

## C O M M E N T

# The Evolution and Influence of International Environmental Norms

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In this Comment, we explore the evolution and influence of international environmental norms. One of the present authors, Prof. Armin Rosencranz, in a 2003 article<sup>1</sup> discussed the origin and emergence of these norms. That article identified 20 norms as either prevailing or rising in the field of environmental law and organized them generally in order of their emergence. In this comprehensive update, we focus on how 16 of these norms have evolved and continued to influence international environmental law. This time, we sequenced the norms in terms of their broad acceptance and impact on the global landscape of 2018.

### Norm One: *Sic Utere Tuo*

The first norm is the ancient Roman maxim *sic utere tuo ut alienum non laedas* (also known as the “no-harm” principle), which means to use one’s property so that the property of others is not damaged.<sup>2</sup> Over the years, this norm has gained traction and the international community has extended its bounds, embracing it in many international treaties and documents.<sup>3</sup> The principle is observed not only in areas under a State’s jurisdiction and control, but also in the global commons, such as Antarctica, outer space,<sup>4</sup> and the high seas.<sup>5</sup>

Both the Stockholm (1972) and the Rio (1992) Declarations mention the no-harm principle. However, the latter adds the words “development policies” to the

wording of the principle. This change has expanded the scope of the obligation to not cause environmental damage to include both developmental policies and national environmental policies.<sup>6</sup>

Further, the principle earlier was restricted to actual harm; however, as can be seen from the World Commission on Environment and Development’s Principles for Environmental Protection and Sustainable Development, the principle is being expanded to impose an obligation to *prevent* significant harm. This extension has given birth to other specific obligations, such as requiring the preparation of environmental impact assessments (EIAs).<sup>7</sup>

The obligations and liability arising from this principle have developed under differing scenarios.<sup>8</sup> The first scenario is similar to the *Trail Smelter* case,<sup>9</sup> where the activities of one country harm its neighbor. In this scenario, the principle would demand the polluting State to compensate the harmed State. The second scenario is where all the countries in a region are the source of pollution of a natural resource (like a river or the sea) and are being harmed by it as well. The principle in these circumstances, instead of imposing penalties on all the countries, would require cooperation among the States.

A third scenario captures global environmental issues, like climate change and ozone depletion. Although every State is contributing to the global issue, several States have—historically and currently—contributed far more than most. As seen from negotiations in the

1. Armin Rosencranz, *The Origin and Emergence of International Environmental Norms*, 26 HASTINGS INT’L & COMP. L. REV. 309 (2003).  
2. BLACK’S LAW DICTIONARY 1690 (7th ed. 1999).  
3. Convention on Long-Range Transboundary Air Pollution, *opened for signature* Nov. 13, 1979, 34 U.S.T. 3041, 1302 U.N.T.S. 217, *available at* <https://www.unece.org/fileadmin/DAM/env/lrtap/full%20text/1979.CLRTAPe.pdf>; Declaration of the United Nations Conference on the Human Environment, U.N. Doc. A/CONF.48/14/Rev.1 (1972); RESTATEMENT (THIRD) OF THE FOREIGN RELATIONS LAW OF THE UNITED STATES (1986).  
4. Convention on International Liability for Damage Caused by Space Objects, *opened for signature* Mar. 29, 1973, art. 11, 24 U.S.T. 2389, 961 U.N.T.S. 187.  
5. International Convention on Civil Liability for Oil Pollution Damage, Nov. 29, 1969, art. 5, 973 U.N.T.S. 3.

6. PHILIPPE SANDS & JACQUELINE PEEL, PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW (3d ed. 2012), *cited in* T.R. Subramanya & Sharo Prosun Sarker, *Emergence of Principle of Sic Utere Tuo Ut Alienum Non-Laedes in Environmental Law and Its Endorsement by International and National Courts: An Assessment*, 5 KATHMANDU SCH. L. REV. 1 (2017).  
7. Convention on Environmental Impact Assessment in a Transboundary Context, *opened for signature* Feb. 25, 1991, art. 2(1), 1989 U.N.T.S. 309 [hereinafter Convention on EIA]; International Law Commission (ILC), *Draft Articles on Prevention of Transboundary Harm From Hazardous Activities*, 2(2) Y.B. INT’L L. COMMISSION 153 (2001), *available at* [http://legal.un.org/ilc/texts/instruments/english/commentaries/9\\_7\\_2001.pdf](http://legal.un.org/ilc/texts/instruments/english/commentaries/9_7_2001.pdf).  
8. See Sanford E. Gaines, *Taking Responsibility for Transboundary Environmental Effects*, 14 HASTINGS INT’L & COMP. L. REV. 781 (1991).  
9. 3 U.N. Rep. Int’l Arb. Awards 1905 (1941).

climate change realm, it is hard to impose liability on a few States, although the larger contributors can be expected to pay proportionately more to remediate climate disruption.

In domestic law, this norm has been the source of common-law principles of private nuisance and public nuisance. In the United States, in addition to these two principles, the norm has given birth to state-level police power to regulate and remedy harms through filing a lawsuit for nuisance.<sup>10</sup>

## Norm Two: Sustainable Development

The concept of “sustainable development” has been one of the checks against State sovereignty. It has been influential in the “internationalization” of not only environmental issues, but also other issues including poverty, hunger, and equality.<sup>11</sup> The norm has gradually found acceptance at both the international and national levels. For example, the Indian Supreme Court has ruled that sustainable development and intergenerational equity are a part of the Indian Constitution and its Article 21, which guarantees the fundamental right to life and a healthy environment.<sup>12</sup>

This norm that started out as an amorphous concept has over time gained clarity and shape. According to philosophy professor John Martin Gillroy, sustainable development has four substantive and four procedural principles. The four substantive principles are prevention, precaution, the right to equitable development, and the right to use internal resources so as not to harm another State. The four procedural principles are integration of environment and development, concern for future generations and their welfare, common but differentiated responsibilities, and the polluter-pays principle.<sup>13</sup> Many of these eight principles receive separate treatment as norms in this Comment, and sustainable development has either been their source or has taken them under its umbrella.

Traditionally, the norm was mentioned in international agreements relating to the global commons and shared resources, not those that are strictly within the borders of a State. For instance, the International Law Commission’s (ILC’s) draft articles on aquifers are restricted to transboundary aquifers.<sup>14</sup> However, with the emergence

of global issues like ozone depletion and climate change, the international community, through international agreements, has sought to create regulation over the absolute monopoly of the States to use their resources.

The norm in the climate change context translates into three kinds of obligations: (1) conservation of options (i.e., conserving the diversity of natural resources); (2) conservation of quality (i.e., maintaining the quality of the resources as inherited from previous generations); and (3) conservation of access (i.e., “equitable access to the use and benefits of the [resource]”).<sup>15</sup> To effectuate the principle, States can undertake mechanisms such as insurance, EIAs, changes in liability regimes and economic assessments, and mandates for sustainable development.

## Norm Three: The Environment as a Human Right and Constitutional Right

The 1948 Universal Declaration of Human Rights articulates “rights” that have an environmental resonance. Later, several countries recognized the right to a decent or healthful environment in their constitutions, either through amendments or interpretations.<sup>16</sup> Currently, 140 countries have incorporated constitutional guarantees for environmental protection.

This norm has been influential in promoting climate change litigation. Recently, in the Paris Agreement, the international community recognized human rights in the context of climate change for the first time.<sup>17</sup> Currently, countries are taking a step further by recognizing the climate system as a part of their constitutional right to a healthful environment.<sup>18</sup> Some national courts have recognized the right to a healthful environment to include protection against climate disruption.<sup>19</sup>

One ought to link human rights and climate change. The human rights link has been influential in drawing attention to certain vulnerable groups, such as island populations, climate refugees,<sup>20</sup> aboriginal and indigenous

10. JAMES HUFFMAN, *PRIVATE PROPERTY AND THE CONSTITUTION: STATE POWERS, PUBLIC RIGHTS, AND ECONOMIC LIBERTIES* (1st ed. 2013).

11. *Transforming Our World: The 2030 Agenda for Sustainable Development*, G.A. Res. 70/1, U.N. Doc. A/RES/70/1 (2015), available at [http://www.un.org/en/ga/search/view\\_doc.asp?symbol=A/RES/70/1](http://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/70/1).

12. *Vellore Citizens' Welfare Forum v. Union of India* (1996) 5 S.C.C. 647.

13. John Martin Gillroy, *Adjudication Norms, Dispute Settlement Regimes, and International Tribunals: The Status of “Environmental Sustainability” in International Jurisprudence*, 42 STAN. J. INT’L L. 1, 13 (2006), cited in Luis A. Avilés, *Sustainable Development and the Legal Protection of the Environment in Europe*, 12(3) SUSTAINABLE DEV. L. & POL’Y 29 (2012), available at <http://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1536&context=sdlp>.

14. ILC, *Draft Articles on the Law of Transboundary Aquifers*, 2(2) Y.B. INT’L L. COMMISSION 16 (2008).

15. Edith Brown Weiss, *Climate Change, Intergenerational Equity, and International Law*, 9 VT. J. ENVTL. L. 615 (2008).

16. David R. Boyd, *The Constitutional Right to a Healthy Environment*, 54 ENVIRONMENT 3 (2012), available at <https://www.tandfonline.com/doi/full/10.1080/00139157.2012.691392>.

17. *Paris Agreement*, UNFCCC, 21st Sess., pmbL, U.N. Doc. FCCC/CP/2015/10/Add.1 (2016).

18. *Greenpeace Nordic Ass’n & Nature & Youth v. Norway Ministry of Petroleum & Energy*, (2016) No. 16-166674TVI-OTIR/06, [http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/non-us-case-documents/2018/20180104\\_16-166674TVI-OTIR06\\_judgment-2.pdf](http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/non-us-case-documents/2018/20180104_16-166674TVI-OTIR06_judgment-2.pdf); *Ridhima Pandey v. Union of India* (National Green Tribunal) (pending), [http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/non-us-case-documents/2017/20170325\\_Original-Application-No.-\\_\\_\\_\\_of-2017\\_petition-1.pdf](http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/non-us-case-documents/2017/20170325_Original-Application-No.-____of-2017_petition-1.pdf).

19. *Juliana v. United States*, 217 F. Supp. 3d 1224, 46 ELR 20072 (D. Or. 2016).

20. See CHRISTIAN GAHRE, NORWEGIAN REFUGEE COUNCIL, THE NANSSEN CONFERENCE: CLIMATE CHANGE AND DISPLACEMENT IN THE 21ST CENTURY (2011), available at <http://www.unhcr.org/4ea969729.pdf>.

peoples,<sup>21</sup> and women and children.<sup>22</sup> Adopting a human rights approach will ensure that policymaking and implementation will be guided by the minimum human rights standards at the national and international levels.

### Norm Four: The Public Trust Doctrine

The public trust norm recognizes that the public is the owner of certain resources and they are being held by the government for the public's benefit. Courts have created the doctrine to secure natural resources for present and future generations. It has been adopted either by the legislature<sup>23</sup> or the judiciary. Courts have held that the doctrine is inherently flexible, allows for expansion, and must not remain fixed.<sup>24</sup> This norm has been influential in encouraging governments to take positive action to protect assets that are held in trust for the people.

Over time, the ambit of the doctrine has been extended to other resources: for instance, in American jurisprudence, it has been expanded from tidal and navigable waters and their beds and banks to public parks and beaches.<sup>25</sup> Per the principle, with respect to transboundary assets like the ocean and air, all sovereigns with jurisdiction over natural assets are “co-tenant trustees.”<sup>26</sup> In such a scenario, the co-tenant trustees have an obligation to maintain the asset.

Legal scholars<sup>27</sup> and petitioners in climate change litigation<sup>28</sup> have argued for an extension of the doctrine to the atmosphere as well (atmospheric trust) to further the climate change agenda and compel governments to protect the atmosphere. In the noteworthy (pending) case *Juliana v. United States*, the petitioners have argued that the U.S. government has violated its duty to refrain from substantial impairment of the nation's airshed and atmosphere by allowing dangerous levels of carbon dioxide (CO<sub>2</sub>) to build up in the atmosphere. The doctrine has similarly been relied upon in national courts of India<sup>29</sup> and Pakistan.<sup>30</sup>

However, some courts have rejected the applicability of the doctrine to the atmosphere. In *Chernaik v. Brown*,<sup>31</sup> an Oregon state court reasoned that, unlike traditional resources falling under the protection of the doctrine, the atmosphere is not a “commodity” that can be sold or traded,<sup>32</sup> and does not share the same concern of being “exhaustible and irreplaceable.”<sup>33</sup> Another U.S. state court held that, despite the non-applicability of the doctrine to the atmosphere, the state can be required to take action on the basis of harm to navigable waters due to climate change.<sup>34</sup>

### Norm Five: State Sovereignty

Increasingly, the traditional sovereign power of States to control the activities and resources within their jurisdiction is being challenged. Matters relating to transboundary and global environmental problems have challenged the traditional notions of the State, and the way treaties address them.<sup>35</sup>

The influence of this norm can be seen from four broad categories of environmental issues: domestic environmental issues, common concerns issues, transboundary assets, and global commons. With respect to the first category (i.e., domestic environmental issues that do not harm another State or the commons), such issues are handled exclusively by States and they have the sovereign right to do so.

The international law governing the second category (i.e., common concerns issues) is an example of how sovereignty is being diluted. Although such assets, including forests and species, are located within the territory of a State, the international community has a concern regarding their sustenance. The Convention on Biological Diversity<sup>36</sup> is one such instrument that seeks to protect these assets. Although the Convention recognizes the sovereign right of States to exploit resources in accordance with their environmental policies, it seeks to protect biological diversity. The attempts to regulate these assets might be met with tough resistance by States. For instance, Brazil continues to assert its right to develop the Amazon forests and prevent “internationalization” of forests.

The third category (i.e., transboundary assets) covers resources, pollution, or living organisms that can move from one state to another due to natural forces or through

21. See Victoria Tauli-Corpuz & Aqpaluk Lynge, *Impact of Climate Change Mitigation Measures on Indigenous Peoples and on Their Territories and Lands*, U.N. Doc. E/CN.19/2008/10 (2008), available at [http://dag.un.org/bitstream/handle/11176/269775/E\\_CN.19\\_2008\\_10-EN.pdf?sequence=3&isAllowed=y](http://dag.un.org/bitstream/handle/11176/269775/E_CN.19_2008_10-EN.pdf?sequence=3&isAllowed=y).

22. See *Establishment of a Gender Action Plan*, Decision-/CP.23 (2017), available at [https://unfccc.int/sites/default/files/cp23\\_auv\\_gender.pdf](https://unfccc.int/sites/default/files/cp23_auv_gender.pdf).

23. PA. CONST. art. I, §27; HAW. CONST. art. XI, §1; LA. CONST. art. IX, §1.

24. Kassandra Castillo, *Climate Change & the Public Trust Doctrine: An Analysis of Atmospheric Trust Litigation*, 6 SAN DIEGO J. CLIMATE & ENERGY L. 221 (2015).

25. CHRIS WOLD ET AL., *CLIMATE CHANGE AND THE LAW* (2d ed. 2009).

26. Mary Christina Wood, *Advancing the Sovereign Trust of Government to Safeguard the Environment for Present and Future Generations (Part I): Ecological Realism and the Need for a Paradigm Shift*, 39 ENVTL. L. 43 (2003).

27. *Id.*

28. *Juliana v. United States*, No. 6:15-cv-1517 (D. Or. filed Aug. 12, 2015) (pending).

29. Ridhima Pandey v. Union of India (National Green Tribunal) (pending), [http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/non-us-case-documents/2017/20170325\\_Original-Application-No.-\\_\\_\\_\\_-of-2017-petition-1.pdf](http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/non-us-case-documents/2017/20170325_Original-Application-No.-____-of-2017-petition-1.pdf).

30. Leghari v. Federation of Pakistan, (2015) W.P. No. 25501, para. 7 (Lahore High Court Green Bench), [https://elaw.org/system/files/pk.leghari.090415\\_0.pdf](https://elaw.org/system/files/pk.leghari.090415_0.pdf); see also Rabab Ali v. Federation of Pakistan, (2016) Constitutional Petition No. I of 2016 (Supreme Court), <https://web.law.columbia.edu/sites/default/files/microsites/climate-change/files/>

Resources/Non-US-Climate-Change-Litigation-Chart/pakistanyouthclimatepetition.pdf.

31. No. 16-11-09273 (Or. Cir. Ct. May 11, 2015), [http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/case-documents/2015/20150511\\_docket-No.-16-11-09273\\_opinion-and-order.pdf](http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/case-documents/2015/20150511_docket-No.-16-11-09273_opinion-and-order.pdf).

32. *Id.* at 11.

33. *Id.* at 12.

34. *Foster v. Washington Dept of Ecology*, No. 14-2-25295-1, 45 ELR 20223 (Wash. Super. Ct. Nov. 19, 2015), [https://static1.squarespace.com/static/571d109b04426270152febe0/t/57607fe459827eb8741a852c/1465941993492/15.11.19.Order\\_FosterV.Ecology.pdf](https://static1.squarespace.com/static/571d109b04426270152febe0/t/57607fe459827eb8741a852c/1465941993492/15.11.19.Order_FosterV.Ecology.pdf).

35. William R. Moomaw, *International Environmental Policy and the Softening of Sovereignty*, 21 FLETCHER F. WORLD AFF. 7 (1997).

36. Convention on Biological Diversity, *opened for signature* June 5, 1992, 1760 U.N.T.S. 79 [hereinafter CBD].

trade. The law governing these issues has been discussed above in Norm One.

The fourth category (i.e., global commons) includes the non-territorial sea, outer space, Antarctica, the atmosphere, and the climate. On one end of the spectrum, with respect to the sea, the United Nations Convention on the Law of the Sea (UNCLOS) extended the sovereign rights of the States to 200 nautical miles offshore and declared all the areas beyond that as “common heritage of mankind” (discussed in the following section). In contrast to UNCLOS, the Outer Space Treaty (OST) rejects “national appropriation [of outer space including the moon and other celestial bodies] by claim of sovereignty, by means of use or occupation, or by any other means.”<sup>37</sup> The Antarctic Treaty has frozen the sovereign claims over Antarctica and prohibited any additional claims.<sup>38</sup>

At the national level, a few subnational governments and entities in federal countries enjoy “limited sovereignty.” For instance, the Indian Constitution divides the legislative powers among three lists: the union list, state list, and concurrent list.<sup>39</sup> Since “water” falls under the state list, the Central Government cannot enact measures relating to issues such as protection of groundwater.<sup>40</sup> On certain occasions, this exclusionary effect can become a hurdle to the comprehensive formulation of policies.

## Norm Six: Common Heritage of Mankind

The common heritage of mankind (CHM) has had broad consequences in the parts of the global commons where it has been applied. This norm has been crucial for protection of global assets and evolution of other broad principles that are enforced to guide States’ actions.

The CHM has both negative and positive elements. While the former requires that States not engage in an appropriation of the global commons as a part of sovereignty,<sup>41</sup> the latter requires setting up of an international body to regulate resources of the global commons. For instance, UNCLOS provides for setting up the International Seabed Authority to administer the resources of the “Area.”<sup>42</sup> Similarly, the Moon Treaty mandates the Parties to establish an “international regime,”

“to govern the exploitation of the natural resources of the Moon.”<sup>43</sup> Further, the CHM mandates the peaceful use of the global commons and mandates its protection,<sup>44</sup> with equal participation of the States.<sup>45</sup>

Because of the above-mentioned considerations, the international community seems to be skeptical about incorporating the CHM into the legal instruments governing other global commons, especially climate change instruments. Since the restrictions imposed on intra-State industries for mitigating climate change might be large and the components might lead to substantial incursions into any State’s sovereignty, the United Nations Framework Convention on Climate Change (UNFCCC)<sup>46</sup> and the Convention on Biological Diversity<sup>47</sup> use an undefined and vaguer phrase—“common concern of humankind.”

## Norm Seven: Active Role of Civil Society and Nongovernmental Organizations

In the past few decades, civil society has influenced international environmental politics. Nongovernmental organizations (NGOs) have played an especially active role in the formation of soft law like the World Charter for Nature, the Rio Declaration, and other universal principles that will impact future agreements and treaties. NGOs have also contributed to the implementation of treaties, for instance acting as “third-party enforcers” in implementation of the Montreal Protocol (also called “soft enforcement”). The NGOs can submit a noncompliance issue to the Implementation Committee, which in turn would report the matter to the meeting of the Parties.

During the initial stages of negotiations of the Kyoto Protocol, members of civil society protested against their governments. They gathered information on and drew attention to the issue of climate change. The NGOs formed a group called the Climate Action Network in 1989 to coordinate their activities and influence treaty negotiations. Presently, the UNFCCC,<sup>48</sup> Kyoto Protocol,<sup>49</sup> and Paris Agreement<sup>50</sup> each allow NGOs to be represented at sessions of the Conference of Parties as observers.

At the national level, even after conclusion of the climate change agreements, NGOs and other activist groups have increasingly approached their courts seeking action by government to protect nations from the harsh impacts of climate change. By March 2017, climate change cases had been filed in 25 countries (including the European Union

37. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *opened for signature* Jan. 27, 1967, art. II., 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter OST].

38. The Antarctic Treaty, Dec. 1, 1959, 12 U.S.T. 794, 402 U.N.T.S. 71.

39. INDIA CONST. 7th sched.

40. *Id.* entry 17, State List.

41. United Nations Convention on the Law of the Sea, *opened for signature* Dec. 10, 1982, art. 137, 1833 U.N.T.S. 3 [hereinafter UNCLOS], available at [http://www.un.org/Depts/los/convention\\_agreements/convention\\_overview\\_convention.htm](http://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm) (last updated Mar. 28, 2018); *Declaration of Principles Governing the Sea-Bed and the Ocean Floor, and the Subsoil Thereof, Beyond the Limits of National Jurisdiction*, G.A. Res. 2749/25, para. 3, U.N. Doc. A/RES/25/2749 (1970), available at <http://www.un-documents.net/a25r2749.htm>; Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, *opened for signature* Dec. 18, 1979, art. 11(2), 1363 U.N.T.S. 21 [hereinafter Moon Treaty].

42. UNCLOS, *supra* note 41, arts. 156, 157.

43. Moon Treaty, *supra* note 41, art. 11.

44. UNCLOS, *supra* note 41, art. 141; Moon Treaty, *supra* note 41, art. 3.

45. UNCLOS, *supra* note 41, art. 148; Moon Treaty, *supra* note 41, pmbl.

46. United Nations Framework Convention on Climate Change, *opened for signature* June 4, 1992, pmbl., S. TREATY DOC. NO. 102-38, 1771 U.N.T.S. 107 [hereinafter UNFCCC].

47. CBD, *supra* note 36.

48. UNFCCC, *supra* note 46.

49. Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 11, 1997, arts. 14(4), 13(4), 2303 U.N.T.S. 162.

50. Paris Agreement, *supra* note 17, art. 16(8).

(EU)), with 654 cases filed in the United States and more than 230 cases filed in all other countries in total.<sup>51</sup>

## Norm Eight: The Polluter-Pays Principle

The eighth norm, the polluter-pays principle, has been influential in holding polluters accountable and internalizing the costs of pollution, thereby preventing society at large from bearing its costs. The foremost question that arises is: who is a “polluter”? The traditional approach regards it as “an operator who has already caused a certain environmental damage.” Over time, the definition has been broadened to include even those operators whose activities are likely to cause, but have not yet caused, an environmental risk.<sup>52</sup> In these cases, the operators are often asked to prepare EIAs or take preventative measures, among other actions. Recently, the principle has been further extended to include customers of the products that cause pollution.<sup>53</sup> This is pertinent to climate change, where environmentalists have been demanding that governments remove subsidies on fossil fuels and internalize the costs of the products that contribute to climate change.

In EU Directive 2004/35/CE, the principle has been relied upon to justify imposing on the operator the cost of preventative and remedial measures employed by the operator itself, the cost of risk and/or damage assessment, and the cost of preventative measures that have failed to be implemented through the fault of the operator.<sup>54</sup>

The principle has also been the basis of imposing liability in tort. In India, courts have modified *Rylands v. Fletcher*’s traditional holding of “strict liability” into “absolute liability.”<sup>55</sup> Absolute liability imposes liability on the distributor of hazardous substances without any of the exceptions (e.g., sabotage) that the defendants could claim under the strict liability regime.

In climate change litigation, one of the major hurdles for petitioners who argue for the polluter-pays principle is the requirement of a causal link between the pollution and the polluter. The causal link between a specific defendant’s actions, the rise in CO<sub>2</sub> levels, and the rise in global temperatures has been hard to prove.<sup>56</sup> While this

causality has been accepted in a few cases,<sup>57</sup> it has usually been rejected.<sup>58</sup>

## Norm Nine: Environmental Impact Assessment

This norm has been widely adopted around the world and has been influential in dealing with transboundary issues. Today, EIA is widely used as a compulsory part of the due diligence to be conducted before starting infrastructure or natural resource extraction projects. The International Court of Justice (ICJ) has ruled that international law does not prescribe the scope and content of an EIA. Consequently, it is up to every State to decide those for itself.<sup>59</sup>

EIA is based on “dispersed enforcement.”<sup>60</sup> Some national courts have given an expansive interpretation to their domestic EIA laws to incorporate impacts of the projects on the climate system.<sup>61</sup> Since national environmental agencies are often overburdened, with limited financial and human capacity and political capital, EIAs have been influential in offering an alternate mode of enforcing environmental policies, for example citizen suits seeking to remedy unsatisfactory EIAs.<sup>62</sup> EIAs can be a useful source for a government to inquire into and document a project’s carbon footprint. They can prove beneficial to project developers as they afford reasonable flexibility to project developers to innovate, come up with new solutions to counter environmental consequences, improve a project’s reputation, gain the local community’s support, and increase the resilience of projects to the impacts of climate change.<sup>63</sup>

Critics of EIA argue that the costs of an EIA outweigh the benefits accrued in terms of reduction of carbon or other environmental impacts. The dispersed enforcement can be uneven, “with lawsuits reflecting parochial concerns rather than a coherent regulatory agenda.”<sup>64</sup> Further, it is often hard to monitor the effectiveness of an EIA’s mitigation strategy.

51. U.N. ENVIRONMENT, THE STATUS OF CLIMATE CHANGE LITIGATION: A GLOBAL REVIEW 10 (2017), available at <http://columbiaclimatelaw.com/files/2017/05/Burger-Gundlach-2017-05-UN-Env-CC-Litigation.pdf>.

52. Anisia-Teodora Doniga, *The Polluter Pays Principle*, 2016 LAW ANNALS TITU MAIORESCU U. 79 (2016).

53. *Id.*

54. Commission Directive 2004/35/CE on Environmental Liability With Regard to the Prevention and Remedying of Environmental Damage, 2004 O.J. (L 143/56), available at <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32004L0035&from=EN>.

55. M.C. Mehta v. Kamal Nath (1997) 1 S.C.C. 388; Vellore Citizens’ Welfare Forum v. Union of India (1996) 5 S.C.C. 647; *Rylands v. Fletcher*, L.R. 3 H.L. 330 (1868).

56. David A. Grossman, *Warming Up to a Not-So-Radical Idea*, 28 COLUM. J. ENVTL. L. 22-25 (2003), cited in WOLD ET AL., *supra* note 25.

57. *Massachusetts v. Environmental Prot. Agency*, 549 U.S. 497, 37 ELR 20075 (2007); *Urgenda Found./State of the Netherlands, Rechtbank Den Haag* [Hague District Court], 24 June 2015, C/09/456689, HA ZA 13-1396.

58. *Amigos Bravos v. Bureau of Land Mgmt.*, 816 F. Supp. 2d 1118, 41 ELR 20261 (D.N.M. 2011).

59. *Pulp Mills on the River Uruguay (Arg. v. Uru.)*, 2010 I.C.J. I, para. 205; *Construction of a Road in Costa Rica Along the San Juan River (Nicar. v. Costa Rica)*, 2013 I.C.J. 184, para. 104.

60. Dave Owen, *Climate Change and Environmental Assessment Law*, 33(1) COLUM. J. ENVTL. L. 57 (2008), available at <https://ssrn.com/abstract=1029196>.

61. *EarthLife Afr. Johannesburg v. Minister of Env’tl. Affairs & Others*, 2006 No. 65662/16 (S. Afr.), <http://climatecasechart.com/non-us-case/4463/> (last visited Nov. 11, 2018); *Gray v. Minister for Planning* (2006) N.S.W.L.E.C. 720 (Austl.), [https://elaw.org/system/files/Gray%20v.%20Minister%20of%20Planning\\_0.pdf](https://elaw.org/system/files/Gray%20v.%20Minister%20of%20Planning_0.pdf); *Trustees for the Time Being of the Groundwork Trust v. Minister of Env’tl.*, No. 61561/17 (S. Afr.) (pending).

62. Owen, *supra* note 60, at 105.

63. JENNIFER MCGUINN ET AL., EUROPEAN COMMISSION, GUIDANCE ON INTEGRATING CLIMATE CHANGE AND BIODIVERSITY INTO ENVIRONMENTAL IMPACT ASSESSMENT (2013), available at <http://ec.europa.eu/environment/eia/pdf/EIA%20Guidance.pdf>.

64. Owen, *supra* note 60, at 107.

## Norm Ten: Common but Differentiated Responsibilities

“Common but differentiated responsibilities” (CBDR) has gained currency in international law and has been influential in resolving North-South conflict in environmental treaties, especially the ones relating to the ozone layer and climate change.

The word “common” relates to issues (like climate change and ozone depletion) that have affected or will affect the world at large. The word “differentiated” creates problems of interpretation of the principle.<sup>65</sup> The principle has yielded distinctions in treaties (especially environmental treaties) among States for the purposes of compliance with substantive obligations, elongating the compliance period, allowing special defenses to treaty obligations, or providing support in the form of resources.<sup>66</sup> For instance, the Montreal Protocol on Substances That Deplete the Ozone Layer<sup>67</sup> recognizes the “special situation” of certain developing countries and extends their deadline for complying with treaty obligations.

The principle has been embraced in all the climate change agreements—the UNFCCC,<sup>68</sup> Kyoto Protocol,<sup>69</sup> and Paris Agreement.<sup>70</sup> The UNFCCC directs the developed nations to take the lead in tackling climate change and its effects. It further requires consideration of “specific needs and special circumstances of developing country parties . . . that would have to bear a disproportionate or abnormal burden under the Convention.”<sup>71</sup> It further subjects all of its Parties’ Article 4 commitments, such as developing and publishing inventories, formulating climate change mitigation strategies, and promoting the preservation of carbon sinks, to CBDR.

Likewise, the Kyoto Protocol under the aegis of CBDR subjects only the developed nations (Annex I Parties) to a mandatory reduction of carbon. Even under the Paris Agreement, the Parties must formulate their nationally determined contributions (NDCs) and “long-term low greenhouse gas emission development strategies” with an eye toward the principle.<sup>72</sup>

Critics have argued that this principle is ambiguous and ineffective in reality. As the principle is backward-looking, it focuses on past emissions and fails to account for future emissions of the developing countries.<sup>73</sup> The practical result of the principle is that major emitters like India and China are left out of the scope of substantive requirements, and that it fails to distinguish between these rapidly growing

economies and the least-developed nations.<sup>74</sup> Their exclusion makes it harder to realize the goals set out in the agreements. One pressing need is to reimagine the principle to provide for effective and meaningful participation by the developing countries.

## Norm Eleven: The Precautionary Principle

The precautionary principle is likely one of the most controversial principles in international environmental law. There have been disagreements regarding the status of the precautionary principle—whether it is mere soft law, customary international law, or a general principle of international law. Some authors have tried to make a distinction between the “precautionary approach” and “precautionary principle,” assuming that the former entails less obligation than the latter. This can be seen from the separate opinion of Judge Edward Laing in the *Southern Bluefin Tuna* case, where he ruled that the precautionary principle, if adopted as an approach, would lend flexibility to environmental policy.<sup>75</sup>

The principle has played a crucial role in drafting of the UNFCCC and has been incorporated into it.<sup>76</sup> The Second Assessment Report of the Intergovernmental Panel on Climate Change, noting the uncertainties regarding the levels of dangerous anthropogenic carbon and the steps that must be taken, states, “Uncertainty does not mean that . . . the world community cannot position itself better to cope with the broad range of possible climate changes. . . .”<sup>77</sup> Over time, as scientific uncertainties on the causes and effects of climate change have gotten clearer, the role of the principle on this front has decreased.

Over time, stronger models of the principle have been developed. Kenisha Garnett and David Parsons found three models: weak, moderate, and strong.<sup>78</sup> The weak model, as seen in the Rio Declaration, aims at avoiding “serious and irreversible damage.” It focuses on “risk management” and may require action if there are reasonable grounds for possible and severe risk. The moderate model (e.g., the EU Commission’s Communication on Precautionary Principle) requires the regulation to be proportional to the level of risk to avoid “potentially dangerous effects.” The far end of the spectrum, the strong model (e.g., Wingspread Statement<sup>79</sup>), not only aims to avoid “threats of harm,” but

65. Christopher D. Stone, *Common but Differentiated Responsibilities in International Law*, 98 AM. J. INT’L L. 276 (2004).

66. *Id.* at 277-78.

67. Montreal Protocol on Substances That Deplete the Ozone Layer, Aug. 26, 1987, S. TREATY DOC. NO. 100-10, 1522 U.N.T.S. 3.

68. UNFCCC, *supra* note 46, pmb., arts. 3.1, 4.1.

69. Kyoto Protocol, *supra* note 49, art. 10.

70. Paris Agreement, *supra* note 17, arts. 2.2, 4.3, 4.19.

71. UNFCCC, *supra* note 46, art. 3.2.

72. Paris Agreement, *supra* note 17, arts. 4.3, 4.19.

73. *Id.*

74. Mary J. Bortscheller, *Equitable but Ineffective: How the Principle of Common but Differentiated Responsibilities Hobbles the Global Fight Against Climate Change*, 10 SUSTAINABLE DEV. L. & POL’Y 49, 51 (2010).

75. Southern Bluefin Tuna (N.Z. v. Japan), Provisional Measures, 38 I.L.M. 1624 (International Tribunal for the Law of the Sea 1999).

76. UNFCCC, *supra* note 46, art. 3.

77. Rabbi Elamparo Deloso, *The Precautionary Principle: Relevance in International Law and Climate Change* (2005) (Master’s in International Environmental Science thesis, Lund University), [https://www.lumes.lu.se/sites/lumes.lu.se/files/rabbi\\_deloso.pdf](https://www.lumes.lu.se/sites/lumes.lu.se/files/rabbi_deloso.pdf).

78. Kenisha Garnett & David J. Parsons, *Multi-Case Review of the Application of the Precautionary Principle in European Union Law and Case Law*, 37(3) RISK ANALYSIS 502 (2017), available at <https://onlinelibrary.wiley.com/doi/full/10.1111/risa.12633>.

79. *Wingspread Conference on the Precautionary Principle*, SEHN, Jan. 26, 1998, <http://www.sehn.org/wing.html>.

also reverses the burden of proof onto the proponent of a project to prove it is safe. It leans toward “risk prevention,” and uncertainty itself can be a ground for prohibition even without strong evidence of harm.

Versions of the precautionary principle have been accepted in various domestic legal systems such as the United States,<sup>80</sup> Germany,<sup>81</sup> Scandinavian countries (Denmark, Norway, Sweden),<sup>82</sup> South Africa,<sup>83</sup> New Zealand,<sup>84</sup> India,<sup>85</sup> and other countries.<sup>86</sup>

## Norm Twelve: Notification, Monitoring, Consulting, Reporting, and Disclosure

This norm works hand-in-hand with EIA to avoid, minimize, and mitigate environmental and social risks through practical, project-level implementation. The norm has been adopted in existing treaties<sup>87</sup> and the ILC’s draft articles on various topics.<sup>88</sup> These obligations maintain a delicate balance between States’ sovereign right to exploit their resources and the obligation to not cause transboundary harm to another State. Starting from the *Corfu Channel* case,<sup>89</sup> the obligation to notify and consult has been crucial for dealing with issues of transboundary harm. Further, this norm truly internationalizes the domestic “right to know” or “right to information” laws.<sup>90</sup>

This norm has been influential in enforcing substantive obligations in environmental treaties. The ICJ in the *Pulp Mills* case acknowledged the “functional link” between procedural and substantive obligations in international

environmental law.<sup>91</sup> For instance, the OST provides that if a State believes that its activities are likely to harm the activities of another State on the moon or any other celestial body, it would have to engage in international consultations before proceeding with the activity.<sup>92</sup> This procedural obligation supports substantive obligations, like *sic utere tuo* and the other parts of the OST such as the freedom granted to all States to explore, use, and have access to the celestial bodies.<sup>93</sup>

Obligations arising out of this norm are also essential in upholding the integrity of the global commons and other shared resources. For instance, both the Antarctic Treaty and the OST oblige the Parties to disclose information regarding their activities in the Antarctic and outer space to ensure transparency and sharing of the benefits of the global commons.

This norm also forms the base of the Paris Agreement. The Parties, every five years, are required to “periodically take stock of the implementation of [the] Agreement to assess the collective progress towards achieving the purpose of [the] Agreement and its long-term goals” (called “global stocktake”) and disclose it to the international community. The stocktake has both backward-looking (reference made to “implementation”) and forward-looking (by assisting the Parties in increasing their ambitions) components.

## Norm Thirteen: Subsidiarity

Subsidiarity advocates taking action at the lowest appropriate level of governance, whether it involves local ownership, local political authority, or local economic self-reliance.<sup>94</sup> Many federal systems regard subsidiarity as a “constitutional” principle, subject to judicial review and enforcement. The principle was embraced in the Treaty on European Union to reconcile two visions of the EU: first, as a network of independent sovereign nations, and second, “constitutionally enshrined allocation of powers across multiple levels of government.”<sup>95</sup> The substantive impact of the norm was that the EU enacted fewer environmental laws and the ones that were enacted gave more discretion to Members, affording more sovereignty to the States.

In the climate change context, *prima facie*, the global nature of climate change seems antithetical to the idea of “local” control. While the contribution of a single city or town might seem negligible, it is important to look at them as a collective.<sup>96</sup> In many States, local governments control

80. *Reserve Mining v. Environmental Prot. Agency*, 514 F.2d 492, 5 ELR 20596 (8th Cir. 1975); *Ethyl Corp. v. Environmental Prot. Agency*, 541 F.2d 1, 6 ELR 20267 (D.C. Cir. 1976).

81. Agne Sirinskiene, *The Status of Precautionary Principle: Moving Towards a Rule of Customary Law*, 4 JURISPRUDENCE 349 (2009), available at <https://www.mruni.eu/upload/iblock/b27/20sirinskiene.pdf>.

82. IMPLEMENTING THE PRECAUTIONARY PRINCIPLE: APPROACHES FROM THE NORDIC COUNTRIES, EU, AND USA (Nicolas De Sadeleer ed., 2007), cited in *id.*

83. National Environmental Management Act, 1998, Act No. 107, §2(4)(a) (vii), <http://www.kruger2canyons.org/029%20-%20NEMA.pdf>.

84. Fisheries Act, 1996, Act No. 88, §10, <http://www.legislation.govt.nz/act/public/1996/0088/latest/DLM394192.html> (last visited Nov. 11, 2018); Hazardous Substances and New Organisms Act, 1996, Act No. 30, §7, [http://www.legislation.govt.nz/act/public/1996/0030/latest/DLM381222.html?search=ts\\_act%40bill%40regulation%40deemedreg\\_Hazardous\\_resel\\_25\\_a&p=1](http://www.legislation.govt.nz/act/public/1996/0030/latest/DLM381222.html?search=ts_act%40bill%40regulation%40deemedreg_Hazardous_resel_25_a&p=1) (last visited Nov. 11, 2018); Bleakley v. Environmental Risk Mgmt. Auth. [2001] 3 N.Z.L.R. 213; LINDA CAMERON, NEW ZEALAND TREASURY, POLICY PERSPECTIVES PAPER 06/06, ENVIRONMENTAL RISK MANAGEMENT IN NEW ZEALAND—IS THERE SCOPE TO APPLY A MORE GENERIC FRAMEWORK? 15-18 (2006), available at <https://treasury.govt.nz/sites/default/files/2007-09/tpp06-06.pdf>.

85. *Vellore Citizens' Welfare Forum v. Union of India & Ors* (1996) 7 S.C.C. 375; *M.C. Mehta v. Kamal Nath* (1997) 1 S.C.C. 388; *AP Pollution Control Bd. v. M.V. Nayudu*, A.I.R. 1999 S.C. 812; *Narmada Bachao Andolan v. Union of India*, A.I.R. 2000 S.C. 3751.

86. Sirinskiene, *supra* note 81.

87. Convention on EIA, *supra* note 7, art. 3, para. 2; Convention on the Transboundary Effects of Industrial Accidents, Mar. 17, 1992, art. 3, 31 I.L.M. 1330.

88. ILC, *supra* note 7; ILC, *supra* note 14.

89. *Corfu Channel Case* (U.K. v. Alb.), 1949 I.C.J. 244.

90. Rosencranz, *supra* note 1, at 316.

91. Scott Barrett, *The Incredible Economics of Geoengineering*, 39 ENVTL. & RESOURCE ECON. 45-54 (2008), available at <http://www.homepages.ed.ac.uk/shs/Climatechange/Geo-politics/Scott%20barrett.pdf>.

92. OST, *supra* note 37, art. IX.

93. *Id.* art. I.

94. See generally INTERNATIONAL FORUM ON GLOBALIZATION, ALTERNATIVES TO ECONOMIC GLOBALIZATION 60-61 (2002).

95. Treaty on European Union (Consolidated Version), Treaty of Maastricht, Feb. 7, 1992, art. 3b, 2002 O.J. (C 325/5), <http://www.refworld.org/docid/3ae6b39218.html> (last visited Nov. 11, 2018).

96. Katherine A. Trisolini, *All Hands on Deck: Local Governments and the Potential for Bidirectional Climate Change Regulation*, 62 STAN. L. REV. 669 (2010), cited in WOLD ET AL., *supra* note 25.

and regulate norms related to construction, zoning, and waste. Local governments can impose effective policies relating to the mandatory use of carbon-saving technology, fuel consumption, reduction in vehicle miles travelled by changing city plans, promotion of waste recycling, and steps to control methane emissions from landfills.

The working of the principle can also be seen in California's legislation—the Sustainable Communities and Climate Protection Act of 2008 (S.B. 375).<sup>97</sup> The legislation mandates that every metropolitan planning organization draft its own sustainable communities strategy (SCS). An SCS identifies areas that are sufficient to house the population of a region, identify the transportation network, and forecast the development of the region. With the adoption of SCS, California is embracing the subsidiarity norm. The local governments have always been better equipped to handle town/city planning.

### Norm Fourteen: Respecting International Environmental Treaties

Taken together, this norm and the “domestic enforcement” norm (Norm Fifteen) require the States to honor environmental treaties, even if the obligations mentioned therein are de jure or de facto unenforceable. Because of political and economic factors, there has been a shift toward soft law and milder obligations,<sup>98</sup> especially in international climate change law,<sup>99</sup> thereby making enforcement at the international level irrelevant. Often, international treaties involve high contracting costs, require great effort at arriving at a consensus, and take a longer time to conclude and enforce. Soft laws are easier to form and flexible in nature, with fewer demands on a State's sovereignty.

The shift from hard to softer environmental laws can be seen in the climate change context. While the Kyoto Protocol had stringent caps on developed nations' emissions, the Paris Agreement lacks such provisions. Rather, the Paris Agreement adopts a hybrid of hard and soft law,<sup>100</sup> and intends to set up a “non-intrusive” and “non-punitive” system for administering compliance with the Agreement.<sup>101</sup> It merely mandates NDCs in light of the goals and principles mentioned therein. It is imperative for States to act in good faith and to respect the treaties into which they enter.

### Norm Fifteen: Domestic Enforcement

This norm has gained importance in recent times. With the increase in soft law and lax enforcement mechanisms in the treaties, as evidenced in climate change law, this norm can hold the key to successful implementation of the environmental agenda. At present, every year, climate change litigation in many countries is increasing.<sup>102</sup> One of the reasons could be the “mutually reinforcing national and international legal developments, such as the Paris Agreement and national legislation adopted in pursuit of commitments announced in pre-Agreement INDCs [intended nationally determined contributions] and post-Agreement NDCs.”<sup>103</sup>

Petitioners/claimants often make use of constitutional rights and doctrines, international law, and common law. International treaties are often litigated either through direct application<sup>104</sup> (i.e., the courts implement international law even when it has not been implemented entirely by the executive or legislature), or consistent application<sup>105</sup> (i.e., the courts interpret domestic law in consonance with international law).<sup>106</sup>

When petitioning the courts, petitioners/claimants often face problems with proving justiciability, establishing sources of climate obligations, and obtaining remedies.<sup>107</sup> For instance, in the case *Amigos Bravos v. Bureau of Land Management*,<sup>108</sup> the court denied jurisdiction, as the plaintiff's injury from climate change was not “fairly traceable” to the defendant's actions. The issues of injury and causation beg the question as to whether “injury to all is an injury to none.” Courts, when confronted with such petitions, might regard the issue as “political” and dismiss the suit.<sup>109</sup>

### Norm Sixteen: Consent

The international legal idea of consent presently takes significance in two specific areas in international law. First, prior informed consent is required before one State exports certain wastes, substances, or products to another.<sup>110</sup> The second area of international law is the rights of indigenous peoples and the actions affecting them.<sup>111</sup> Moreover, as States explore and use geoengineering as a mechanism to mitigate and cope with climate change and

97. California Air Resources Board, *Sustainable Communities*, <https://www.arb.ca.gov/cc/sb375/sb375.htm> (last visited Nov. 11, 2018).

98. ROBERT E. SCOTT & PAUL B. STEPHAN, *THE LIMITS OF LEVIATHAN: CONTRACT THEORY AND THE ENFORCEMENT OF INTERNATIONAL LAW* (2006), cited in Esmeralda Colombo, *Enforcing International Climate Change Law in Domestic Courts: A New Trend of Cases for Boosting Principle 10 of the Rio Declaration*, 35 UCLA J. ENVTL. L. & POL'Y 98 (2017).

99. Antto Vihma, *Analyzing Soft Law and Hard Law in Climate Change*, in CLIMATE CHANGE AND THE LAW 160 (Erkki Hollo et al. eds., Springer 2013), cited in Colombo, *supra* note 98.

100. Lauriane Wolfe et al., *Climate Governance After the Paris Agreement Workshop Report*, GGI 1 (2016).

101. *Paris Agreement*, *supra* note 17, art. 13.

102. U.N. ENVIRONMENT, *supra* note 51.

103. *Id.* at 26.

104. See, e.g., S. AFR. CONST. art. 39.

105. See, e.g., INDIA CONST. art. 51.

106. Colombo, *supra* note 98.

107. U.N. ENVIRONMENT, *supra* note 51, at 27.

108. 816 F. Supp. 2d 1118, 41 ELR 20261 (D.N.M. 2011).

109. *Native Vill. of Kivalina v. ExxonMobil Corp.*, 696 F.3d 849, 42 ELR 20195 (9th Cir. 2012); see also *Connecticut v. American Elec. Power Co.*, 564 U.S. 410 (2011).

110. See Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, Sept. 10, 1998, 2244 U.N.T.S. 337.

111. *United Nations Declaration on the Rights of Indigenous Peoples*, G.A. Res. 61/295, U.N. Doc. A/RES/61/295 (2007).

its effects, the influence of this norm is bound to increase. Such measures might include ocean fertilizing,<sup>112</sup> cloud albedo enhancement,<sup>113</sup> and use of sulfate aerosols,<sup>114</sup> among other techniques.

Critics have argued that before a State or the international community proceeds with geoengineering, they must look out for unknown and unintended consequences.<sup>115</sup> Such methods might be unethical and divert attention from the main agenda of reducing anthropogenic carbon emissions. If the techniques are adopted and later abandoned, the impact on the climate system would be quick and drastic, giving us no time to even adapt to them. Hence, if a State undertakes geoengineering and fails at it, the impact would be felt at the global level.

It is imperative for a State to obtain consent from the international community at large before adopting such measures. Currently, there are a few international mechanisms, like the Convention on Biological Diversity,<sup>116</sup> that might control the use of geoengineering methods. Some scholars have called for a separate convention on geoengineering and amendment of the UNFCCC to carefully explore its possibilities.<sup>117</sup>

## Conclusion

This Comment has attempted to trace the evolution and influence of several crucial norms in the field of environmental law. With the new environmental challenges, several norms have emerged, the content for a few of them has changed over time, and some norms have even become redundant (or less important).

Currently, climate change has been the most challenging issue to deal with. The struggle to continue with current jurisprudence on the one hand, and forcing governments to act by changing the content of the norms on the other, can be seen in the national courts. For instance, a few courts have tried to increase the ambit of the public trust doctrine to include atmosphere. The courts have loosened the strings of other principles like the polluter-pays principle that earlier required strict standards of causality.

112. This involves increasing the amount of iron at the bottom of the ocean to promote the growth of algae. The algae would then absorb the carbon.

113. The process involves increasing the number of clouds ("cloud seeding") over the ocean to reflect the sun's rays, thereby reducing the amount of heat captured by the earth.

114. The process involves releasing sulfates into the atmosphere, which would then decrease the earth's temperature.

115. Marlos Goes et al., *The Economics (or Lack Thereof) of Aerosol Geoengineering*, 109 CLIMATIC CHANGE 719 (2011), available at [www.aoml.noaa.gov/phod/docs/Goes\\_etal\\_2011.pdf](http://www.aoml.noaa.gov/phod/docs/Goes_etal_2011.pdf).

116. CBD, *supra* note 36.

117. Barrett, *supra* note 91.