an explicit reference to air or climate, where the relevant constitution establishes common rights in a healthy environment or natural resources.[14] Judicial embrace is strongest when the relevant constitutional provision also speaks to principles of intergenerational equity.[15] Thus, courts appear to be sensitive to the long-term challenges inherent in natural resource management and recognise that the sovereign is in the best position to ensure the continued viability of those resources by exercising its trust duties.

This chapter also illustrates that the atmosphere is subject to the public trust doctrine whenever plaintiffs allege, with supporting scientific evidence, that climate change has impaired their use of traditional public trust resources.[16] Although courts have not always held that the atmosphere itself is a public trust resource, several courts have concluded that threats to non-traditional public trust resources are intricately tied to traditional public trust resources.[17] In at least one court's view, the connection between the atmosphere and navigable waters is sufficient to bring the atmosphere within the public trust doctrine's scope as a matter of inter-resource affectation.[18] Likewise, some courts have expanded the public trust doctrine to include groundwater as a trust resource – relying on the scientific consensus that ground and surface waters are interconnected – to hold that when groundwater use affects surface waters, the groundwater must be managed consistent with the public trust.[19] This basic reasoning applies with equal force to the atmosphere, the degradation of which has scientifically demonstrable effects on navigable surface waters.[20]

The chapter proceeds as follows. Section 10.1 provides additional context and background on the public trust doctrine. Subsequent sections explore the doctrine's application to the atmosphere. Section 10.2 discusses developments in atmospheric trust case law; Section 10.3 presents the emerging best practices associated with applying the public trust doctrine to the atmosphere in the context of climate change litigation; and Section 10.4 provides guidance on key issues of replicability. The chapter concludes that the public trust doctrine, when analysed by courts under either of the frameworks discussed, gives rise to an atmospheric trust that the sovereign must manage in the public interest and safeguard against substantial impairment.[21]

[14] See Sections 10.2.2.2–10.2.2.3.
[15] See Section 10.3.1.
[16] See Section 10.1.3 (identifying navigable waterways as the traditional public trust resources).
[17] See Sections 10.2.3 and 10.3.2.
[18] See Section 10.3.2.
[19] See Section 10.2.3.
[20] See e.g. Maggie Fox and Vickie Allen, 'Climate Change Drying Up Big Rivers, Study Finds' (*Reuters*, 21 April 2009) <www.reuters.com/article/us-climate-rivers/climate-change-drying-up-big-rivers-study-finds-idUSTRE53K4MR20090421> accessed 27 February 2024.
[21] See *Ill Cent RR Co* (n 6) [452][53] (holding that any improvements to public trust property may 'not substantially impair the public interest' because the state may not relinquish 'control of property in which the public has an interest').

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10.1.1 *The Nature of the Public Trust Doctrine*

'The public trust [doctrine] is a dual concept of sovereign right and responsibility.'[22] As courts see it, 'public trust claims are unique because they concern inherent attributes of sovereignty'[23] and do not depend on regulations, statutes, or even constitutions for their force.[24] One court in the United States explained that 'in its broadest sense, the term 'public trust' refers to the fundamental understanding that no government can legitimately abdicate its core sovereign powers'.[25] Indeed, 'the public trust imposes on the government an obligation to protect the *res* of the trust', and 'a defining feature of that obligation is that it cannot be legislated away'.[26] In other words, with respect to 'essential natural resources', 'the sovereign's public trust obligations prevent it from depriving a future legislature of the natural resources necessary to provide for the well-being and survival of its citizens'.[27] Since it is both a sovereign right and responsibility, the public trust doctrine empowers the sovereign to hold essential natural resources in trust for the public and also requires the sovereign to ensure those resources remain available for public use and enjoyment.

10.1.2 *Basic Trust Principles*

'A trust is a type of ownership in which one party manages property for the benefit of another party'.[28] The premise of the trust relationship, therefore, is that 'the trustee is under a fiduciary obligation to manage the assets for the sole benefit of the

[22] *In re Water Use Permit Applications for Waiāhole Ditch*, 9 P.3d 409, 447 (Supreme Court of Hawai'i).

[23] *Juliana v United States* 947 F.3d 1159 (9th Cir 2020). See also ibid *Waiāhole Ditch* 443 (stating that 'history and precedent have established the public trust as an inherent attribute of sovereign authority'); *Parks v Cooper*, 676 N.W.2d 823, 837 (Supreme Court of South Dakota 2004); *Butler ex rel Peshlakai v Brewer* No. 1 CA-CV 12-0347, 2013 WL 1091209, at [4] (Court of Appeals for Arizona 2013) (explaining that the public trust doctrine is derived 'from the inherent nature of Arizona's status as a sovereign state'); *Mineral Cnty v Lyons Cnty* 473 P.3d 418, 425 (Supreme Court of Nevada 2020) (characterising the public trust doctrine as being 'derive[d] from inherent limitations on a state's sovereign powers').

[24] See *Minors Oposa v Factoran* [1993] GR No 101083, 224 SCRA 792 (*Minors Oposa v Factoran*) (holding that 'the right to a balanced and healthful ecology' belongs to a unique category of basic rights, 'for it concerns nothing less than self-preservation and self-perpetuation … the advancement of which may even be said to predate all governments and constitutions').

[25] *Juliana District Court* (n 27) 1252 (citing *Stone v Mississippi* 101 US 814, 820 (1879)).

[26] ibid 1260. See also *Ill Cent RR Co* (n 6) (explaining that 'legislative acts concerning public interests are necessarily public laws' and holding that 'the legislature could not give away nor sell the discretion of its successors').

[27] *Juliana v United States* 217 F.Supp.3d 1224, 1253 (District Court of Oregon 2016) (*Juliana District Court*). See also *Ill Cent RR Co* (n 6) (explaining that 'every succeeding legislature possesses the same jurisdiction and power as its predecessor' and that 'every legislature must, at the time of its existence, exercise the power of the state in the execution of the trust devolved upon it').

[28] Michael C. Blumm and Mary C. Wood, *The Public Trust Doctrine in Environmental and Natural Resources Law* (Carolina Academic Press 2021) 3.

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beneficiaries'.[29] These basic principles apply in private and sovereign contexts; 'in the case of the public trust, the beneficiaries are the citizens'.[30] The implication is that if a public asset – such as the atmosphere – does indeed fall within the *res* of a public natural resources trust, the sovereign trustee must manage that public asset for the sole benefit of the citizen beneficiaries.

As noted by a US court, 'the natural resources trust operates according to basic trust principles, which impose upon the trustee a fiduciary duty to 'protect the trust property against damage or destruction'.[31] Because 'the trustee owes this duty equally to both current and future beneficiaries of the trust',[32] the natural resources trust is necessarily intergenerational. Moreover, once 'the existence of a fiduciary duty on the part of the State to protect a public resource' has been established, 'the duty would not seem to depend on the source of the threatened harm'.[33] In other words, the sovereign owes a public trust duty regardless of whether the sovereign is involved in bringing about harm or a threat of harm to the public trust *res*.

The public trust doctrine imposes three categories of restrictions on the sovereign's authority to administer the natural resources trust.[34] First, trust property must 'be used for a public purpose' and must also 'be held available for use by the general public'.[35] Second, trust property may never be sold.[36] Third, trust property 'must be maintained for particular types of uses'.[37] Although 'the "traditional" public trust litigation model … centers on the second restriction, the prohibition against alienation of a public trust asset', a wave of modern public trust litigation asserts that 'state and national governments have abdicated their responsibilities under the public trust doctrine'.[38] Under this modern approach: 'plaintiffs assert that [sovereigns] have violated their duties as trustees by nominally retaining control over trust assets while actually allowing their depletion and destruction, effectively violating the first and third restrictions by excluding the public from use and

[29] ibid.
[30] ibid.
[31] *Juliana District Court* (n 27) 1254 (citing George Gleason Bogert, George Taylor Bogert, and William K. Stevens, *The Law of Trusts and Trustees* s 582 (2016)).
[32] ibid (citing American Law Institute, *Restatement of the Law Second, Trusts* (American Law Publishers 1959)).
[33] *Kanuk Kanuk v State Department Natural Resources* 335 P.3d 1088, 1095 (Supreme Court of Alaska 2014) (*Kanuk*) (denying declaratory relief because such relief would not 'settle' the legal relations at issue and thus would not advance plaintiffs' interests).
[34] Joseph L. Sax, 'The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention' (1970) 68 Michigan Law Review 471, 477.
[35] ibid.
[36] ibid. See also *Waiāhole Ditch* (n 22) 450 ('Although its purpose has evolved over time, the public trust has never been understood to safeguard rights of exclusive use for private commercial gain. Such an interpretation, indeed, eviscerates the trust's basic purpose of reserving the resource for use and access by the general public without preference or restriction').
[37] Sax (n 34) 477.
[38] *Juliana District Court* (n 27) 1254.

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enjoyment of public resources.'[39] In addition to applying the public trust doctrine to new resources, modern public trust litigation emphasises the public rights that sovereigns have a fiduciary obligation to protect.[40]

10.1.3 *Historical Scope of the Doctrine*

The public trust doctrine is rooted in ancient Roman legal principles that described certain natural elements – particularly bodies of water – as belonging to the public as a whole. These principles were incorporated into several modern legal systems, including several European countries and England, but nowhere so prominently as in the United States, where it became a cornerstone of public rights in waterways and is evolving to protect public rights in other natural resources.

In the United States, the public trust doctrine has traditionally protected 'coastlines, harbors, and major rivers and lakes',[41] or, simply put, navigable waterways. According to Professor Charles Wilkinson, 'whether valued in terms of economics, recreation, beauty, or spirituality', these resources are 'among our most valuable'.[42] In *Illinois Central Railroad Co v Illinois*, the seminal public trust doctrine case, the US Supreme Court held that Illinois, like all sovereigns, holds title to lands beneath its navigable waters 'in trust for the people of the state', so that 'they may enjoy the navigation of the waters, carry on commerce over them, and have liberty of fishing therein freed from the obstruction or interference of private parties'.[43] Thus, since its original invocations, the scope of the US public trust doctrine has been closely associated with navigable waters and the values they provide as public resources.

Outside of the US, judicial pronouncement of the public trust doctrine occurred later,[44] but has been far less tethered to navigable waterways.[45] For example, in *M C Mehta v Kamal Nath*, the Supreme Court of India explained that 'the public trust doctrine primarily rests on the principle that certain resources like air, sea, waters and the forests have such a great importance to the people as a whole that it would be wholly unjustified to make them a subject of private ownership'.[46]

Interestingly, the court cited the 'ecological' reasoning employed in both state and federal cases from the United States to conclude that there is 'no reason why the public trust doctrine should not be expanded to include all eco-systems operating in

[39] ibid.
[40] ibid.
[41] Wilkinson (n 5) 426.
[42] ibid.
[43] See *Ill Cent RR Co* (n 6).
[44] See Michael C. Blumm and Rachel D. Guthrie, 'Internationalizing the Public Trust Doctrine: Natural Law and Constitutional and Statutory Approaches to Fulfilling the Saxion Vision' (2012) 45 UC Davis Law Review 741, 746–748.
[45] See generally ibid (exploring the relatively broader scope of the public trust doctrine in certain jurisdictions outside of the United States).
[46] *M C Mehta v Kamal Nath* (1996) 1 SCC 388.

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our natural resources'.[47] Although courts in the United States have accepted such ecologically based arguments to extend the public trust *res* primarily in the context of waters,[48] international courts have shown a greater willingness to apply this reasoning to other natural resources, including whole ecosystems.[49]

10.1.4 *The Rise of an Atmospheric Trust*

The rise of atmospheric trust litigation has, in part, been the product of an increased understanding within the international judiciary of the threats posed by climate change and the courts' role in addressing those threats. For example, the Lahore High Court of Pakistan has recognised that 'climate change is a defining challenge of our time and has led to dramatic alterations in our planet's climate system'.[50] In Pakistan, 'these climatic variations have primarily resulted in heavy floods and droughts, raising serious concerns regarding water and food security'.[51] Similarly, as one Washington lower court summarised:

> Washington and the Pacific Northwest have experienced long-term warming, a lengthening of the frost-free season, and more frequent nighttime heat waves. Sea level is rising on most of Washington's coast. Coastal ocean acidity has increased. Glacial area and spring snowpack have declined, and peak stream flows in many rivers have shifted earlier. In addition, climate extremes (floods, droughts, fires, and landslides) are already costly to Washington's [sic] State.[52]

10.2 CASE LAW DEVELOPMENT

This section explores the developments in natural resource public trust case law. Section 10.2.1 describes the interpretive process and the judicial role in evaluating natural resource public trust claims. Section 10.2.2 discusses the constitutional recognition framework, under which many courts have rooted their support for an atmospheric trust in constitutional language establishing public rights in or the sovereign's responsibility for air, climate, a healthy environment, or natural resources generally. Finally, Section 10.2.3 introduces what this chapter terms the inter-resource affectation framework, which has been used by courts to bring non-traditional public trust resources under the public trust doctrine's protection.

[47] ibid (discussing *National Audubon Society v Superior Court, Alpine County* 658 P.2d 709 (Supreme Court of California 1983) and *Phillips Petroleum Co v Mississippi* 484 US 469 (1988)).
[48] See Section 2.3.
[49] See *M C Mehta* (n 46).
[50] *Asghar Leghari v Federation of Pakistan* PLD 2018 Lahore 364.
[51] ibid.
[52] *Foster v Washington Department of Ecology* No 14-2-25295-1 SEA, 2017 WL 9772318 [2] (Superior Court of Washington 2017).

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10.2.1 *Judicial Interpretation of the Public Trust Doctrine*

Courts and scholars have recognised that 'in natural resources cases, the trust property consists of a set of resources important enough to the people to warrant public trust protection'.[53] Nonetheless, perhaps the greatest challenge for courts reviewing claims brought under the public trust doctrine is determining when – that is, to which resources – the doctrine applies. According to the Supreme Court of Hawai'i, 'the public trust, by its very nature, does not remain fixed for all time, but must conform to changing needs and circumstances'.[54] Professor Joseph Sax, the father of the modern public trust doctrine, explained, 'certainly the principle of the public trust is broader than its traditional application indicates'.[55] As new threats to natural resources arise and the public responds by invoking their rights to the continued use and enjoyment of those resources, the public trust doctrine is sure to evolve.

The judiciary's role in this evolution is straightforward. As the Arizona Court of Appeals declared in *Butler v Brewer*, 'it is up to the judiciary to determine the scope of the doctrine'.[56] In *Butler*, which concerned an atmospheric trust claim, the Arizona court reasoned that when 'precedent does not address the measures by which a resource may be determined to be a part of the public trust or a framework for analyzing such contentions', it is appropriate for the court to 'assume without deciding that the atmosphere is a part of the public trust subject to the doctrine'.[57] Consequently, 'the fact that the only Arizona cases directly addressing the doctrine did so in the context of lands underlying navigable watercourses does not mean that the doctrine in Arizona is limited to such lands'.[58] Instead, 'any determination of the scope of the doctrine depends on the facts presented in a specific case'.[59] Thus, public trust cases require courts to engage in a fact-intensive inquiry to determine when the doctrine applies.

Not only must courts 'determine the threshold question of whether a particular resource is a part of the public trust subject to the doctrine, but the courts must also determine whether based on the facts there has been a breach of the trust'.[60]

[53] *Juliana District Court* (n 27) 1254 (citing Mary Christina Wood, *A Nature's Trust; Environmental Law for a New Ecological Age* (Cambridge University Press 2014) 167–175.

[54] *Waiāhole Ditch* (n 22) 447.

[55] Sax (n 34) 557.

[56] *Butler* (n 23) 3.

[57] ibid 6.

[58] ibid. However, see *Chernaik v Brown*, 475 P.3d 68 (Supreme Court of Oregon 2020) 79–80 (declining to expand the scope of Oregon's public trust beyond the state's obligation 'to protect the public's ability to use navigable waters for identifiable uses' despite acknowledging that, 'for over a century', the Oregon Supreme Court 'has recognized that the public trust doctrine is a forward-looking doctrine that is flexible enough to accommodate future uses and to protect against unforeseen harms to the public's ability to use public trust resources').

[59] *Butler* (n 23) 6.

[60] ibid 5.

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In *Kanuk v State*, which also concerned an atmospheric trust claim, the Supreme Court of Alaska explained that because Alaskan courts 'interpret the public trust doctrine in a constitutional context', the judiciary 'has the constitutionally mandated duty to ensure compliance with the provisions of the Alaska Constitution' when it reviews public trust claims.[61] The court held that 'whether the State has breached [its fiduciary] legal duty is a question we are well equipped to answer' once 'the extent of the State's duty' has been judicially determined based on the facts of the case.[62] If it were not up to the courts to evaluate when a sovereign has abdicated its public trust duties, such an inquiry would have no proper forum.

In fact, although the public trust doctrine is not explicitly laid out in Colombia's constitution, the Supreme Court of Colombia has held that the fundamental principle of protecting natural resources for the benefit of the population is enshrined in the constitutional right to a healthy environment.[63] In *Future Generations v Ministry of Environment and Others*, twenty-five youth plaintiffs filed suit against the Colombian government for violating their fundamental rights to a healthy environment, life, health, food, and water by failing to curtail deforestation in the Amazon. The court concluded that the protection of fundamental rights is inextricably linked with the protection of nature, and further, that natural resources such as the Amazon Rainforest belong to all inhabitants of the planet, including those as yet unborn.[64] This recognition of the interconnectedness of fundamental human rights and the rights of nature, and of the shared use by present and future generations of natural resources, are the same basic principles that underpin the protection of natural resources under the public trust doctrine.

Similarly, in *Advocates Coalition for Development and Environment (ACODE) v Attorney General*,[65] ACODE sued the Ugandan government for failing to fulfil its duty as trustee of the Butamira Forest Reserve by granting a private permit to harvest firewood from the forest. The High Court of Uganda determined that the Attorney General had failed in his obligations under Article 237(2)(b) of the Ugandan Constitution, which lays out the government's duty to hold rivers, lakes, and forest reserves, inter alia, in trust for the Ugandan people. By granting the harvesting permit without conducting an environmental impact assessment and without consulting the local communities who rely on the Butamira Forest Reserve for their livelihoods and spiritual practices, the government violated its duty as trustee, and failed in 'its constitutional and statutory duty to conserve the environment and

[61] *Kanuk* (n 33) 1099.
[62] ibid 1100.
[63] *Future Generations v Ministry of the Environment and Others (Demanda Generaciones Futuras v Minambiente)* [2018] 11001 22 03 000 2018 00319 00 (Supreme Court of Justice of Colombia) (*Demanda Futuras Generaciones*) [20].
[64] ibid.
[65] *Advocates Coalition for Development and Environment (ACODE) v Attorney General* (2005) Miscellaneous Cause No 0100 of 2004 (High Court of Uganda).

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natural resources equitably and for the benefit of both the present and future generations'.[66] In this case, therefore, the public trust doctrine was applied not only to natural resource protection, but also to the protection of cultural and religious traditions associated with the resource in question.

This jurisprudence suggests that the public trust doctrine, even in the absence of explicit 'public trust' language, may apply more broadly to important natural resources and is flexible enough to evolve with changing societal needs. If so, the judiciary's role is to determine both when a particular resource falls within the doctrine's scope and when the sovereign has violated or failed to meet its public trust duties concerning public trust resources.

10.2.2 *The Constitutional Recognition Framework*

Several courts have rooted their support for an atmospheric trust in constitutional language establishing public rights in, or the sovereign's responsibility for, air, climate, a healthy environment, or natural resources generally. Some experts 'observe that cases advancing constitutional theories of climate obligation are swiftly gaining ground in the world's domestic courts'.[67] Judicial embrace is strongest when the relevant constitutional provision also speaks to principles of intergenerational equity, which this chapter identifies as an emerging best practice. Judicial recognition of a broad public trust capable of including the atmosphere illustrates that the doctrine is subject to expansion.

10.2.2.1 Air and Atmosphere

An atmospheric trust exists where constitutional language establishes public rights in, and the sovereign's duty over, air and climate. For example, Article I Section 27 of the Pennsylvania Constitution unequivocally states that 'the people have a right to clean air'.[68] That section declares that 'Pennsylvania's public natural resources are the common property of all the people, including generations yet to come', and requires the state, 'as trustee of these resources', to 'conserve and maintain them for the benefit of all the people'.[69] The state constitution, therefore, embodies two of the three categories of restrictions on the sovereign's authority to administer the natural resources trust: Trust property must be held available for public use and maintained for public uses.

[66] ibid [22].

[67] Mary Christina Wood, '"On the Eve of Destruction": Courts Confronting the Climate Emergency' (2022) 97 Indiana Law Journal 239, 286 (citing James R. May and Erin Daly, 'Global Climate Constitutionalism and Justice in the Courts' in Jordi Jaria-Manzano and Susana Borràs (eds), *Research Handbook on Global Climate Constitutionalism* (Edward Elgar 2019) 235.

[68] Pennsylvania Constitution art 1(27).

[69] ibid.

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In *Funk v Wolf*, the Pennsylvania Commonwealth court explained that the first provision of Section 27 'endows the people of Pennsylvania with the *right* to the described resources', thereby 'prevent[ing] the state from acting in ways that would infringe upon such rights'.[70] By placing Pennsylvania's natural resources – including clean air – in trust for the people,[71] the second provision enables citizens to bring a legal challenge against government actions and inactions infringing on the rights recognised in the first provision, proceeding upon either or both of two theories: 'the government has infringed upon citizens' rights' or 'has failed in its trustee obligations'.[72] The court thereby properly recognised the two categories of restrictions imposed by the Pennsylvania Constitution.

Similarly, in *Sanders-Reed v Martinez*, the New Mexico Court of Appeals concluded that the state's constitution 'recognizes that a public trust duty exists for the protection of New Mexico's natural resources, including the atmosphere, for the benefit of the people'.[73] Section 21 of Article XX of the New Mexico Constitution provides that 'the protection of the state's beautiful and healthful environment is hereby declared to be of fundamental importance to the public interest' and requires the state to 'provide for control of pollution and control of despoilment of the air' and other natural resources 'for the maximum benefit of the people'.[74] Thus, the court held, 'the State has a duty to protect the atmosphere' pursuant to its clear 'constitutional mandate'.[75] The court recognised the same two categories of restrictions in the New Mexico Constitution – the sovereign must hold natural resources in trust for public use and maintain those resources consistent with public uses.

The Supreme Court of Hawai'i in *In re Application of Gas Co* recently explained that 'a state agency must perform its functions in a manner that fulfils the State's affirmative obligations under the Hawai'i constitution', including its obligations as a trustee of 'all public natural resources'.[76] The Hawai'i Constitution provides that, '[f]or the benefit of present and future generations, the State … shall conserve and protect Hawaii's natural beauty and all natural resources, including land, water, air, and

[70] *Funk v Wolf* 158 A.3d 642 (Supreme Court of Pennsylvania 2017) (denying declaratory relief for lack of practical effect).

[71] ibid (citing *Pennsylvania Environment Defense Foundation. v Commonwealth* 108 A.3d 140, 167 (Commonwealth Court of Pennsylvania 2015)).

[72] ibid (quoting *Robinson Township v Commonwealth*, 83 A.3d 901, 950–951 (Supreme Court of Pennsylvania 2013)).

[73] *Sanders-Reed ex rel Sanders-Reed v Martinez* 350 P.3d 1221, 1225 (Court of Appeals for New Mexico 2015) (affirming summary judgment in favour of the State because plaintiffs failed to allege a constitutional violation, instead of requesting judicial review and intervention as a matter of a 'common law public trust doctrine').

[74] ibid 1225 (quoting New Mexico Constitution, art 20 s 21).

[75] ibid 1226–1227.

[76] *In re Gas Co LLC* 465 P.3d 633, 654 (Supreme Court of Hawai'i 2020) (vacating and remanding to the State Public Utilities Commission to 'consider its constitutional obligations' in light of the court's opinion).

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other resources'.[77] Thus, the court concluded that 'the state has a *continuing* duty to monitor the use of trust property, even if the use of the property has not changed', and that a state agency's 'constitutional obligations are ongoing'.[78]

These cases illustrate that where the relevant constitution speaks to public rights in, and the sovereign's duty over, air or climate, courts have embraced the atmosphere as within the scope of the public trust *res*. Nevertheless, many other courts have reached the same conclusion where such explicit constitutional language about air or climate is lacking.

10.2.2.2 A Healthy Environment

Several courts have rooted their recognition of an atmospheric trust in constitutional language that establishes public rights in, and the sovereign's duty over, a healthy environment. Moreover, according to these courts, the right to a healthy environment is inherent in other, constitutionally enumerated fundamental rights. By extension, the sovereign's maintenance and preservation of a healthy atmosphere are essential to fulfilling the public's fundamental rights.

As the Supreme Court of the Philippines explained, 'the right to a balanced and healthful ecology carries with it the correlative duty to refrain from impairing the environment'.[79] The right to a healthy environment, therefore, mandates not only that the state hold trust property – in this context, the environment as a whole – available for public use, but also that the state maintain the environment's health to ensure the continued viability of the public's use of trust property. Although the court did not explicitly reference the public trust doctrine in its ruling, the reasoning in the decision is grounded in the idea that natural resources are held in trust by the state. In this way, the right to a healthy environment embodies the first and third categories of restrictions on the sovereign's authority to administer the natural resources trust: Trust resources must be held open for public use and maintained consistent with public uses.[80]

In *Sher Singh v State of Himachal Pradesh*, the National Green Tribunal of India unequivocally declared that 'the citizens of the country have a fundamental right to a wholesome, clean and decent environment' under India's constitution.[81] Citing judgments by the Supreme Court of India from the 1980s onward,[82] the

[77] ibid (quoting Hawai'i Constitution art 11(1)).
[78] ibid (citing *Ching v Case* 449 P.3d 1146, 1175–1176 (2019)).
[79] *See Minors Oposa v Factoran* (n 24).
[80] *See* Sax (n 34) 477.
[81] *Court on its own Motion v State of Himachal Pradesh and Ors* Application No 237 (THC)/ 2013 (CWPIL No 15 of 2010) (*State of Himachal Pradesh*) [5].
[82] *See Rural Litigation and Entitlement Kendra, Dehradun v State of Uttar Pradesh* 1985 SCR (3) 169; *Virender Gaur v State of Haryana* 1998 (1) CTC 143.

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court concluded that 'Article 21 of [India's] constitution[83] has been expanded to take within its ambit the right to a clean and decent environment' as part of a broader 'right to life and personal liberty'.[84] The court explained that the 'wide dimensions' of Article 21 have consistently been construed by Indian courts 'in the larger public interest'.[85] Therefore, the court held that the public interest demands that 'the most vital necessities, namely air … cannot be permitted to be misused or polluted so as to reduce the quality of life of others'.[86] The court also made clear that when the sovereign enacts environmental statutes and regulations, it must do so consistent with its role as 'the trustee of all natural resources which are by [their] nature meant for public use and enjoyment' and of which 'the public at large is the beneficiary'.[87] Thus, the court signalled its willingness to review legislation for consistency with the public trust doctrine.[88]

Similarly, the Lahore High Court of Pakistan in *Asghar Leghari* began its decision by recognising that 'climate change is a defining challenge of our time and has led to dramatic alterations in our planet's climate system'.[89] Against this backdrop, the court determined that '[o]n a legal and constitutional plane', climate change presents a 'clarion call for the protection of fundamental rights of the citizens of Pakistan'.[90] Thus, the court pointed to 'fundamental rights' in Pakistan's constitution, emphasising that such rights 'read with constitutional principles of democracy, equality, [and] social, economic and political justice'.[91] The court focused on Article 9,[92] the right to life, 'which includes the right to a healthy and clean environment', and Article 14,[93] the right to human dignity.[94]

The *Leghari* court concluded that these fundamental rights also 'include within their ambit and commitment' numerous environmental principles such as 'inter and intra-generational equity and [the] public trust doctrine'.[95] In fact, according to the court, environmental protection has taken 'center stage' in Pakistan's scheme of constitutional rights.[96] The court was thus satisfied that the fundamental rights

[83] Constitution of India, art 21 ('No person shall be deprived of his life or personal liberty except according to procedure established by law').
[84] *State of Himachal Pradesh* (n 81).
[85] ibid [7].
[86] ibid [9]–[10].
[87] *M C Mehta* (n 46).
[88] ibid.
[89] *Asghar Leghari* (n 50) [5].
[90] ibid.
[91] ibid [5]–[6].
[92] Constitution of Pakistan, art 9 (No person shall be deprived of life or liberty save in accordance with law').
[93] Constitution of Pakistan, art 14(1) ('The dignity of man and, subject to law, the privacy of home, shall be inviolable').
[94] *Asghar Leghari* (n 50) [5]–[6].
[95] ibid.
[96] ibid.

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articulated in Articles 9 and 14, bolstered by Article 23's right to property and Article 19(A)'s right to information, provided 'the necessary judicial toolkit to address and monitor the Government's response to climate change'.[97] Therefore, the court held that, concerning climate change measures, the sovereign could not continue on its course of 'delay and lethargy' and thereby 'offend … the fundamental rights of the citizens which need to be safeguarded'.[98]

Finally, in *Foster v State Department of Ecology*, a Washington lower court accepted petitioners' characterisation that where the public's 'rights to a healthy environment' are constitutionally protected, those rights are actually protected 'by the Public Trust Doctrine embodied therein'.[99] In other words, the court accepted the proposition that a constitutional right to a healthy environment is actually the recognition of inherent public rights in the environment.[100] The court explained that it allowed petitioners' case to proceed 'due to the emergent need for coordinated science[-]based action by the State of Washington to address climate change before efforts to do so are too costly and too late'.[101] By recognising that petitioners were entitled to an opportunity to 'show evidence and argue that their government has failed and continues to fail to protect them from global warming',[102] the court embraced its judicial role to determine when the sovereign has failed to meet its public trust duties.[103]

These cases show that where the relevant constitution speaks to public rights to, and the sovereign's duty over, a healthy environment, courts have concluded that the atmosphere is within the scope of the public trust *res*. This right to a healthy environment is inherent in other, constitutionally enumerated fundamental rights. This trend – which has a robust presence in international jurisprudence outside of the United States – indicates that courts understand a stable climate system as necessary to environmental health and well-being.

10.2.2.3 Natural Resources

Some courts have grounded their recognition of an atmospheric trust in constitutional language that establishes public rights in, and the sovereign's duty over, natural resources generally, even absent an explicit reference to air or climate. As the Pennsylvania Supreme Court noted, when 'natural resources' appears, unqualified,

[97] ibid.
[98] ibid.
[99] *Foster* (n 52) [1] (allowing petitioners to supplement and amend their petition against the State for its lack of climate change action).
[100] ibid.
[101] ibid.
[102] ibid [3].
[103] The *Foster* decision was overturned by the Washington court of appeals in 2017 without addressing the lower court's findings on the public trust doctrine.

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in constitutional language, 'the term fairly implicates relatively broad aspects of the environment, and is amenable to change over time to conform, for example, with the development of related legal and societal concerns'.[104] Indeed, the public trust doctrine is a versatile legal tool for natural resource protection.

Some courts, however, have been unwilling to expand the traditional scope of the doctrine to include natural resources more broadly. For example, in *Aji P v State*,[105] youth plaintiffs contended that they had 'alleged valid public trust doctrine claims' in their complaint against the state of Washington for its reliance on fossil fuels because 'navigable waters and the atmosphere are intertwined'.[106] In the plaintiffs' view, 'to argue a separation of the two, or to argue that [greenhouse gas] emissions do not affect navigable waters', would be 'nonsensical' on the state's part.[107] However, looking to the Washington State Constitution, which enumerates the traditional definition of state ownership over the beds and shores of navigable waters, the Washington Court of Appeal disagreed.[108]

The court concluded that the 'complaint alleges a violation of the public trust doctrine in relation to the climate system as a whole, including the atmosphere', whereas 'Washington has not yet expanded the public trust doctrine to encompass the atmosphere'.[109] Although the plaintiffs maintained that they 'alleged impairment to traditional Public Trust Resources such as navigable waters and submerged lands', the court was unpersuaded.[110] In fact, the court deemed this a 'recharacterization' of plaintiffs' allegations, paying particular attention to plaintiffs' assertion in their complaint that 'the overarching public trust resource is the climate system, which encompasses the atmosphere, waters, oceans, and biosphere'.[111] In short, by framing the 'effect on the public's ability to use, access, enjoy and navigate the state's tidelands, shorelands, and navigable waters' as a consequence of climate change,[112] the plaintiffs were unable to satisfy the court's restrictive reading of the public trust doctrine in the context of narrow constitutional language.

In contrast, some courts have accepted that the doctrine applies to all natural resources, including the atmosphere. In *Bonser-Lain v State Commission on Environmental Quality*, a Texas lower court held that 'the public trust doctrine includes all natural resources of the State including the air and atmosphere'.[113] The

[104] *Robinson Township* (n 72) [950]–[951].
[105] *Aji Pexrel Piper v State* 480 P.3d 438 (Court of Appeals for Washington 2021) (*Aji P*).
[106] ibid.
[107] ibid.
[108] ibid [457].
[109] ibid.
[110] ibid.
[111] ibid.
[112] ibid.
[113] *Bonser-Lain v Texas Commission on Environment Quality* No D-1-GN-11-002194, 2012 (District Court of Texas 2012) (holding that the state commission nonetheless had discretion not to proceed with plaintiffs' request for rulemaking), vacated by *Texas Commission on Environment Quality v Bonser-Lain*

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court was unpersuaded by the state commission's contention that 'the public trust doctrine in Texas is exclusively limited to the conservation of the State's waters', finding this argument 'legally invalid'.[114] The court reasoned that the doctrine had been incorporated into section 59 of Article XVI of the Texas Constitution, which provides that the conservation, development, and preservation 'of all of the natural resources of this State' are 'declared public rights and duties', and which therefore recognises an expansive public trust *res*.[115]

In *Held v State*, a Montana district court held that the state's practice of ignoring climate change when approving energy projects may implicate the plaintiffs' constitutional rights.[116] Following Montana Supreme Court precedent, the court concluded that 'a clean and healthful environment is a "fundamental right" under Article IX of the Montana Constitution',[117] and that this right is linked to the state's obligation 'to prevent unreasonable degradation of natural resources'.[118] While not explicitly using 'public trust' language, the court recognised that the inclusion of a state duty over natural resources in the Montana Constitution provides 'protections which are both anticipatory and preventative'.[119] Indeed, the Montana Constitution does not force the state into allowing a 'degree of environmental degradation which can be conclusively linked to ill health or physical endangerment' before the state's 'farsighted environmental protections can be invoked'.[120] Instead, the state has an affirmative duty to protect natural resources from substantial impairment.[121]

These cases demonstrate that where the relevant constitution speaks to public rights in, and the sovereign's duty over, natural resources, courts have interpreted such language to recognise resources beyond those traditionally associated with the public trust doctrine – including the atmosphere – as within the scope of the public trust *res*. Although language referencing 'natural resources' does not bring about the same clear reference to the atmosphere as language concerning the air or climate,

438 S.W.3d 887 (Court of Appeals for Texas 2014) (vacating on the ground that plaintiffs lacked a right to judicial review of an agency's refusal to adopt rules under Texas State law).

[114] ibid.

[115] ibid.

[116] *Held v Montana* No CDV-2020-307 (District Court of Montana 2021) (*Held v Montana*) (allowing plaintiffs' claim for declaratory relief to proceed while denying a claim for injunctive relief).

[117] ibid [13]–[14] (quoting *Montana Environmental Information Control v Department of Environmental Quality* 988 P.2d 1236, 1246 (Supreme Court of Montana 1999)). See also Constitution of the State of Montana, art 9(1)(1) ('The state and each person shall maintain and improve a clean and healthful environment in Montana for present and future generations').

[118] ibid Constitution of Montana art 9(1)(3) ('The legislature shall provide adequate remedies for the protection of the environmental life support system from degradation and provide adequate remedies to prevent unreasonable depletion and degradation of natural resources').

[119] ibid [15] (quoting *Montana Environmental Information Control*).

[120] ibid [14] (quoting *Montana Environmental Information Control*).

[121] *Held v Montana* (n 116). In August 2023, a Montana District Court held that by prohibiting analysis of GHG emissions and climate impacts during the project-approval process, the state violated the plaintiffs' right to a clean and healthful environment. See *Held v Montana* No CDV-2020-307 (District Court of Montana 2023).

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broad constitutional language may allow for greater judicial flexibility as the public trust doctrine continues to be applied to new resources and challenges. Moreover, several courts have recognised that the state has affirmative obligations to protect trust resources.

10.2.3 *The Inter-Resource Affectation Framework*

Although courts have not always concluded that the atmosphere itself is a public trust resource, several have concluded that threats to non-traditional public trust resources are intricately connected to traditional public trust resources. In those courts' view, this relationship – which this chapter terms 'inter-resource affectation' – brings plaintiffs' claims within the scope of the public trust doctrine. In this way, courts can recognise an atmospheric trust without explicitly defining the scope of the public trust *res*. Several cases reflect this framework; they primarily arise in the United States where a federalist system of dual sovereigns, the federal government and the states, has produced different definitions of the public trust in different jurisdictions.

The principle of inter-resource affectation is perhaps best illustrated by courts' recognition of groundwater as within the scope of the public trust doctrine, even though groundwater is not a traditional public trust resource. For example, in *In re Water Use Permit Applications for Waiāhole Ditch*, the Supreme Court of Hawai'i concluded that there was 'little sense in adhering to artificial distinctions' between groundwater and surface waters – a distinction not 'borne out in the present practical realities of this state'.[122] The court reasoned that 'in other states, the "purposes" or "uses" of the public trust have evolved with changing public values and needs', including recognition of a 'distinct public interest in resource protection'.[123] Moreover, the court recognised that 'modern science and technology have discredited the surface-ground[water] dichotomy' and instead acknowledge 'the unity of the hydrological cycle'.[124] Therefore, the court deferred to a state commission's invocation of the precautionary principle[125] to protect instream water uses, agreeing that 'public trust purposes' (public use of the public trust *res*) should prevail over diversionary interests.[126] In reaching its decision, the court was persuaded by the underlying scientific consensus that certain natural resources – here, ground and surface waters – form two parts of a larger, interconnected system.

[122] *Waiāhole Ditch* (n 22) 447.
[123] ibid 448.
[124] ibid 447.
[125] The precautionary principle posits that '[w]here there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation'. See United Nations, 'Declaration of the United Nations Conference on Environment and Development' (1992) 31 ILM 874 (Rio Declaration).
[126] *Waiāhole Ditch* (n 22) 466–467.

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Similarly, in *Environmental Law Foundation v State Water Resources Control Board*, the California Court of Appeal affirmed a trial court's holding that the public trust doctrine applies to groundwater if extraction 'adversely impacts a navigable waterway'.[127] In other words, where 'the removal of water will have an adverse impact on navigable water clearly within the public trust', the court was satisfied that it could evaluate groundwater pumping for compliance with the public trust doctrine.[128] Given judicial embrace of an inter-resource affectation framework in the groundwater context, courts have paved the way for this framework to apply to other non-traditional public trust resources, including the atmosphere, where their degradation impairs navigable waterways clearly within the traditional public trust *res*.

10.3 EMERGING BEST PRACTICES

This section explores the emerging best practices in atmospheric trust case law. Section 10.3.1 discusses the emerging best practice of constitutional recognition coupled with language that speaks to intergenerational equity. Section 10.3.2 discusses the emerging best practice of applying the inter-resource affectation framework to the atmosphere. Finally, Section 10.3.2 discusses how the inter-resource affectation framework may be most successfully applied when plaintiffs' claims are grounded in a fundamental constitutional right, such as substantive due process.

10.3.1 *Constitutional Recognition and Intergenerational Equity*

Constitutional language that speaks to intergenerational equity – in addition to air, climate, a healthy environment, or natural resources – strengthens a court's application of the public trust doctrine to non-traditional public trust resources, such as the atmosphere. Intergenerational constitutional protection establishes a temporal relationship that mirrors basic trust principles. Because a trustee traditionally owes a duty 'equally to both current and future beneficiaries of the trust',[129] the sovereign owes its duties to current and future generations and cannot sanction substantial impairment of the trust *res* solely to serve present-day needs.[130] Even when courts have not used 'public trust' language, their discussion of the sovereign's intergenerational duties with respect to natural resources fits within public trust doctrine jurisprudence.

[127] *Environmental Law Foundation v State Water Resources Control Board* 237 Cal Rep 3d 393, 402 (Court of Appeals for California 2018).
[128] ibid.
[129] *Juliana District Court* (n 27) 1254 (citing *Restatement* (n 32) s 183).
[130] Constitution of Montana (n 119) art 1(1) (mandating a 'healthful environment in Montana for present and future generations').

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In *Urgenda Foundation v The State of The Netherlands*, the Hague District Court held that 'Article 21 of the Dutch Constitution[131] imposes a duty of care on the State relating to the liveability of the country and the protection and improvement of the living environment'.[132] The court engaged in a two-part inquiry to determine whether the sovereign was 'taking sufficient mitigation measures' to meet its duty of care with respect to climate change.[133] First, it asked whether there was an 'unlawful hazardous negligence on the part of the State'; second, the court assessed the government's actions in light of 'the State's discretionary power'.[134] Simply put, the court sought to discern whether the state's duty of care had been triggered and, if so, what actions the state needed to take to meet that affirmative duty.[135]

The *Urgenda Foundation* court determined that the 'high risk of dangerous climate change with severe and life-threatening consequences for man and the environment' triggered the state's 'obligation to protect its citizens from [climate change] by taking appropriate and effective measures',[136] including mitigation, as plaintiffs had requested.[137] In other words, the imminence and dangerousness of climate change triggered the state's duty of care.[138] Stressing that 'the possibility of damages for those whose interests Urgenda represents, including current and future generations of Dutch nationals, is so great and concrete', the court ruled that 'the State must make an adequate contribution … to prevent hazardous climate change' consistent with its 'duty of care'.[139] Thus satisfied that the state's duty of care was triggered, the court held that the state was obliged to take effective mitigating and remedial measures.[140]

Similarly, in *Neubauer and Others v Germany*, the Federal Constitutional Court of Germany held that 'the fundamental right to the protection of life and health enshrined in' Article 2 of Germany's Constitution[141] 'imposes on the state a general duty of protection of life and physical integrity', and therefore 'obliges the state to afford protection against the risks of climate change'.[142] According to the court, this fundamental right 'encompasses the state's duty to protect and promote the legal interests of life and physical integrity and to safeguard these interests against

[131] Constitution of the Kingdom of Netherlands, art 21 ('It shall be the concern of the authorities to keep the country habitable and to protect and improve the environment').
[132] *State of the Netherlands (Ministry of Economic Affairs and Climate Policy) v Stichting Urgenda* [2019] ECLI:NL:HR:2019:2007 (Supreme Court of the Netherlands) (*Urgenda Supreme Court*).
[133] ibid 43.
[134] ibid.
[135] ibid.
[136] ibid 47.
[137] ibid 49.
[138] ibid.
[139] ibid 50.
[140] ibid.
[141] Constitution of the Federal Republic of Germany, art 2(2) ('Every person shall have the right to life and physical integrity. Freedom of the person shall be inviolable. These rights may be interfered with only pursuant to a law').
[142] *Neubauer and Others v Germany* [2021] 1 BvR 2656/18, 1 BvR 96/20, 1 BvR 78/20, 1 BvR 288/20, 1 BvR 96/20, 1 BvR 78/20 (German Federal Constitutional Court) (*Neubauer*).

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unlawful interference by others'.[143] In this way, the court equated the state's obligation to protect against climate change with the sovereign's public trust duty to safeguard against substantial impairment to the public trust *res*.[144]

The *Neubauer* court emphasised that the state's duty 'does not take effect only after violations have already occurred', but is instead an affirmative duty 'oriented towards the future' that can also be invoked 'to protect future generations'.[145] The protection required of the state, the court continued, 'encompasses protection against impairments and degradation of constitutionally guaranteed interests caused by environmental pollution, regardless of who or what circumstances are the cause.[146] The intergenerational scope of this protection, the court reasoned, was necessary '[i]n view of the considerable risks' posed by 'increasingly severe climate change'[147] and the burden on future generations who will be forced to grapple with amplified climate effects.

Although affording protection to both present and future generations, the *Neubauer* court distinguished between present and future climate change and the sovereign's duties to address each.[148] As to present climate change that 'is not preventable or has already taken place', the court held that the state must 'address the risks by implementing positive measures aimed at alleviating the consequences of climate change'.[149] As to future climate change, on the other hand, the court held that the state is obligated 'to afford protection by taking measures that help to limit anthropogenic global warming and associated climate change'.[150] The court's reasoning reflected its understanding of the disproportionate climate effects future generations will face, leading the court to distinguish present-day remedial measures from mitigation designed to slow additional climate change.[151]

Prior to *Neubauer*, the German legislature had set interim goals with gradual steps to reduce greenhouse gas emissions[152] and an overall goal 'of achieving climate neutrality in the foreseeable future'.[153] Although the court concluded that the legislative provisions challenged by plaintiffs had not clearly violated the state's duty of protection to the present generation,[154] the court nonetheless concluded that those

[143] ibid.
[144] ibid.
[145] ibid.
[146] ibid.
[147] ibid 43.
[148] ibid.
[149] ibid.
[150] ibid.
[151] ibid.
[152] ibid 44–45.
[153] ibid 49.
[154] ibid 43–44 (noting that in a potential future case, the court would 'find a violation of a duty of protection' to the present generation 'if no precautionary measures whatsoever have been taken, or if the adopted provisions and measures prove to be manifestly unsuitable or completely inadequate for achieving the required protection goal, or if the provisions and measures fall significantly short of the protection goal').

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provisions did violate the state's duty of protection to future generations.[155] The court faulted the legislature for 'failing to take sufficient precautionary measures to manage the obligations to reduce emissions in ways that respect fundamental rights-obligations that could be substantial in later periods due to the emissions allowed by law until 2030'.[156] Thus, while meeting its obligation to the present generation, the German legislature's climate goals were insufficient to meet the sovereign's obligation to future generations.[157]

These cases illustrate that, where the relevant constitution speaks to intergenerational equity in connection with the sovereign's duties to the public, courts have used this language to aid their embrace of an atmospheric trust. Given the long-term, far-reaching threats posed by climate change and the degradation of an inherently 'public' resource – the air we breathe – these courts also appear to impose a high burden of proof on the sovereign to show that it is complying with its public trust duties to present *and* future generations.

10.3.2 *Applying the Inter-Resource Affectation Framework to the Atmosphere*

The decision of the Oregon Federal District Court in *Juliana v United States* offers a persuasive application of the inter-resource affectation framework in the atmospheric trust context.[158] In *Juliana*, twenty-one youth plaintiffs argued that numerous government entities[159] 'violated their obligation to hold certain natural resources in trust for the people and for future generations' by deliberately allowing atmospheric carbon dioxide concentrations to reach unprecedented levels.[160] The plaintiffs' complaint alleged that the government defendants 'violated their duties as trustees by failing to protect the atmosphere, water, seas, seashores, and wildlife'.[161] The defendants countered that 'plaintiffs' public trust claims fail because the complaint focuses on harm to the atmosphere, which is not a public trust asset'.[162] The court, however, decided it was unnecessary 'to determine

[155] ibid 53.
[156] ibid.
[157] ibid.
[158] *Juliana District Court* (n 27) 1254. This was reversed and remanded for lack of redressability as required for plaintiffs to satisfy art III standing, see *Juliana* (n 23).
[159] These entities included then-President of the United States Barack Obama, the Council on Environmental Quality, the Office of Management and Budget, the Office of Science and Technology Policy, the Department of Energy, the Department of the Interior, the Department of Transportation, the Department of Agriculture, the Department of Commerce, the Department of Defense, the Department of State, and the Environmental Protection Agency. See ibid *Juliana District Court* (n 27) 1233–1234.
[160] *Juliana District Court* (n 27) 1233.
[161] ibid 1255.
[162] ibid.

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whether the atmosphere is a public trust asset' given that plaintiffs had 'alleged violations of the public trust doctrine in connection with the territorial sea',[163] a traditional public trust resource.

The federal district court of Oregon concluded that 'because a number of plaintiffs' injuries relate to the effects of ocean acidification and rising ocean temperatures', plaintiffs had 'adequately alleged harm to public trust assets'.[164] The court was satisfied that harm to the atmosphere, when it impairs long-recognised public trust resources, implicates the public trust doctrine, effectively applying the inter-resource affectation framework.[165] This reasoning is consistent with prior judicial practice of looking past artificial distinctions between natural resources (such as ground and surface waters) to expand the application of the public trust doctrine beyond those resources traditionally within the public trust *res*.[166]

10.3.3 *Inter-Resource Affectation with Constitutional Grounding*

Although viable in its own right, the inter-resource affectation framework may find its strongest application when coupled with a constitutional grounding. Unlike constitutional language establishing public rights in air, climate, a healthy environment, or natural resources, a constitutional grounding refers to the public's fundamental right to engage in the judicial process to hold the sovereign accountable for its exercise of sovereign duties.

For example, the federal court in *Juliana* included the atmosphere in the public trust doctrine's scope as a matter of inter-resource affectation.[167] But in *Juliana*, the court also considered plaintiffs' claims on constitutional grounds rooted in the US Constitution's Due Process Clause.[168] Because the court

[163] ibid.

[164] ibid 1256. The Ninth Circuit dismissed the plaintiffs' case on appeal for lack of standing (based on redressability grounds) without disturbing the public trust interpretations of the district court. *See Juliana* (n 23) 1169–1175. The plaintiffs have since amended their complaint and the district court has ruled that their case can proceed. *Juliana v United States* No 6:15-cv-01517-AA (District Court of Oregon 2023) (Opinion and Order).

[165] ibid. See also *Foster v Washington Department of Ecology* No 14-2-25295-1 SEA, 2015 WL 7721362 [4] (Superior Court of Washington 2015) (explaining that 'current science makes clear that global warming is impacting the acidification of the oceans to alarming and dangerous levels, thus endangering the bounty of our navigable waters'), abrogated by *Aji P* (n 107). *Luis Armando Tolosa Villabona* [2018] 11001-22-03-000-2018-00319-01 (Supreme Court of Justice of Colombia) (explaining that deforestation in the Amazon leads to rampant emissions of carbon dioxide (CO_2) into the atmosphere, producing the greenhouse gas effect, which in turn transforms and fragments ecosystems, altering water sources and the water supply for population centres).

[166] Section 10.2.2.

[167] Section 10.3.2.

[168] *Juliana District Court* (n 27) 1250–1251.

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determined that public trust rights were implicit in due process,[169] this constitutional grounding provided the court with a catalyst to vindicate plaintiffs' public trust rights. Although the sovereign's public trust duties exist independent of any constitutional recognition, where plaintiffs (and courts) point to a constitutional provision that contemplates the public's right to enforce those duties, such constitutional grounding can act as a vehicle for judicial recognition of public trust rights.

In *Juliana*, the youth plaintiffs argued, in addition to their public trust claims, that numerous government entities were violating plaintiffs' 'substantive due process rights to life, liberty, and property' by deliberately allowing atmospheric carbon dioxide concentrations to reach unprecedented levels.[170] The court agreed, holding that plaintiffs had 'adequately alleged infringement of a fundamental right'.[171] According to the court: 'Where a complaint alleges governmental action is affirmatively and substantially damaging the climate system in a way that will cause human deaths, shorten human lifespans, result in widespread damage to property, threaten human food sources, and dramatically alter the planet's ecosystem, it states a claim for a due process violation.'[172] As the court saw it, 'to hold otherwise would be to say that the Constitution affords no protection against a government's knowing decision to poison the air its citizens breathe or the water its citizens drink'.[173] In other words, these fundamental rights need not be explicitly stated in a constitution to benefit from constitutional protection.

The federal district court proceeded to rule that 'plaintiffs' public trust rights both predated the [US] Constitution and are secured by it, although plaintiffs' right of action to enforce the government's obligations as trustee arises from the Constitution'.[174] The court explained that 'the Due Process Clause's substantive component safeguards fundamental rights that are "implicit" in the concept of ordered liberty' or 'deeply rooted in this Nation's history and tradition'.[175] According to the court, '[p]laintiffs' public trust rights, related as they are to inherent aspects of sovereignty and the consent of the governed from which the United States' authority derives, satisfy both tests'.[176] In other words, the Due Process Clause – and its protection of fundamental rights – acted as a vehicle for the court to consider plaintiffs' fundamental public trust rights.[177]

[169] ibid 1261 ('[P]laintiffs' public trust claims are properly categorized as substantive due process claims').
[170] ibid 1233.
[171] ibid 1250.
[172] ibid.
[173] ibid.
[174] ibid 1260–1261.
[175] ibid 1261 (citing *McDonald v Chicago*, 561 US 742, 761, 767 (2010)).
[176] ibid.
[177] This is not to suggest that the court could not have considered the plaintiffs' public trust claim independent of a constitutional claim.

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10.4 REPLICABILITY

As noted earlier, even in countries where the public trust doctrine is not explicitly enshrined in the legal tradition, constitutional protection to a healthy environment, natural resources, or intergenerational equity, may offer an avenue for courts to apply the principles of the public trust doctrine. Given the protection afforded these rights in constitutions around the world, this feature of emerging best practice appears to be highly replicable.

However, unlike the constitutional recognition framework – an emerging best practice that is well represented in international case law – the inter-resource affectation framework is ripe for further development. The takeaways from *Juliana* and *Aji P* illustrate how plaintiffs and judges can engage in that development.

The *Juliana* court's discussion of substantive due process indicates that where the relevant constitution does not contain express language establishing public rights in or the sovereign's responsibility for air, climate, a healthy environment, or natural resources, the strength of a plaintiff's atmospheric trust claim can rest upon the ties the plaintiff establishes between climate change and traditional public trust resources – that is, upon inter-resource affectation. Although the court in *Aji P* failed to apply the inter-resource affectation framework, it does not foreclose atmospheric trust claims more explicitly rooted in the impairment of traditional public trust resources. Referring to climate change impacts 'on already-recognized public trust resources such as water, shorelines, wildlife, and fish', the Supreme Court of Alaska has recognised that '[a]llegations that the State has breached its duties with regard to the management of these resources do not depend on a declaratory judgment about the atmosphere'.[178] Therefore, a court need not decide that the atmosphere is a public trust resource to consider the effects of climate change on traditional public trust resources under the inter-resource affectation framework.

Had the *Aji P* plaintiffs claimed that greenhouse gases, particularly dissolved carbon dioxide, create higher river and stream temperatures that impair the public's ability to fish and recreate in those waters, the court would have been more likely to see this injury as directly tied to plaintiffs' use of traditional public trust resources. Likewise, the navigability of traditionally navigable waters has been and continues to be threatened by climate change.[179] Because climate change stresses water availability and thereby alters the structure of rivers and streams,[180] a claim of impairment to navigability could bolster an atmospheric trust claim where a plaintiff cannot assist her position with helpful constitutional language. In other words, alleging impairment to navigable waterways as a result of climate change, rather

[178] *Kanuk* (n 33) 1103.
[179] Fox and Allen (n 20).
[180] ibid.

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than alleging impairment to the climate that in turn affects navigable waterways, frames the issue in terms more closely aligned with a limited reading of a narrow state doctrine.

10.5 CONCLUSION

Courts around the world have applied the public trust doctrine to the atmosphere in the context of climate change litigation using two analytical frameworks: constitutional recognition and inter-resource affectation. Under the first framework, constitutional recognition, sovereigns recognise – and courts enforce – the ecological importance of protecting air, climate, a healthy environment, and natural resources based on constitutional language establishing public rights to and the sovereign's duty over such resources. Constitutional recognition is strongest when the relevant constitutional language also speaks to principles of intergenerational equity, an emerging best practice. Under the second framework, inter-resource affectation, courts recognise the inherent ecological ties between navigable waters and other resources. Using this approach, at least one court has held that the atmosphere falls within the public trust doctrine's scope even when the atmosphere is not defined as an asset within the public trust *res*, another emerging best practice.

Judicial invocation of either of the discussed frameworks gives rise to an atmospheric trust that the sovereign must manage in the public interest consistent with trust principles. Once courts recognise the atmosphere as within the scope of the public trust *res*, the sovereign can no longer shirk its fiduciary duty to 'protect the trust property against damage or destruction'[181] by allowing climate change to progress unabated.

[181] *Restatement* (n 32) s 183.

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