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# SURVEYING THE PRECAUTIONARY PRINCIPLE'S ONGOING GLOBAL DEVELOPMENT: THE EVOLUTION OF AN EMERGENT ENVIRONMENTAL MANAGEMENT TOOL

SCOTT LAFRANCHI\*

**Abstract:** The precautionary principle, which many trace back to German regulations promulgated in the early 1970s, has developed into an important environmental management tool. Its inclusion in numerous international treaties and agreements over the past seventeen years confirms its significance. Beyond international treaties, many foreign governments have explored the application of the precautionary principle to their own decisionmaking procedures. For instance, the precautionary principle has been the central focus of judicial decisions in Australia, Canada, and India. Despite this growing global acceptance and implementation of the precautionary principle, the United States has remained adamantly opposed to its introduction into domestic policy. This Note focuses on international application or non-application of the precautionary principle in order to better understand the United States' current opposition. Ultimately, this comparative analysis should clarify, which, if any, governmental avenue will prove most effective in laying the foundation for implementation of the precautionary principle in this country.

## INTRODUCTION

A wealth of recent discourse has focused on an emergent environmental management tool: the precautionary principle.<sup>1</sup> Simply stated, the precautionary principle stands for the idea that inaction is preferable to action in circumstances where taking action could result in serious or irreversible harm.<sup>2</sup> Although this proposition appears to

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<sup>1</sup> See, e.g., PERSPECTIVES ON THE PRECAUTIONARY PRINCIPLE (Ronnie Harding & Elizabeth Fisher eds., 1999) [hereinafter PERSPECTIVES].

<sup>2</sup> See Ronnie Harding & Elizabeth Fisher, *Introducing the Precautionary Principle*, in PERSPECTIVES, *supra* note 1, at 2, 2-3.

make logical sense—a syllogism of sorts—the United States has yet to incorporate the precautionary principle into its environmental law or policy.<sup>3</sup> While the actual application of the precautionary principle is much more complicated than the simplistic definition offered above suggests, the United States' rejection of the precautionary principle deserves critical analysis and attention, especially in light of the principle's recent and overwhelming emergence onto the international environmental law scene.<sup>4</sup>

In order to better understand the United States' antipathy toward the precautionary principle, one must first understand the implications associated with its adoption.<sup>5</sup> Despite the United States' hesitancy to adopt or support the precautionary principle,<sup>6</sup> one finds a plethora of foreign case law providing valuable insight into the causes and effects of adhering to, or rejecting, the precautionary principle.<sup>7</sup> Specifically, Australia, Canada, and India have each produced illustrative cases addressing the application of this emergent environmental management tool.<sup>8</sup> These foreign cases provide a valuable background upon which to view the United States' current opposition to the precautionary principle.<sup>9</sup> Furthermore, these cases may forecast future prospects for the precautionary principle in the United States, especially when considered in conjunction with recent domestic developments concerning the precautionary principle.<sup>10</sup>

In examining the past, present, and future roles of the precautionary principle in U.S. environmental law and policy, this Note will first detail the origin and subsequent development of the principle. Next, the Note will elucidate the principle by examining its inclusion in numerous international treaties and agreements. The Note then summarizes foreign case law addressing issues specifically related to

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<sup>3</sup> See, e.g., John D. Graham, *The Perils of the Precautionary Principle: Lessons from the American and European Experience*, Heritage Lectures (Oct. 20, 2003), in *HERITAGE LECTURES* 1, 4 (Jan. 15, 2004), <http://www.heritage.org/Research/Regulation/loader.cfm?url=/commonspot/security/getfile.cfm&PageID=54513>.

<sup>4</sup> See *id.*

<sup>5</sup> See *id.*

<sup>6</sup> See *id.*

<sup>7</sup> See, e.g., *Leatch v. Nat'l Parks & Wildlife Serv.* (1993) 81 L.G.E.R.A. 270, 282–87 (Land & Env't Ct. of N.S.W.); *W. Can. Wilderness Comm. v. British Columbia* (Ministry of Forests, S. Island Forest Dist.), [2003] 15 B.C.L.R.4th 229, 246–48 (B.C. Ct. App.).

<sup>8</sup> *Leatch*, 81 L.G.E.R.A. at 282–87; *W. Can. Wilderness Comm.*, 15 B.C.L.R.4th at 229, 246–48; *Mehta v. Union of India*, (2002) 2 S.C.R. 963, 968–69, 972 (India).

<sup>9</sup> See Graham, *supra* note 3, at 4.

<sup>10</sup> See, e.g., Proposed Bulletin on Peer Review and Information Quality, 68 Fed. Reg. 54,023 (proposed Sept. 15, 2003) [hereinafter Proposed Bulletin]; see also *infra* Parts III–V.

the precautionary principle. Finally, the Note breaks the foreign cases into component parts and compares them to their U.S. analogues. In this section, the Note looks to the relationship between the precautionary principle and judicial, administrative, and legislative policy, with the intent of determining which governmental body will prove most effective in influencing adoption of the precautionary principle as an environmental management tool.

## I. UNDERSTANDING THE PRECAUTIONARY PRINCIPLE

### A. *The Birth and Development of the Precautionary Principle*

The widespread international use and development of the precautionary principle speaks directly to the growing global concern over the negative health and environmental implications flowing from human activity.<sup>11</sup> The United States, however, has been hesitant to adopt, implement, or enforce any of the numerous current manifestations of the precautionary principle.<sup>12</sup> This hesitancy on the part of the United States has added to the overall confusion and controversy surrounding application of the precautionary principle;<sup>13</sup> yet this widely unknown and misunderstood principle has had a long and rich history, with roots reaching almost as far back as the environmental movement itself.<sup>14</sup>

In the early 1970s, Germany initiated the development of an air pollution control concept known as *Vorsorgeprinzip*.<sup>15</sup> Many consider the German development of *Vorsorgeprinzip* to signify the true creation of the precautionary principle, in light of the attention it focuses on “long term planning to avoid damage to the environment, early detection of dangers to health and environment through comprehensive research, and acting in advance of conclusive scientific evidence of harm.”<sup>16</sup> The precautionary foundation of *Vorsorgeprinzip* has been described as an “action principle” that holds public authorities responsible for protecting the natural foundations of life and preserving the physical world for the present and future generations, and

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<sup>11</sup> See Harding & Fisher, *supra* note 2, at 2–3.

<sup>12</sup> See ZYGMUNT J.B. PLATER ET AL., ENVIRONMENTAL LAW AND POLICY: NATURE, LAW, AND SOCIETY 1268 (4th ed. 2004); Graham, *supra* note 3, at 2, 4.

<sup>13</sup> See Ronnie Harding & Elizabeth Fisher, *Preface* to PERSPECTIVES, *supra* note 1, at v, vi.

<sup>14</sup> See Harding & Fisher, *supra* note 2, at 4. The modern environmental movement can be traced back to developments in the 1960s. See PLATER, *supra* note 12, at 44.

<sup>15</sup> See Harding & Fisher, *supra* note 2, at 4.

<sup>16</sup> *Id.*

“can therefore be used to counter the short-termism endemic in all democratic, consumption oriented societies.”<sup>17</sup> Despite development of the *Vorsorgeprinzip* concept in the 1970s, the precautionary principle itself did not gain widespread international recognition until the 1980s.<sup>18</sup> In 1982, an early version of the precautionary principle was adopted by the United Nations in its General Assembly Resolution on the World Charter for Nature.<sup>19</sup> While the Resolution did not specifically incorporate the precautionary principle by name, Principle 11 did include two directives that have become fundamental to the modern concept of precaution:

- (1) Activities which are likely to cause irreversible damage to nature shall be avoided;
- (2) Activities which are likely to pose a significant risk to nature shall be preceded by an exhaustive examination, their proponents shall demonstrate that expected benefits outweigh potential damage to nature, and where potential adverse effects are not fully understood, the activities should not proceed.<sup>20</sup>

Of particular interest, Principle 11 incorporated both the theories of irreversible damage and scientific uncertainty.<sup>21</sup> In 1987, five years after the drafting of the World Charter for Nature, the represented parties to the London Declaration of the Second International North Sea Conference gave explicit reference to a precautionary approach.<sup>22</sup> In pertinent part, the declaration stated that marine ecosystems should be safeguarded with the best available technology, “even where there is no scientific evidence to prove a causal link between emissions and effects.”<sup>23</sup> Although this international agreement dealt entirely with sea pollutants deemed to be dangerous substances,<sup>24</sup> its drafting and subsequent ratification marks the beginning of wide-

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<sup>17</sup> Sonja Boehmer-Christiansen, *The Precautionary Principle in Germany—Enabling Government*, in INTERPRETING THE PRECAUTIONARY PRINCIPLE 31, 38, 55 (Tim O’Riordan & James Cameron eds., 1994).

<sup>18</sup> Harding & Fisher, *supra* note 2, at 5.

<sup>19</sup> See U.N. General Assembly Resolution on the World Charter for Nature, G.A. Res. 317/7, U.N. GAOR, 37th Sess., Supp. No. 51, at 17, U.N. Doc. A/37/51 (1983).

<sup>20</sup> *Id.*

<sup>21</sup> *Id.*

<sup>22</sup> Second International Conference on the Protection of the North Sea: Ministerial Declaration Calling for Reduction of Pollution, Nov. 24–25, 1987, 27 I.L.M. 835, 848.

<sup>23</sup> *Id.*

<sup>24</sup> *Id.*

spread international acceptance and employment of the precautionary principle.<sup>25</sup>

### B. *Emergence of the Precautionary Principle in International Agreements*

Since 1987, several international treaties and agreements have included some form of the precautionary principle.<sup>26</sup> These international instruments have addressed a broad spectrum of environmental issues, ranging from general environmental policy to precise issues of environmental concern.<sup>27</sup> Moreover, both soft and hard law instruments have embraced the precautionary principle, meaning that both binding and nonbinding instruments have endorsed a precautionary approach.<sup>28</sup> While this Note will not discuss questions concerning the implementation or efficacy of these international instruments, a general examination into the inclusion of the precautionary principle in these international instruments will ultimately help to clarify how this environmental management tool may be applied to various environmental and health concerns.<sup>29</sup>

### 1. Nonbinding International Agreements

Reflecting the growing global interest in, and acceptance of, the precautionary principle, many of the nonbinding international agreements, declarations, and recommendations drafted in the early 1990s included provisions promoting the precautionary principle.<sup>30</sup> The Houston Economic Summit Declaration, arising from the 1990 G-7 meeting, stated in part, “in the face of threats of irreversible environmental damage, lack of full scientific certainty is no excuse to postpone

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<sup>25</sup> See James Cameron, *The Precautionary Principle: Core Meaning, Constitutional Framework and Procedures for Implementation*, in PERSPECTIVES, *supra* note 1, at 29, 29–30.

<sup>26</sup> See, e.g., United Nations Framework Convention on Climate Change, *adopted* May 9, 1992, art. 3, pt. 3, 1771 U.N.T.S. 165, 170, 31 I.L.M. 849, 854 (entered into force Mar. 21, 1994) (addressing role of precaution in abatement of climate change).

<sup>27</sup> See *id.*; United Nations Conference on Environment and Development: Rio Declaration on Environment and Development, *adopted* June 14, 1992, U.N. Doc. A/Conf151/5/Rev.1, 31 I.L.M. 874, 879 [hereinafter Rio Declaration] (addressing need for precautionary approach in general protection of environment).

<sup>28</sup> David A. Wirth, *Precaution in International Environmental Policy and United States Law and Practice*, 10 N. AM. ENVTL. L. & POL'Y 221, 227–28 (2003).

<sup>29</sup> See *infra* Part I.B.1–2.

<sup>30</sup> See Wirth, *supra* note 28, at 228–30.

actions which are justified in their own right.”<sup>31</sup> In the same year, the European States, Canada, and the United States also addressed the importance of a precautionary approach in environmental policy in the Bergen Ministerial Declaration on Sustainable Development in the Economic Commission for Europe Region.<sup>32</sup> In relevant part the Bergen Declaration provides as follows:

In order to achieve sustainable development, policies must be based on the precautionary principle. Environmental measures must anticipate, prevent and attack the causes of environmental degradation. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.<sup>33</sup>

It is important to note that the Bergen Declaration includes a distinctively different approach from that of the Houston Declaration.<sup>34</sup> First, the Bergen Declaration—unlike the Houston Declaration—expressly emphasizes the importance of environmental protection by including an instruction to “anticipate, prevent and attack the causes of environmental degradation.”<sup>35</sup> Furthermore, the Bergen Declaration intentionally expanded the scope of the precautionary principle by focusing not only on the threat of “irreversible damage” as an indicator that the principle should apply, but also on the threat of serious damage.<sup>36</sup> The Bergen Declaration served as the forerunner to the creation of the Rio Declaration on Environment and Development in 1992, a nonbinding recommendation adopted by the United Nations Conference on Environment and Development (UNCED), in which over a hundred heads of state and government participated.<sup>37</sup> In reference to the precautionary principle, Principle 15 of the Rio Declaration states: “In order to protect the environment,

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<sup>31</sup> Houston Economic Summit Declaration, 26 WEEKLY COMP. PRES. DOC. 1064, 1070 (July 11, 1990), available at <http://www.g8.utoronto.ca/summit/1990houston/communique/environment.html> [hereinafter Houston Declaration].

<sup>32</sup> Bergen Ministerial Declaration on Sustainable Development in the Economic Commission for Europe Region, May 16, 1990, U.N. Doc. A/CONF.151/PC/10 (1990), reprinted in 20 ENVTL. POL’Y & L. 100, para. 7 [hereinafter Bergen Declaration].

<sup>33</sup> *Id.*

<sup>34</sup> *Id.*; Houston Declaration, *supra* note 31, at 1070.

<sup>35</sup> Bergen Declaration, *supra* note 32, at para. 7; see Houston Declaration, *supra* note 31, at 1070.

<sup>36</sup> Bergen Declaration, *supra* note 32, at para. 7.

<sup>37</sup> See Wirth, *supra* note 28, at 228.

the precautionary approach shall be widely applied by States according to their capabilities. Where 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.”<sup>38</sup>

Significant aspects of the precautionary approach contained in the Rio Declaration include the principle’s broad application, as evidenced by the inclusion of the word “widely” and the introduction of balancing language.<sup>39</sup> Respecting the need for some balancing, the Rio Declaration qualified the application of the precautionary approach dependent on: (1) the capabilities of the State; and (2) the cost-effectiveness of a measure intended to prevent environmental degradation.<sup>40</sup>

## 2. Binding International Treaties

Unlike the “soft,” nonbinding instruments already identified, the following treaties and their relevant sections pertaining to the precautionary principle are, at least in theory, legally enforceable under international law.<sup>41</sup> However, binding obligations resulting from a treaty only apply to states that have become parties to that treaty through the process of ratification.<sup>42</sup> Furthermore, many of the binding treaties tend to be much more particularized in terms of scope and subject matter, and as such do not possess the broad applicability of non-binding instruments.<sup>43</sup> This section will attempt to examine some of the more widely known binding international treaties that have included some form of the precautionary principle.

In 1992, the United Nations adopted the Framework Convention on Climate Change, which in part spoke to the role the precautionary principle should play in attacking the causes of climate change:

The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate

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<sup>38</sup> Rio Declaration, *supra* note 27, at 879.

<sup>39</sup> *See id.*

<sup>40</sup> *Id.*

<sup>41</sup> *See* Wirth, *supra* note 28, at 230.

<sup>42</sup> *See id.*

<sup>43</sup> *See id.*



change should be cost-effective so as to ensure global benefits at the lowest possible cost.<sup>44</sup>

The Framework Convention on Climate Change succinctly captures the evolving nature of the precautionary principle as it emphatically calls for anticipatory action, while at the same time recognizing the importance of cost-benefit analysis.<sup>45</sup> The United Nations also included a precautionary approach in its Convention on Biological Diversity.<sup>46</sup> The preamble to the Convention contains the following reference to precaution: "Noting also that that where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat."<sup>47</sup>

The precautionary principle also found its way into international treaties concerning endangered species, air pollution, and protection of the marine environment.<sup>48</sup> The Convention on International Trade in Endangered Species (CITES) at the Ninth Meeting of the Parties adopted a new listing criteria for endangered species resting primarily on the precautionary principle.<sup>49</sup> Additionally, the Second Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution contains precautionary requirements that mirror those found in the Convention on Climate Change.<sup>50</sup> In comparison, the Aarhus Protocol on Persistent Organic Pollutants to the Convention on Long-Range Transboundary Air Pollution includes the precautionary principle by directly incorporating Principle 15 of the Rio Declaration.<sup>51</sup> Further illustration of the vast applicability of the precautionary principle in international law arises in the area of water pollution and protection of the marine environment.<sup>52</sup> For example, the 1992 Convention for the Protection of the Marine Environment of the North-Atlantic, which replaced the Oslo and Paris Conventions, included the precautionary principle in an effort to minimize the negative effects associated with the introduction of foreign substances or en-

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<sup>44</sup> United Nations Framework Convention on Climate Change, *adopted* May 9, 1992, art. 3, pt. 3, 1771 U.N.T.S. 165, 170, 31 I.L.M. 849, 854 (entered into force Mar. 21, 1994).

<sup>45</sup> *See id.*

<sup>46</sup> United Nations Convention on Biological Diversity, *opened for signature* June 5, 1992, pmbl., 1760 U.N.T.S. 143, 144, 31 I.L.M. 818, 822 (entered into force Dec. 29, 1993).

<sup>47</sup> *Id.*

<sup>48</sup> *See Cameron, supra* note 25, at 32-34.

<sup>49</sup> *Id.*

<sup>50</sup> *Id.*

<sup>51</sup> Wirth, *supra* note 28, at 233.

<sup>52</sup> Cameron, *supra* note 25, at 33.

ergy.<sup>53</sup> Although all of these examples illustrate the broad applicability of the precautionary principle across the entire spectrum of international environmental law, they in no way represent a complete listing of the many instances in which the precautionary principle guides environmental policy and decisionmaking.<sup>54</sup>

## II. GLOBAL APPLICATION OF THE PRECAUTIONARY PRINCIPLE

### A. Australia

In 1993, the Land and Environment Court of New South Wales presented its position with respect to the precautionary principle in the landmark case *Leatch v. National Parks and Wildlife Service*.<sup>55</sup> The case concerned a proposal by the Shoalhaven City Council (Council) to build a new road and bridge over the Bombaderry Creek in New South Wales for the purpose of alleviating existing traffic problems and connecting two nearby expanding residential areas.<sup>56</sup> In order to proceed with the project, the Council had to obtain a license to take or kill endangered fauna as required by the National Parks and Wildlife Act (NPWA).<sup>57</sup>

Relevant sections of the NPWA specify that only the Director-General of the National Parks and Wildlife Service (Service) may grant a take or kill license relating to “threatened” or “vulnerable and rare” fauna for which the Service has granted protected status.<sup>58</sup> In making such determinations, the Director-General is required to take into account all relevant information, including: the factors used to determine whether a species is “threatened” or “vulnerable and rare”; the Service’s justifications for protecting the species; submissions received from interested parties; and a Fauna Impact Statement (FIS),<sup>59</sup> produced to help determine the extent to which proposed actions will harm and affect local wildlife.<sup>60</sup>

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<sup>53</sup> *See id.*

<sup>54</sup> For further examples of the precautionary principle in the international treaty context, see Cameron, *supra* note 25, at 30–34, and Wirth, *supra* note 28, at 230–35.

<sup>55</sup> *See Leatch v. Nat’l Parks & Wildlife Serv.* (1993) 81 L.G.E.R.A. 270, 281–82 (Land & Env’t Ct. of N.S.W.).

<sup>56</sup> *Id.* at 271–72, 274.

<sup>57</sup> *See id.* at 272.

<sup>58</sup> National Parks and Wildlife Act, 1974, § 92A–B. (N.S.W.), *repealed by* Threatened Species Conservation Act, 1995, c.4 (N.S.W.).

<sup>59</sup> *Id.* § 92B.

<sup>60</sup> *Id.* § 92D.

In February of 1993, the Council submitted its FIS to the Service along with an application for a license to take or kill endangered fauna.<sup>61</sup> The Service ultimately found numerous deficiencies with the FIS.<sup>62</sup> Most notably, the FIS failed to take into account the potential impact the proposed project might have on the giant burrowing frog, a protected species.<sup>63</sup> Dissatisfied with these deficiencies, the Service requested additional information from the Council.<sup>64</sup> The new FIS did support the conclusion that the site proposed for the new road and bridge was in fact habitat of an endangered species.<sup>65</sup> However, the Council proposed numerous mitigating factors which it asserted were sufficient to allow Director-General approval of a take or kill license.<sup>66</sup> First, the FIS maintained that the site could not be considered prime habitat for the giant burrowing frog in light of preexisting substantial degradation of the site.<sup>67</sup> Second, the FIS concluded that the long term viability of the affected endangered species was already questionable because the site was isolated from other areas of suitable habitat.<sup>68</sup> Lastly, the FIS stated that “the integrity of the gorge could be protected by a range of ameliorative measures, including an extensive buffer conservation zone.”<sup>69</sup>

The license approval was appealed under section 92C of the NPWA.<sup>70</sup> The NPWA requires the court to take into consideration the same factors the Director-General was required to contemplate in his decision to grant a take or kill license.<sup>71</sup> In addition to the NPWA, the court must also look to the Land and Environment Court Act (LECA) for guidance on appeals of this nature.<sup>72</sup> Initially, LECA dictates that the Land and Environment Court “shall . . . have the functions and discretions which the person or body whose decision is the subject of the appeal,” in this case the Director-General of the Service.<sup>73</sup> Moreover,

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<sup>61</sup> *Leatch*, 81 L.G.E.R.A. at 275.

<sup>62</sup> *Id.* at 275, 276.

<sup>63</sup> *Id.* at 276.

<sup>64</sup> *Id.*

<sup>65</sup> *Id.*

<sup>66</sup> *See id.*

<sup>67</sup> *Leatch*, 81 L.G.E.R.A. at 276.

<sup>68</sup> *Id.*

<sup>69</sup> *Id.*

<sup>70</sup> *Id.* at 271, 280.

<sup>71</sup> National Parks and Wildlife Act, 1974, § 92C (N.S.W.), *repealed by* Threatened Species Conservation Act, 1995, c.4 (N.S.W.).

<sup>72</sup> *See Leatch*, 81 L.G.E.R.A. at 280–81.

<sup>73</sup> Land and Environment Court Act, 1979, § 39(2) (N.S.W.); *Leatch*, 81 L.G.E.R.A. at 272.

the Act defines the appeal process as a “re-hearing” in which either party may add or substitute “fresh evidence.”<sup>74</sup> Lastly, the Act commits the court to consideration of all other relevant Acts or instruments, as well as the circumstances of the case and the public interest.<sup>75</sup>

Upon undertaking the “re-hearing” process, the court in *Leatch* attempted to address the extent to which the precautionary principle should have guided the Director-General’s decision to grant or deny a take or kill license.<sup>76</sup> Initially, the court sought to account for both the domestic and international historical development of the precautionary principle.<sup>77</sup> The following is a brief synopsis of the court’s analysis.

In 1992, Australia passed the Intergovernmental Agreement on the Environment (IGAE).<sup>78</sup> The IGAE establishes the precautionary principle as one consideration that should inform policymaking and program implementation by governmental agencies.<sup>79</sup> The IGAE defines the precautionary principle as a “careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment” and “an assessment of the risk-weighted consequences of various options.”<sup>80</sup> The IGAE also specifies precise areas to which the precautionary approach should apply, including: data collection and handling; resource assessment; land use decisions and approval processes; environmental impact assessment; national environment protection measures; climate change; biological diversity; and national estate, world heritage, and nature conservation.<sup>81</sup> Locally, New South Wales had passed state legislation incorporating the precautionary principle.<sup>82</sup> In the Protection of the Environment Administration Act, the state provided the following form of the precautionary principle: “if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.”<sup>83</sup>

Although some argued that the Director-General must utilize the precautionary principle due to its inclusion in these agreements and statutes, the court ultimately concluded that the principle must be

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<sup>74</sup> Land and Environment Court Act, 1979, § 39(3) (N.S.W.).

<sup>75</sup> *Id.* § 39(4).

<sup>76</sup> *Leatch*, 81 L.G.E.R.A. at 281.

<sup>77</sup> *Id.*

<sup>78</sup> *See id.* at 281–82.

<sup>79</sup> Intergovernmental Agreement on the Environment, 1992, § 3.5 (Austl.).

<sup>80</sup> *Id.* § 3.5.1(i)–(ii).

<sup>81</sup> *Id.* scheds. 1–9.

<sup>82</sup> *Leatch*, 81 L.G.E.R.A. at 281.

<sup>83</sup> Protection of the Environment Administration Act, 1991, § 6(2)(a) (N.S.W.).

applied simply because it is a “statement of commonsense.”<sup>84</sup> Judge Stein wrote:

On behalf of the Director-General, Mr Preston made submissions on the incorporation of the international law into domestic law. It seems to me unnecessary to enter into this debate. In my opinion the precautionary principle is a statement of commonsense and has already been applied by decision-makers in appropriate circumstances prior to the principle being spelt out.<sup>85</sup>

Having established a baseline understanding of the precautionary principle as a “commonsense” approach, the court set out to examine the subject matter, purpose, and scope of the NPWA.<sup>86</sup> In doing so, it concluded that the NPWA established a clear regime of protection and care for endangered fauna.<sup>87</sup> Moreover, the court held that, “[t]o this end the scientific committee (in placing fauna on the endangered list), the Director-General (in determination of a license) and the Court (on appeal) are to have regard, inter alia, to the population, distribution, habitat destruction, and ultimate security of a species.”<sup>88</sup> For these reasons, the court determined that the precautionary principle was not extraneous, but rather “clearly consistent with the subject [matter], scope and purpose” of the NPWA.<sup>89</sup> With this in mind, and having examined the expert testimony offered by both sides regarding the proposed highway’s potential for negative impact on local endangered species, the court ultimately determined that the precautionary principle should have been applied to the Council’s request for a take or kill license.<sup>90</sup> On this point, Judge Stein wrote:

Application of the precautionary principle appears to me to be most apt in a situation of scarcity of scientific knowledge of species population, habitat and impacts . . . . In this situation I am left in doubt as to the population, habitat and behavioural patterns of the giant burrowing frog and am un-

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<sup>84</sup> *Leatch*, 81 L.G.E.R.A. at 281–82.

<sup>85</sup> *Id.* at 282.

<sup>86</sup> *See id.*

<sup>87</sup> *See id.*

<sup>88</sup> *Id.*

<sup>89</sup> *Id.* at 282–83.

<sup>90</sup> *See Leatch*, 81 L.G.E.R.A. at 282–83, 284.

able to conclude with any degree of certainty that a license . . . should be granted.<sup>91</sup>

The court recognized the need for a balancing test in determining whether or not to approve the take or kill licensing requests.<sup>92</sup> The court did not dispute the need for the proposed highway, but it was dissatisfied with the inadequate assessment of alternative routes.<sup>93</sup> The court raised two specific concerns with the Council, which preferred the highway under consideration as compared to a proposed shorter and cheaper northern route on the edges of the Bomaderry Creek area.<sup>94</sup> First, the court was reluctant to label the shorter, cheaper northern route economically unfeasible simply due to concerns that people would choose not to utilize the new highway due to its close proximity to an existing road.<sup>95</sup> Second, the court questioned the Council's decision to forego inclusion of environmental factors in its cost-benefit analysis of the northern route.<sup>96</sup> Ultimately, with the precautionary principle as its baseline, the court rejected the suggestion that the costs of the northern route outweighed its benefits, and found in the alternative, that the benefits of the proposed route outweighed its costs.<sup>97</sup>

### B. *India*

The Indian Supreme Court also found itself deliberating over the precautionary principle due to concerns arising out of a 1986 suit filed by M.C. Mehta, a public interest lawyer, against the government of India.<sup>98</sup> In the suit, Mehta challenged the unhealthy levels of air pollution in Delhi.<sup>99</sup> Although the case dragged on for many years, the Supreme Court of India issued a series of orders resulting in several air pollution improvements, including the introduction of unleaded gasoline, catalytic converters, and low-sulfur diesel fuel.<sup>100</sup> Furthermore, during this time period, a proposal to convert all buses to compressed natural gas (CNG) was issued by a special committee arising out of India's Envi-

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<sup>91</sup> *Id.* at 284.

<sup>92</sup> *Id.* at 285.

<sup>93</sup> *See id.*

<sup>94</sup> *See id.* at 285–86.

<sup>95</sup> *Id.*

<sup>96</sup> *Leatch*, 81 L.G.E.R.A. at 286.

<sup>97</sup> *See id.* at 286–87.

<sup>98</sup> *See Mehta v. Union of India*, (2002) 2 S.C.R. 963, 968–69(India); PLATER, *supra* note 12, at 1274.

<sup>99</sup> PLATER, *supra* note 12, at 1271.

<sup>100</sup> *Mehta*, 2 S.C.R. at 965.

ronment (Protection) Act of 1986 and adopted as a binding directive by the Environmental Pollution (Prevention and Control) Authority.<sup>101</sup> Upon consideration, in 1998 the Indian Supreme Court established a time limit for the conversion of all Delhi buses to CNG.<sup>102</sup>

Despite the court having granted two deadline extensions for CNG conversion, the government failed to convert all buses by January 31, 2002, citing shortages of CNG and the strong potential for disruption to bus service.<sup>103</sup> In response, the court, lacking sympathy and patience, took the extraordinary action of imposing a fine on bus operators of 500 rupees per day per bus operating on diesel fuel.<sup>104</sup> The court also went so far as to permanently remove approximately 1500 diesel buses from the streets of Delhi.<sup>105</sup>

In making this decision, the court relied on sections of the Indian Constitution pertaining to the environment.<sup>106</sup> In relevant part, the Constitution reads: "The State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country."<sup>107</sup> The court also looked to other sections, which were held to individually and collectively "cast a duty on the State to secure the health of the people, improve public health and protect and improve the environment."<sup>108</sup> With these constitutional provisions in mind, the court initially sought to mitigate the government's failure to discharge its constitutional duty to protect the environment and the health of the people by initiating a campaign of requests and orders aimed directly at Delhi's governmental air pollution control and reduction measures.<sup>109</sup> After failing to meet the extended CNG conversion deadline, the court felt compelled to conclude that the Delhi and Indian governments had each actively sought to frustrate the orders of the Court requiring CNG conversion.<sup>110</sup> The court bolstered this argument by drawing attention to the governments' intent to: (1) discredit CNG as a proper fuel

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<sup>101</sup> See *id.* at 966.

<sup>102</sup> *Id.*

<sup>103</sup> See *id.* at 966–67.

<sup>104</sup> See *id.* at 979–80.

<sup>105</sup> *Id.* at 979.

<sup>106</sup> See *Mehra*, 2 S.C.R. at 965.

<sup>107</sup> INDIA CONST. pt. IV, art. 48A.

<sup>108</sup> *Mehra*, 2 S.C.R. at 965. Specifically, the court perceived this duty to be derived from articles 39(e), 47 and 48A. *Id.*

<sup>109</sup> See *id.* at 965–66.

<sup>110</sup> *Id.* at 967.

source; (2) represent CNG as a fuel source in short supply; and, (3) delay the siting of adequate dispensing stations.<sup>111</sup>

The precautionary principle played a central role in the court's determination that the Delhi and Indian governments had continually shirked constitutional obligations to protect the environment, and consequently the health and safety of the people.<sup>112</sup> The Court relied on *Vellore Citizens' Welfare Forum v. Union of India* for a working definition of the precautionary principle.<sup>113</sup> In that case, the Supreme Court of India held the precautionary principle to require that, "[w]here there are threats of serious and irreversible damage, lack of scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation."<sup>114</sup> Additionally, the *Vellore* court held that the actor or developer retained the "[o]nus of proof" to illustrate the environmentally benign nature of the proposed action.<sup>115</sup> Although the court in *Vellore* did not go so far as to require all governmental auto-policy decisions to conform to constitutional principles to the same degree as overriding statutory duties established by the Environmental Pollution (Prevention and Control) Authority, it did require that the precautionary principle be taken into account when determining auto-policy.<sup>116</sup>

With the *Vellore* decision in hand, the court set out in *Mehta* to assess the environmental situation in Delhi.<sup>117</sup> The court held that air pollution "leads to considerable levels of mortality and morbidity."<sup>118</sup> The court particularly focused on the correlation between air pollution and increased rates of cardiovascular and respiratory diseases, especially in children, as well as the carcinogenic nature of Respirable Particulate Matter (RSPM).<sup>119</sup> Having accepted the particularly dangerous nature of fine particulate matter, RSPM-PM10, the court noted that Delhi registers PM10 levels above 150–200 mg/m<sup>3</sup> on an annual basis, whereas India's annual national average of PM10 is sixty mg/m<sup>3</sup>.<sup>120</sup> In response to these findings, it was repeatedly contended on behalf of the

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<sup>111</sup> *Id.*

<sup>112</sup> *See id.* at 969, 972.

<sup>113</sup> *Id.* at 968 (citing *Vellore Citizens' Welfare Forum v. Union of India*, (1996) Supp. 5 S.C.R. 241, 258 (India)).

<sup>114</sup> *Vellore Citizens'*, Supp. 5. S.C.R. at 258.

<sup>115</sup> *Id.*

<sup>116</sup> *See Mehta*, 2 S.C.R. at 968.

<sup>117</sup> *Id.* at 965, 969.

<sup>118</sup> *Id.* at 971.

<sup>119</sup> *Id.* at 971–72.

<sup>120</sup> *Id.*



Indian governments that no other country in the world had ordered the introduction of CNG buses on such a massive scale.<sup>121</sup> Both the state and national governments cited the evolving and experimental nature of CNG technology to support this international hesitancy.<sup>122</sup> Although the court did not contest the limited international use of CNG-fueled buses, it did find it prudent to highlight what it considered a growing global trend toward CNG conversion.<sup>123</sup> Specifically, the court referenced data showing that CNG buses comprised eighteen percent of the current bus orders and twenty-eight percent of potential bus orders in the United States.<sup>124</sup> The court also pointed to increased use and assimilation of CNG-fueled buses in China and South Korea as the countries prepared for the Summer Olympics and World Cup Soccer respectively.<sup>125</sup> The court ultimately held that the precautionary principle should apply to Delhi's air pollution control policy.<sup>126</sup> Consequently, the court imposed substantial fines on the Indian government for the ongoing violation of its constitutional obligation to protect the environment and health of the Indian people.<sup>127</sup>

### C. Canada

The British Columbia Court of Appeals recently found itself grappling with the precautionary principle in *Western Canada Wilderness Committee v. British Columbia (Ministry of Forests, South Island Forest District)*.<sup>128</sup> The appellant, Western Canada Wilderness Committee (WCWC), brought suit to challenge a decision by a Ministry of Forests District Manager (DM), Cindy Stern.<sup>129</sup> Stern had concluded that Cattermole Timber's Forest Development Plan (FDP) concerning proposed logging cutblocks met the requirements of section 41(1) of the Forest Practices Code of British Columbia Act (Code),<sup>130</sup> solely as it

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<sup>121</sup> *Id.* at 977.

<sup>122</sup> *Mehta*, 2 S.C.R. at 977.

<sup>123</sup> *Id.*

<sup>124</sup> *Id.*

<sup>125</sup> *Id.*

<sup>126</sup> *See id.* at 969, 972.

<sup>127</sup> *See id.* at 969, 980–81.

<sup>128</sup> *See W. Can. Wilderness Comm. v. British Columbia (Ministry of Forests, S. Island Forest Dist.)*, [2003] 15 B.C.L.R.4th 229, 246 (B.C. Ct. App.).

<sup>129</sup> *Id.* at 231.

<sup>130</sup> Forest Practices Code of British Columbia Act, R.S.B.C. ch. 159, § 41(1) (1996).

relates to the spotted owl.<sup>131</sup> The chambers judge upheld Stern's decision and the WCWC appealed.<sup>132</sup>

In order to better understand the duties and obligations of Stern as DM, the court first looked to the legislative framework underlying the case.<sup>133</sup> The Ministry of Forests Act (MFA) provides for a dual function for the Ministry of Forests: to encourage, on the one hand, "maximum productivity of the forest" and "vigorous, efficient and world competitive timber processing," and on the other hand, to "manage, protect and conserve the forest."<sup>134</sup> Similarly, the preamble of the Code speaks to the concept of forest sustainability by focusing on both the need for "stewardship . . . based on an ethic of respect for the land" and the balancing of "economic, productive, spiritual, ecological and recreational values of forests to meet the economic, social and cultural needs of peoples and communities."<sup>135</sup> Under the Code, ministers can establish an area of Crown land as a Resource Management Zone (RMZ).<sup>136</sup> The Crown land at issue in this case had previously garnered RMZ status.<sup>137</sup> With respect to Crown land, two levels of planning exist: strategic level planning and operational planning.<sup>138</sup> Section 1 of the Code defines the parameters of operational plans, which must include an FDP.<sup>139</sup> Section 41(1) of the Code requires the DM to determine whether a proposed FDP meets the prescribed content requirements:

The district manager must approve an operational plan or amendments submitted under this Part if:

(a) the plan or amendment was prepared and submitted in accordance with this Act, the regulations and the standards, and

(b) the district manager is satisfied that the plan or amendment will adequately manage and conserve the forest resources of the area to which it applies.<sup>140</sup>

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<sup>131</sup> *W. Can. Wilderness Comm.*, 15 B.C.L.R.4th at 231.

<sup>132</sup> *Id.*

<sup>133</sup> *See id.* at 233.

<sup>134</sup> Ministry and Forest Acts, R.S.B.C., ch. 300, § 4 (1996) (B.C.).

<sup>135</sup> Forest Practices Code of British Columbia Act, R.S.B.C., ch. 159, pmb. (1996).

<sup>136</sup> *Id.* § 3(1).

<sup>137</sup> *W. Can. Wilderness Comm.*, 15 B.C.L.R.4th at 234.

<sup>138</sup> *Id.*

<sup>139</sup> Forest Practices Code of British Columbia Act, § 1.

<sup>140</sup> *Id.* § 41(1).

Pursuant to her section 41(1) duties concerning the FDP prepared by Cattermole Timber, Stern relied on numerous sources of information, including the plight of the spotted owl, which she recognized as an “important forest resource.”<sup>141</sup> The Committee on the Status of Endangered Wildlife in Canada had placed the spotted owl on the endangered species list in 1986.<sup>142</sup> In 1995, the British Columbia government announced its intention to devise a broad-based strategy to manage and protect the spotted owl, relying on various land use and resource management initiatives.<sup>143</sup> Two years later, the provincial government cabinet accepted the end result of this initiative dubbed the Spotted Owl Management Plan (SOMP).<sup>144</sup> The government implemented SOMP in hopes of stabilizing or improving spotted owl populations over the long term, while limiting significant impacts on timber supply and forestry employment in the short term.<sup>145</sup> In 1999, the Ministry of Forests Chief established a Resource Management Plan under the SOMP for the Anderson Creek area, where the contested cutblocks were located.<sup>146</sup> In accordance with SOMP, the director dubbed this land a Special Resource Management Zone (SRMZ).<sup>147</sup>

Having taken all relevant information into consideration, Stern ultimately determined that the FDPs for three of the four proposed cutblocks prepared by Cattermole Timber failed to meet the requirements of section 41(1)(b) of the Code.<sup>148</sup> However, Stern did conclude that the FDP for cutblock 37-1, the smallest cutblock proposed, did satisfy the requirements established by the Code.<sup>149</sup> Cattermole’s proposed utilization of a selective timber harvesting program, aimed toward mitigating negative impacts on spotted owl habitat, played a critical role in Stern’s decision to approve the FDP for the smaller cutblock.<sup>150</sup> In approving cutblock 37-1, Stern concluded that the FDP submitted by Cattermole “adequately managed

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<sup>141</sup> *W. Can. Wilderness Comm.*, 15 B.C.L.R.4th at 235.

<sup>142</sup> *Id.*

<sup>143</sup> *Id.*

<sup>144</sup> *Id.*

<sup>145</sup> *Id.*

<sup>146</sup> *Id.* at 236.

<sup>147</sup> *W. Can. Wilderness Comm.*, 15 B.C.L.R.4th at 236. SRMZs were created to facilitate better integration of spotted owl management within forest management generally. *See id.*

<sup>148</sup> *Id.*

<sup>149</sup> *Id.*

<sup>150</sup> *See id.* at 237.

and conserved the spotted owl as a forest resource.”<sup>151</sup> After hearing WCWC’s appeal of Stern’s decision, the chambers judge—having applied a “patent unreasonableness” standard—ultimately dismissed the WCWC’s petition for judicial review.<sup>152</sup> In making this determination, the chambers judge specifically rejected the WCWC’s contention that Stern had erred in failing to address the precautionary principle in her decisionmaking process.<sup>153</sup>

The court of appeals, in hearing this case, first sought to examine the standard of review question.<sup>154</sup> In doing so, the court rendered two important decisions. First, the court of appeals characterized Stern’s decisionmaking process as “highly fact-driven” and therefore worthy of deference in light of her expertise.<sup>155</sup>

Second, the court of appeals specifically emphasized the mandatory language of section 41(1)(b), which requires that a DM *must* approve an FDP if “the district manager is satisfied that the plan or amendment will adequately manage and conserve the forest resources of the area to which it applies.”<sup>156</sup> The court of appeals, though not subscribing to absolute *carte blanche* on the part of the DM to make determinations based on “whim or irrelevant criteria,” relied on the subjective nature of the test employed in FDP approval considerations to illustrate the “considerable leeway” the legislature must have intended to bestow upon the DMs.<sup>157</sup> Consequently, the court of appeals concluded that the legislature intended the judiciary, absent an error of law, to “apply the most deferential standard of review to the decision of a DM under [section] 41(1)(b), that is, the standard of patent unreasonableness.”<sup>158</sup>

Having determined the proper standard of review, the court of appeals set out to examine the substance of Stern’s approval of Cat-termole’s FDP proposal in order to determine whether her decision satisfied the patent unreasonableness standard.<sup>159</sup> In its appeal, the WCWC contended that section 41(1)(b) of the Code does not allow a

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<sup>151</sup> *Id.*

<sup>152</sup> *See id.*

<sup>153</sup> *W. Can. Wilderness Comm.*, 15 B.C.L.R.4th at 237.

<sup>154</sup> *Id.* at 238.

<sup>155</sup> *Id.* at 240.

<sup>156</sup> *Id.* at 241.

<sup>157</sup> *Id.* (quoting Forest Practices Code of British Columbia Act, R.S.B.C., ch. 159 § 41(1) (1996)).

<sup>158</sup> *See id.* at 241; *see also* *Q v. College of Physicians & Surgeons of B.C.*, [2003] 1 S.C.R. 226, ¶ 26 (Can.).

<sup>159</sup> *W. Can. Wilderness Comm.*, 15 B.C.L.R.4th at 241.

DM to approve of any FDP proposal that would result in additional risk to an endangered species.<sup>160</sup> The WCWC based this supposition in large part on the precautionary principle.<sup>161</sup> The WCWC elaborated on this argument, stating that a precautionary approach mandated a rejection of the FDP for cutblock 37-1, because “Cattermole’s proposed harvesting method was untested . . . the effects of such harvesting in terms of enhancing spotted owl habitat were unknown, and . . . there was an unspecified degree of risk that further harvesting . . . might contribute to extirpation of the spotted owl.”<sup>162</sup> In contrast, Stern and Cattermole argued that the language used in section 41(1)(b) in no way invokes an application of the precautionary principle that would preclude FDP approval of a project proposing “any element of risk to a forest resource, even where the forest resource is an endangered species.”<sup>163</sup> Ultimately, the court of appeals accepted the latter argument, holding that inclusion of the word “adequately” within the statute gives rise to a sense of balancing among all of the factors relating to forest resources, and as such precludes a statutory interpretation that would mandate absolute protection of the spotted owl in the name of precaution.<sup>164</sup>

The court of appeals, however, still sought to determine whether Stern’s decision was patently unreasonable in light of the precautionary principle.<sup>165</sup> Despite acknowledgment of prior case history discussing the applicability of the precautionary principle to environmental administration,<sup>166</sup> the court of appeals not only reiterated its conclusion that the statutory language required balancing and proportionality, but went one step further, finding that the legislature’s failure to incorporate the precautionary principle in any way represented a legislative rejection of its applicability in FDP determinations.<sup>167</sup> The court of appeals bolstered this conclusion by pointing to other legislation which did, in fact, incorporate the precautionary

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<sup>160</sup> *Id.*

<sup>161</sup> *Id.*

<sup>162</sup> *Id.* at 242.

<sup>163</sup> *Id.* (emphasis added).

<sup>164</sup> *Id.* The court bolstered its opinion by identifying legislation that established protected areas for endangered species in which all logging was precluded. *See id.*

<sup>165</sup> *See W. Can. Wilderness Comm.*, 15 B.C.L.R.4th at 246.

<sup>166</sup> *Id.* at 247. The court of appeals looked to *Canada Ltee (Spray-Tech, Societe d’arrosage) v. Hudson(ville)*, in which the majority of the court had concluded that a pesticide by-law had respected the precautionary principle as outlined in the Bergen Ministerial Declaration on Sustainable Development. *Id.*

<sup>167</sup> *See id.* at 247–48.

principle, such as Nova Scotia's Endangered Species Act and the federal government's Canadian Environmental Protection Act.<sup>168</sup> For all of these reasons, the court of appeals refused to find Stern's decision patently unreasonable on any level, but especially in regard to her use, or disuse, of the precautionary principle.<sup>169</sup>

### III. COMPARATIVE ANALYSIS OF THE PRECAUTIONARY PRINCIPLE AND THE ROLE OF THE JUDICIARY

In all three of the previously discussed cases, the judiciary played a key role in either the promotion or the rejection of a precautionary approach.<sup>170</sup> In the *Leach v. National Parks and Wildlife Service* and *Mehta v. Union of India* cases, the courts of Australia and India respectively, took an active role in determining the applicability of the principle.<sup>171</sup> In contrast, the Canadian court in *Western Canada Wilderness Committee v. British Columbia (Ministry of Forests, South Island Forest District)* adopted a more deferential approach, allowing the relevant governmental administrator significant leeway in determining the extent to which the principle should apply.<sup>172</sup> It is important to distinguish the various judicial roles adopted in these foreign cases in order to illuminate the various roles courts in the United States might assume when confronted with cases implicating the precautionary principle.<sup>173</sup> In order to embark on this comparative analysis, however, it is also imperative to gain historical perspective through examination of the role, or roles, U.S. courts have adopted so far when confronted with environmental cases concerning scientific uncertainty and the application of the precautionary principle.<sup>174</sup> For proponents and detractors alike, a comparative analysis of this sort, when equipped with historical perspective, will ultimately lead to increased predictability of the extent to which the U.S. judiciary may utilize its power to promote the precautionary principle.<sup>175</sup>

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<sup>168</sup> *Id.* at 247; see Canadian Environmental Protection Act, S.C. ch. 33, § 2(1)(a) (1999); Endangered Species Act, S.N.S., ch. 11, §§ 2(1)(h), 11(1) (1998) (N.S.).

<sup>169</sup> See *W. Can. Wilderness Comm.*, 15 B.C.L.R.4th at 248.

<sup>170</sup> See *supra* Part II.A–C.

<sup>171</sup> See *supra* Part II.A–B.

<sup>172</sup> See *supra* Part II.C.

<sup>173</sup> See, e.g., Hiram E. Chodosh, *Comparing Comparisons: In Search of Methodology*, 84 IOWA L. REV. 1025, 1027–28 (1999) (discussing advantages of comparative law).

<sup>174</sup> See *infra* Part III.

<sup>175</sup> See *infra* Part III.

Having examined several foreign case studies, an important question arises: why did these judiciaries take markedly different approaches in addressing the extent to which the precautionary principle should apply?<sup>176</sup> One might argue that the obvious and simple explanation is deference, or in other words, the varying degrees to which each court was willing—or not willing—to allow governmental agencies to make their own determinations regarding the precautionary principle.<sup>177</sup> On the surface, an examination of judicial deference may appear superficial; however, in order to recognize the role courts will play in the promotion of the precautionary principle, one must first understand the immense impact deference has had both internationally and domestically.<sup>178</sup> Delving deeper to understand the rationale behind such deference will help to determine whether the U.S. courts will serve as a catalyst or a hindrance in the struggle to promote the precautionary principle.<sup>179</sup>

In *Leatch*, the court clearly took what some might term an “activist approach” in mandating application of the precautionary principle, which he termed “commonsense.”<sup>180</sup> Although proponents of the precautionary principle may rejoice in the court’s lack of deference, his decision, when viewed in isolation, provides little in the form of guidance.<sup>181</sup> However, by viewing his decision amidst the political and statutory backdrop of both Australia and New South Wales at that time, one gains greater perspective regarding what role, if any, judicial activism might play in adoption of the precautionary principle in the United States.<sup>182</sup> Although Judge Stein defined the precautionary principle as “a statement of commonsense,” one may assume that the court based its decision to reverse the Director-General’s granting of a take or kill license on more than just a personal belief in its impor-

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<sup>176</sup> See *supra* Part II.A–C.

<sup>177</sup> See *supra* Part II.A–C.

<sup>178</sup> See generally *Ethyl Corp. v. EPA*, 541 F.2d 1 (D.C. Cir. 1976) (deferring to EPA in its judgment that leaded gasoline satisfied the standards set forth by the Clean Air Act); *W. Can. Wilderness Comm. v. British Columbia (Ministry of Forests, S. Island Forest Dist.)*, [2003] 15 B.C.L.R.4th 229, 248 (B.C. Ct. App.) (deferring to District Manager’s appraisal as to impact of proposed logging on endangered species).

<sup>179</sup> See *supra* Part II.A–C.

<sup>180</sup> *Leatch v. Nat’l Parks & Wildlife Serv.* (1993) 81 L.G.E.R.A. 270, 282 (Land & Env’t Ct. of N.S.W.).

<sup>181</sup> See *id.* at 285–87.

<sup>182</sup> See *id.* at 282–83.

tance and practicability.<sup>183</sup> In fact, two relevant statutes prompted the court to favor precaution in this case.<sup>184</sup>

In *Leatch*, both the NPWA and LECA played an important role in the court's decisionmaking process.<sup>185</sup> LECA had an especially important impact, in that its provisions basically authorized the Land and Environment Court to review the Director-General's decision de novo.<sup>186</sup> These statutes clearly set forth a regime in which deference toward administrative decisionmaking gave way to a powerful and independent judiciary.<sup>187</sup> LECA codifies this reality, reading, "[t]he Court shall, for the purposes of hearing and disposing of an appeal, have all the functions and discretions which the person or body whose decision is the subject of the appeal had in respect of the matter the subject of the appeal."<sup>188</sup> While some credence must be given to the supposition that the court felt less inclined to defer to the Director-General on account of its own high level of expertise as a specialized environmental law court, one might also argue that the court's authority derived from the extraordinarily expansive "re-hearing" process established by LECA influenced the court's decisionmaking process more than any reliance they placed on their own level of expertise.<sup>189</sup> Although Judge Stein emphatically endorsed the precautionary principle as a "commonsense" approach, his reversal of the Director-General's licensing approval could not so easily be termed "commonsense" without the rules promulgated under LECA.<sup>190</sup>

Similarly, the degree of deference adopted by U.S. courts when dealing with administrative review cases has significantly affected, and will continue to affect, the prospects of the precautionary principle in this country.<sup>191</sup> When discussing the precautionary principle in the United States, many point to *Ethyl Corp. v. EPA* as a hallmark of judicial preference for precaution in the face of scientific uncertainty.<sup>192</sup> This characterization fails, however, to properly account for the role

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<sup>183</sup> See *id.* at 282.

<sup>184</sup> See *id.* at 272–73.

<sup>185</sup> See *supra* Part II.A.

<sup>186</sup> See *supra* Part II.A.

<sup>187</sup> See *supra* Part II.A.

<sup>188</sup> Land and Environment Court Act, 1974, § 39(2) (N.S.W.).

<sup>189</sup> See *id.* § 39(3); *Leatch v. Nat'l Parks & Wildlife Serv.* (1993) 81 L.G.E.R.A. 270, 280–81 (Land & Env't Ct. of N.S.W.).

<sup>190</sup> See *Leatch*, 81 L.G.E.R.A. at 282; see also Land and Environment Court Act, § 39(2)–(5).

<sup>191</sup> See *Ethyl Corp. v. EPA*, 541 F.2d 1, 28, 37–38 (D.C. Cir. 1976); *Leatch*, 81 L.G.E.R.A. at 282–83, 286–87.

<sup>192</sup> See PLATER, *supra* note 12, at 268–69.



of deference, which influenced the court's decision much more than any predilection for the precautionary principle.<sup>193</sup> In *Ethyl*, the Circuit Court for the District of Columbia reviewed regulations promulgated by EPA under the Clean Air Act (CAA) designed to implement a system for the phasing out of lead from gasoline.<sup>194</sup> In relevant part, the CAA authorized the Administrator of EPA to regulate fuel or fuel additives if their emissions "will endanger the public health or welfare."<sup>195</sup> Despite the inconclusive nature of the evidence before him, the Administrator concluded that leaded fuel posed a "significant risk of harm to the health of urban populations."<sup>196</sup> Various manufactures of lead additives and gasoline refiners challenged the regulation primarily on the grounds that EPA lacked sound scientific support for its finding of "significant risk," and as such, had promulgated an arbitrary and capricious regulation.<sup>197</sup> The court ultimately rejected the petitioners' claims and sustained the proposed lead reduction program.<sup>198</sup>

While on its face this holding seems to suggest the court favored a precautionary approach, a closer examination of the opinion illustrates that the court relied on deference, not the precautionary principle, in sustaining the regulation.<sup>199</sup> Nowhere in the decision did the court define its duty as that of supporting a precautionary approach in the face of scientific uncertainty.<sup>200</sup> Instead, the court spoke in terms of a "narrowly defined duty" to hold agency action to "certain minimal standards of rationality."<sup>201</sup> The court recognized the precautionary nature of the statute and its "will endanger" standard, but this in no way suggests that the court adopted its own precautionary standard for administrative review involving scientific uncertainty.<sup>202</sup> The court stated, "[w]e need not seek a single dispositive study . . . . Science does not work that way; nor, for that matter, does adjudicatory fact-finding. Rather, the Administrator's decision may be fully supportable if it is based, as it is, on the inconclusive but suggestive results of numerous

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<sup>193</sup> See *Ethyl*, 541 F.2d at 28, 36–38.

<sup>194</sup> *Id.* at 7.

<sup>195</sup> Clean Air Amendments of 1970, Pub. L. 91-604, § 211(c)(1)(A), 84 Stat. 1698, 1698 (current version at 42 U.S.C. § 7545 (2002)).

<sup>196</sup> *Ethyl*, 541 F.2d at 8, 12.

<sup>197</sup> *Id.* at 10–11.

<sup>198</sup> *Id.* at 7.

<sup>199</sup> See *id.* at 28, 36–38.

<sup>200</sup> See *id.*

<sup>201</sup> *Id.* at 36.

<sup>202</sup> *Ethyl*, 541 F.2d at 13.

studies.”<sup>203</sup> The court might very well have sustained a refusal by EPA to regulate leaded fuel so long as some of the evidence suggested a limited correlation between leaded fuel and adverse health impacts.<sup>204</sup> So while it is true that the court upheld EPA’s leaded fuel regulation—a regulation based on precautionary ideals—in actuality the court’s holding was not at all based on the precautionary principle.<sup>205</sup> In declaring EPA’s leaded fuel regulation “rationally justified,” the *Ethyl* court endorsed deference, not precaution, and for this reason the case stands in direct contrast with the active role assumed by the *Leatch* court in endorsing and applying the precautionary principle.<sup>206</sup>

Like *Ethyl*, the court in *Western Canada* also adhered to strict judicial deference in reviewing Stern’s approval of cutblock 37-1.<sup>207</sup> Unlike *Ethyl*, however, the *Western Canada* court actually rejected the precautionary principle in its pursuit of deferential review.<sup>208</sup> The patent unreasonableness standard that the court applied, though phrased in somewhat different terminology, embodies the same deferential role assumed by U.S. courts applying the arbitrary and capricious standard prescribed by the Administrative Procedure Act (APA) for the review of agency decisionmaking.<sup>209</sup> Unlike the court in *Leatch*, which did not hesitate to reject the Director-General’s approval of a take or kill license, the *Western Canada* court, confined by the limits of the patent unreasonableness test, accepted the DM’s determination that the FDP did in fact “adequately manage and conserve” the spotted owl, despite the scientific uncertainty regarding the adverse impacts on the species and its habitat resulting from the proposed logging.<sup>210</sup> Despite clear legislative intent to protect and manage the spotted owl—as outlined in the Spotted Owl Management Plan—the court of appeals, having determined the standard of review to be patent unreasonableness, had no other choice but to uphold the DM’s reading of the Code as requiring

<sup>203</sup> *Id.* at 37–38.

<sup>204</sup> *See id.* at 28, 36–38.

<sup>205</sup> *See id.* at 7, 11, 28, 36–38.

<sup>206</sup> *See id.* at 28; *Leatch v. Nat’l Parks & Wildlife Serv.*, (1995) 81 L.G.E.R.A. 270, 282–83, 286–87 (Land & Env’t Ct. of N.S.W.).

<sup>207</sup> *See Ethyl*, 541 F.2d at 28, 36–38; *W. Can. Wilderness Comm. v. British Columbia (Ministry of Forests, S. Island Forest Dist.)*, [2003] 15 B.C.L.R.4th 229, 246, 248 (B.C. Ct. App.).

<sup>208</sup> *See Ethyl*, 541 F.2d at 13, 28; *W. Can. Wilderness Comm.*, 15 B.C.L.R.4th at 248.

<sup>209</sup> Administrative Procedure Act, 5 U.S.C. § 706(2)(A) (2002); *W. Can. Wilderness Comm.*, 15 B.C.L.R.4th at 248.

<sup>210</sup> *See Leatch*, 81 L.G.E.R.A. at 284; *W. Can. Wilderness Comm.*, 15 B.C.L.R.4th at 241, 248 (emphasis added).

only a balancing test and not a precautionary approach favoring absolute protection of the endangered spotted owl.<sup>211</sup>

Judicial deference in U.S. courts leads to similar outcomes.<sup>212</sup> For example, in *Sierra Club v. Marita*, the Sierra Club sought to enjoin timber harvesting, road construction, and development of wildlife openings in the Chequamegon and Nicolet National Forests located in Wisconsin.<sup>213</sup> The Sierra Club argued that by failing to employ the science of conservation biology—the idea that the viability of biological diversity depends on the preservation of sufficiently large habitat—the United States Forest Service (USFS) breached its duty to consider and promote biological diversity in devising Land and Resource Management Plans (LRMPs).<sup>214</sup> Specifically, the Sierra Club contended that the LRMPs, in providing for the division of “large tracts of forest into a patchwork of different habitats,” would ultimately result in a decrease of biological diversity on account of insufficiently sized habitats.<sup>215</sup> Despite agreeing with the Sierra Club that both the National Environmental Policy Act (NEPA) and the National Forest Management Act (NFMA) required USFS to consider and promote biological diversity, the court would not go so far as to conclude that, in choosing to forgo an approach including conservation biology principles, USFS acted arbitrarily or capriciously.<sup>216</sup>

The overpowering effect of deference presents itself throughout the court’s opinion.<sup>217</sup> Like *Ethyl*, the court couches its review in terms of rationality, stating, “[USFS] is entitled to use its own methodology, unless it is irrational.”<sup>218</sup> Although the plaintiffs provided extensive evidence suggesting the efficacy and reliability of conservation biology—evidence which led the district court to conclude that the principle represented sound ecological theory—the court ultimately could not overlook USFS’s conclusion that conservation biology represented, at best, uncertain science.<sup>219</sup> Relying on USFS’s characterization of conservation biology, the court found itself unable to conclude that it acted “irrationally” in adopting LRMPs completely devoid of practices consistent with conservation biology, and further

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<sup>211</sup> See *W. Can. Wilderness Comm.*, 15 B.C.L.R.4th at 235–36, 242–43, 248.

<sup>212</sup> See, e.g., *Sierra Club v. Marita*, 46 F.3d 606, 624 (7th Cir. 1995).

<sup>213</sup> *Id.* at 608–09.

<sup>214</sup> See *id.* at 608, 610.

<sup>215</sup> See *id.*

<sup>216</sup> See *id.* at 614–16, 620.

<sup>217</sup> See *Marita*, 46 F.3d at 620–21.

<sup>218</sup> *Id.* at 621; *Ethyl Corp. v. EPA*, 541 F.2d 1, 28 (D.C. Cir. 1976).

<sup>219</sup> See *Marita*, 46 F.3d at 621.

held that while “[t]he Sierra Club may have wished [USFS] to analyze diversity in a different way . . . we cannot conclude . . . that [USFS’s] methodology arbitrarily or capriciously neglected the diversity of ecological communities in the two forests.”<sup>220</sup> Like *Western Canada*, the court in this case—guided by deference—declined to use its judicial power to promote and enforce application of the precautionary principle, despite some evidence suggesting biological diversity would be negatively affected contrary to the intent of NEPA and the NFMA.<sup>221</sup>

The judicial deference entrenched in the systems of countries such as Canada and the United States strongly suggests that judiciaries serve as poor advocates for the promotion of the precautionary principle there.<sup>222</sup> For this reason, it is imperative that, short of congressional revision of the APA and its deferential standards of review, proponents of the precautionary principle in the United States must look elsewhere for support in their campaign.<sup>223</sup> Fortunately for them, the judiciary does not monopolize the power and ability to effectuate change in the U.S. political system.<sup>224</sup>

#### IV. COMPARATIVE ANALYSIS OF ADMINISTRATIVE AGENCIES AND PRECAUTIONARY DECISIONMAKING: EFFICACY AND LIMITATIONS

Having established the inherent limitations placed upon the U.S. judicial system when confronted with debates over scientific uncertainty—as signified in the recurring theme of judicial inability to subvert the statutorily enacted deference-based approach to agency review—logic suggests turning instead to the agencies themselves, in order to assess application of the precautionary principle at the source.<sup>225</sup> Examination of the foreign case studies, however, indicates that agencies often fail to incorporate the precautionary principle.<sup>226</sup> Even in *Leatch v. National Parks and Wildlife Services* and *Mehta v. Union of India*, where the precautionary principle prevailed, the catalyst for change was the judiciary, not the particular agency responsible for

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<sup>220</sup> *Id.* at 620–21.

<sup>221</sup> *See id.* at 614–16, 620–21; *W. Can. Wilderness Comm. v. British Columbia (Ministry of Forests, S. Island Forest Dist.)*, [2003] 15 B.C.L.R.4th 229, 248 (B.C. Ct. App.).

<sup>222</sup> *See Marita*, 46 F.3d at 620–21; *W. Can. Wilderness Comm.*, 15 B.C.L.R.4th at 248.

<sup>223</sup> *See* Administrative Procedure Act, 5 U.S.C. § 706(2) (A) (2002).

<sup>224</sup> *See infra* Parts IV–V.

<sup>225</sup> *See supra* Part III.

<sup>226</sup> *See, e.g., Leatch v. Nat’l Parks & Wildlife Serv.* (1993) 81 L.G.E.R.A. 270, 277 (Land & Env’t Ct. of N.S.W.).

decisionmaking.<sup>227</sup> Despite cases like *Ethyl Corp. v. EPA*, which highlight the potential for agency-level adoption of precaution in the face of scientific uncertainty, the U.S. administrative state, like its foreign counterparts, cannot presently be viewed as a plausible advocate for the precautionary principle.<sup>228</sup>

Looking abroad first, the *Leatch* and *Mehta* cases highlight the tendency of administrative agencies to exclude the precautionary principle from their decisionmaking process.<sup>229</sup> In *Leatch*, the Director-General acquiesced to the taking or killing of endangered fauna and approved permits that literally paved the way for the proposed highway.<sup>230</sup> In making his decision, the Director-General gave no weight to the precautionary principle.<sup>231</sup> Instead, he applied a classic cost-benefit analysis that favored acceptance of the proposed highway, regardless of scientific uncertainty and irrespective of the potential for negative impacts on endangered fauna.<sup>232</sup> The Director-General placed extra emphasis on both the “definite need for the road” and the speculative uncertainty of the long-term viability of the local endangered fauna populations, even absent construction of the proposed highway.<sup>233</sup>

The Indian Supreme Court in *Mehta* also found itself confronting administrative reluctance to adopt the precautionary principle.<sup>234</sup> The agency in this case had also applied a cost-benefit analysis to the question of whether CNG-fueled buses should be introduced into urban cities to ameliorate the negative health impacts of alarmingly high air pollution levels.<sup>235</sup> After applying cost-benefit analysis, the agency concluded the introduction of a CNG-fueled bus fleet should not be implemented as a means of reducing inter-urban air pollution on account of the high costs of such a program, including not only the financing of a fuel source deemed to be in “short supply,” but also the societal cost resulting from large scale disruption of bus service.<sup>236</sup> This decision clearly embodies a risk-management approach to envi-

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<sup>227</sup> See *supra* Part II.A–B.

<sup>228</sup> See *supra* Part III; see also Graham, *supra* note 3, at 2,4 (discussing the U.S. government’s current antipathy toward the precautionary principle).

<sup>229</sup> See *supra* Part II.A–B.

<sup>230</sup> See *Leatch*, 81 L.G.E.R.A. at 277.

<sup>231</sup> See *id.*

<sup>232</sup> See *id.*

<sup>233</sup> *Id.*

<sup>234</sup> *Mehta v. Union of India*, (2002) 2 S.C.R. 972, 980 (India).

<sup>235</sup> See *id.* at 971–72, 977.

<sup>236</sup> See *id.* at 966–67.

ronmental health issues, which stands in direct contrast with the precautionary principle, and leads to questions concerning the extent of harm that can or will be tolerated.<sup>237</sup> In comparison to their Australian and Indian counterparts, U.S. agencies have also preferred risk-management and cost-benefit analysis over the precautionary principle as guides for decisionmaking and policy determination.<sup>238</sup> In order to understand the role that agencies may play in the development of the precautionary principle, one must first understand the justification underlying the status quo application of risk management and cost-benefit analysis.<sup>239</sup>

John D. Graham, Ph.D., the Administrator of the Office of Information and Regulatory Affairs (OIRA), a statutory office within the Office of Management and Budget (OMB), recently captured the current preference for risk-management and cost-benefit analysis within administrative decisionmaking in his essay, *The Perils of the Precautionary Principle: Lessons from the American and European Experience*.<sup>240</sup> In the introduction, Graham sets the tone for the essay, and not unintentionally, the governmental debate on precaution and scientific uncertainty, when he declares: “[t]he United States government believes it is important to understand that, notwithstanding the rhetoric of our European colleagues, there is no such thing as the precautionary principle.”<sup>241</sup> Notwithstanding his own rhetoric concerning the precautionary principle, Graham does concede the potential benefits of precaution in general, referring to the concept as “sensible.”<sup>242</sup> Of course, Graham also concludes that the only sensible application of precaution occurs under the rubric of risk management.<sup>243</sup>

Graham perceives a precautionary principle unconstrained and independent of risk-management analysis as a “subjective concept”

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<sup>237</sup> See *id.* at 966–67, 971–72; S.F. DEP’T OF THE ENV’T, WHITE PAPER: THE PRECAUTIONARY PRINCIPLE AND THE CITY AND COUNTY OF SAN FRANCISCO 13 (Mar. 2003), [http://temp.sfgov.org/sfenvironment/aboutus/policy/white\\_paper.pdf](http://temp.sfgov.org/sfenvironment/aboutus/policy/white_paper.pdf).

<sup>238</sup> See Graham, *supra* note 3, at 2.

<sup>239</sup> See *id.*

<sup>240</sup> *Id.* The Office of Information and Regulatory Affairs, which John D. Graham currently heads, was created in 1980 as a subset of the Office of Management and Budget to oversee information submitted by administrative agencies and to review proposed regulations from the same. See OFFICE OF INFO. & REGULATORY AFFAIRS, OIRA Q&A’S: OIRA’S REVIEW OF AGENCY REGULATIONS 1 (Feb. 26, 2002), at [http://www.whitehouse.gov/omb/inforeg/qa\\_2-25-02.pdf](http://www.whitehouse.gov/omb/inforeg/qa_2-25-02.pdf).

<sup>241</sup> See Graham, *supra* note 3, at 1, 2.

<sup>242</sup> See *id.* at 2.

<sup>243</sup> See *id.*

leading to “precaution without principle.”<sup>244</sup> In particular, the government fears the principle is prone to manipulation by commercial interests.<sup>245</sup> Moreover, the government argues that the precautionary principle necessarily leads to the stifling of technological innovation as a result of what it perceives to be a shift in the burden of proving safety or environmental protection.<sup>246</sup> The government notes that technological innovation occurs through processes of “trial-and-error” and “refinement,” and that the precautionary principle’s inflexibility would disrupt these processes.<sup>247</sup> Additionally, the government contends that the precautionary principle would actually work counter to its designed purpose, because the “energies of regulators and the regulated community would be diverted from known or plausible hazards to speculative and ill-founded ones.”<sup>248</sup> In light of the government’s position, it is not surprising that Graham ends his essay with the presage: “do not be surprised if the U.S. government continues to take a precautionary approach to calls for a universal precautionary principle in regulatory policy.”<sup>249</sup>

In keeping with his contempt of a universal precautionary principle, Graham and OIRA are currently in the process of creating a peer review system to review and assess the reliability of science utilized by agencies in their decisionmaking processes.<sup>250</sup> Under the proposed rule, agencies would be required to submit most of the information relied upon for administrative actions to external peer review.<sup>251</sup> Reviewing panels would be made up of outside experts— independent of the regulating agency—in order to address the professed conflict of interest inherent when nothing separates those who pass the rules from those who analyze the science.<sup>252</sup> However, in dealing with regulatory issues plagued by scientific uncertainty, the proposed rules only suggest that peer reviewers help reduce or eliminate uncertainty.<sup>253</sup> Commenting on the benefits of the proposed rules,

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<sup>244</sup> *Id.* at 3.

<sup>245</sup> *Id.*

<sup>246</sup> *Id.*

<sup>247</sup> See Graham, *supra* note 3, at 3.

<sup>248</sup> *Id.* at 4.

<sup>249</sup> See *id.*

<sup>250</sup> See Proposed Bulletin, *supra* note 10, at 54,023.

<sup>251</sup> See *id.* at 54,027.

<sup>252</sup> See *id.* at 54,024; Shankar Vedantam, *Bush Would Add Review Layer for Rules; Industry Cheers Science Peer-Appraisal Plan; Critics Say It Will Discourage Regulation*, WASH. POST, Aug. 30, 2003, at A10.

<sup>253</sup> Proposed Bulletin, *supra* note 10, at 54,028.

Graham stated, “[i]t will take agencies some time to do peer review, but in the long run this will make their rules more competent and credible and reduce their vulnerability to political and legal attack.”<sup>254</sup>

Although peer review has long been respected and utilized in the scientific community, many have voiced their concerns over OIRA’s proposed peer review system.<sup>255</sup> Many fear that opponents of health and environmental regulation could utilize the system to “paralyze new regulations and stymie enforcement.”<sup>256</sup> Some see the proposal as an attempt by the Bush Administration to further insulate its corporate allies from protective regulation.<sup>257</sup> In reference to the proposed peer review system, Representative Henry A. Waxman, a Democrat from California, was quoted as saying: “Based on their track record, I’m concerned that the policy they are proposing today will open the door to even more abuse . . . .”<sup>258</sup> In addition, respected scientists have recently leveled charges that the Bush Administration has made a habit of replacing scientists “critical of industry with those sympathetic to corporate and ideological interests.”<sup>259</sup> In light of these charges, Waxman’s concern undoubtedly calls into question the true motive behind the proposed peer review system. Regardless of whether or not these particular concerns are valid, what should be evident is that the peer review system is vulnerable to abuse and misuse.<sup>260</sup> An abusive peer review system would be particularly damaging to precautionary regulations due to the system’s inherent preference for reviewable science.<sup>261</sup> There is a very distinct possibility that the peer review system would allow Graham and others, if they so desired, to thwart the precautionary principle by adhering to a policy of “[w]hen there is uncertainty, don’t regulate.”<sup>262</sup>

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<sup>254</sup> Vedantam, *supra* note 252.

<sup>255</sup> *Id.*

<sup>256</sup> *Id.*

<sup>257</sup> *Id.*

<sup>258</sup> *Id.*

<sup>259</sup> See *id.*; see also Guy Gugliotta & Rick Weiss, *President’s Science Policy Questioned; Scientists Worry that Any Politics Will Compromise Their Credibility*, WASH. POST, Feb. 19, 2004, at A2. In February of 2004, a bipartisan group of highly respected and accredited scientists, including 12 Nobel laureates and 11 recipients of the National Medal of Science, accused the Bush Administration of politicizing science. Gugliotta & Weiss, *supra*.

<sup>260</sup> See Gugliotta & Weiss, *supra* note 259; Vedantam, *supra* note 252.

<sup>261</sup> See Proposed Bulletin, *supra* note 10, at 54,028.

<sup>262</sup> See Vedantam, *supra* note 252 (quoting Gary D. Bass, Executive Director of OMB Watch).



## V. COMPARATIVE ANALYSIS OF LEGISLATIVE BODIES: STATUTES, GUIDANCE, AND PUBLIC AWARENESS

With the U.S. judiciary beholden to a system of agency deference, and the administrative state bound to risk assessment and cost-benefit analysis, the future of the precautionary principle currently rests entirely with the legislative branch of government.<sup>263</sup> In all three foreign case studies, the respective legislatures influenced to a great degree—either through acts of commission or omission—the extent to which the precautionary principle would be applied.<sup>264</sup> The various methods and approaches adopted by these legislative bodies should ultimately serve to illuminate the degree to which legislative bodies in the United States may help or hinder the implementation of the precautionary principle.<sup>265</sup>

### A. *The Constitutional Approach*

In *Mehta v. Union of India*, the court began its decision by highlighting numerous articles within the Indian Constitution which it felt cast a positive duty on the government to protect and improve the health of the public and the environment.<sup>266</sup> Specifically, the constitution directs that “[t]he State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country.”<sup>267</sup> The court ultimately based its decision to mandate conversion of Delhi buses to CNG fuel on the grounds that, in failing to address the rising levels of air pollution in the city, the government had violated its constitutional duties to protect the environment and the public health.<sup>268</sup> By constitutionally addressing environmental concerns, India has empowered its Supreme Court to adopt and apply the precautionary principle.<sup>269</sup>

At present time, the United States Constitution does not contain provisions similar to those relied upon by the Indian Supreme Court in *Mehta*.<sup>270</sup> While some might argue for a constitutional amendment, the fact remains that in the nearly four decades since the environ-

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<sup>263</sup> See *supra* Parts III–IV; *infra* Part V.A–B.

<sup>264</sup> See *supra* Part II.

<sup>265</sup> See, e.g., *W. Can. Wilderness Comm. v. British Columbia (Ministry of Forests, S. Island Forest Dist.)*, [2003] 15 B.C.L.R.4th 229, 248 (B.C. Ct. App.).

<sup>266</sup> *Mehta v. Union of India*, (2002) 2 S.C.R. 963, 965 (India).

<sup>267</sup> INDIA CONST. pt. IV, art. 48A.

<sup>268</sup> *Mehta*, 2 S.C.R. at 969.

<sup>269</sup> *Id.*

<sup>270</sup> Compare U.S. CONST., with *Mehta*, 2 S.C.R. at 965, 969.

mental movement began, no such proposal has come anywhere close to gathering the requisite amount of support.<sup>271</sup> While movements favoring environmental amendments have fared poorly at the federal level, success could prove easier if the efforts were shifted to the state level.<sup>272</sup> In fact, several states already have amended their constitutions to address environmental concerns.<sup>273</sup>

The Virginia Constitution contains an example of such an amendment:

To the end that the people have clean air, pure water, and the use and enjoyment for recreation of adequate public lands, waters, and other natural resources, it shall be the policy of the Commonwealth to conserve, develop, and utilize its natural resources, its public lands, and its historical sites and buildings. Further, it shall be the Commonwealth's policy to protect its atmosphere, lands, and waters from pollution, impairment, or destruction, for the benefit, enjoyment, and general welfare of the people of the Commonwealth.<sup>274</sup>

Like the Indian Constitution, Virginia's Constitution establishes a policy of environmental conservation; however, the Virginia Supreme Court, in contrast to the Indian Supreme Court in *Mehta*, declared this provision nonjusticiable.<sup>275</sup> In *Robb v. Shockoe Slip Foundation*, the court refused to grant the plaintiff's petition for injunctive relief because the provision lacked a declaration of self-execution, it was not declaratory of common law, and it failed to include any rules conferring the force of law to the principles contained therein.<sup>276</sup> The court further held that the conservation policy established in the provision could be executed only with the aid of supplemental statutory legislation.<sup>277</sup> The court gave support for this assertion by pointing to the very next section of the article, which speaks to the General Assembly's role in carrying out the conservation policy.<sup>278</sup>

In comparison, the Indian Constitution also contains express notification to the courts that they must refrain from enforcing the envi-

<sup>271</sup> See PLATER, *supra* note 12, at 1273; *supra* note 14 and accompanying text.

<sup>272</sup> See PLATER, *supra* note 12, at 1273-74.

<sup>273</sup> *Id.*

<sup>274</sup> VA. CONST. art. XI, § 1.

<sup>275</sup> See *id.*; INDIA CONST. pt. IV, art. 48A; *Robb v. Shockoe Slip Found.*, 324 S.E.2d 674, 677 (Va. 1985); *Mehta*, 2 S.C.R. at 969.

<sup>276</sup> *Robb*, 324 S.E.2d at 676-77.

<sup>277</sup> See *id.* at 677.

<sup>278</sup> See *id.*

ronmental provision.<sup>279</sup> The *Mehta* court's apparent disregard of this notification further distinguishes that case as more of an outlier than a guide.<sup>280</sup> Thus, in order for the precautionary principle to gain momentum at the constitutional level in the United States, not only will states have to amend their constitutions, but courts will have to amend the manner in which they address the question of justiciability.<sup>281</sup> Until courts abandon the approach embodied in *Robb*, the precautionary principle's greatest hope lies not in constitutional amendments, but rather in statutory legislation.<sup>282</sup>

### B. *The Statutory Approach*

Both *Leatch* and *Western Canada* exemplify how the existence or nonexistence of statutory legislation pertaining to the precautionary principle may affect both agency and judicial decisionmaking.<sup>283</sup> The outcome in *Leatch*, despite Judge Stein's characterization of the precautionary principle as a "commonsense" approach, depended in large part on the existence of legislation at both the federal and state level.<sup>284</sup> Although these laws ultimately failed to persuade the Director-General to withhold approval of the proposed highway, they did influence the court's determination to overrule the Director-General.<sup>285</sup> The court, unlike the Director-General, refused to overlook the scientific uncertainty surrounding the proposed highway's effect on the sustainability of local endangered fauna.<sup>286</sup> In the face of such scientific uncertainty, the court, with legislation as its guide, applied the precautionary principle.<sup>287</sup> In doing so, it effectively reversed course midstream and switched the debate from one of fauna sustainability, to one of project alternatives.<sup>288</sup> Upon examining all the alternatives, the court determined that an alternative northern route had the potential to address the needs of the competing parties—reduction of increased area traffic and protection of local endangered fauna.<sup>289</sup> Ultimately, it was the pre-

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<sup>279</sup> INDIA CONST. pt. IV, art. 37.

<sup>280</sup> See *Mehta*, 2 S.C.R. at 965, 969.

<sup>281</sup> See *Robb*, 324 S.E.2d at 676–77.

<sup>282</sup> See *id.*

<sup>283</sup> See *supra* Part II.A, C.

<sup>284</sup> See *Leatch v. Nat'l Parks & Wildlife Serv.* (1993) 81 L.G.E.R.A. 270, 281–82 (Land & Env't Ct. of N.S.W.).

<sup>285</sup> See *id.* at 277, 281, 287.

<sup>286</sup> See *id.* at 284.

<sup>287</sup> See *id.* at 281–84.

<sup>288</sup> See *id.* at 285–86.

<sup>289</sup> See *id.*

cautionary principle that facilitated the discussion of alternatives and the subsequent northern route compromise, and in turn it was the abundance of legislation that allowed for the application of the precautionary principle in the first place.<sup>290</sup>

At first glance, *Western Canada Wilderness Committee v. British Columbia* seemingly represents a case in which a lack of legislation resulted in the court's refusal to apply the precautionary principle.<sup>291</sup> Cattermole and Stern both relied in part on the existence of other legislation that expressly incorporated the precautionary principle, such as Nova Scotia's Endangered Species Act and the federal government's Canadian Environmental Protection Act.<sup>292</sup> Ultimately, the court of appeals refused to apply the precautionary principle absent an express requirement from the Code.<sup>293</sup> While this decision clearly illustrates the way in which legislation, or the lack thereof, dictates judicial application of the precautionary principle, this cause and effect relationship only represents half of what should be extracted from this case.<sup>294</sup>

In contrast to the judiciary, which pointed to lack of legislation as a basis for its determination that the DM need only adequately manage and conserve the forests, Stern and the Ministry of Forests based their decision to deny FDP approval for other cutblocks in large part on other legislation supporting precautionary decisionmaking.<sup>295</sup> In making her decision, Stern specifically focused on the spotted owl's status as an endangered species, and British Columbia's legislative response to the plight of the spotted owl as exemplified by the Spotted Owl Management Plan.<sup>296</sup> Because of this legislation, Stern ultimately denied three out of the four proposed cutblocks, leaving only the smallest cutblock open to the newly developed, yet untested, selective logging approach advanced by Cattermole.<sup>297</sup> The court acknowledged that Stern utilized a precautionary approach in her decision-making:

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<sup>290</sup> See *Leatch*, 81 L.G.E.R.A. at 281–84, 285–86.

<sup>291</sup> See *W. Can. Wilderness Comm. v. British Columbia (Ministry of Forests, S. Island Forest Dist.)*, [2003] 15 B.C.L.R.4th 229, 247–48 (B.C. Ct. App.).

<sup>292</sup> *Id.* at 247.

<sup>293</sup> *Id.* at 248.

<sup>294</sup> See *id.*

<sup>295</sup> See *id.* at 235–36, 242–43, 248.

<sup>296</sup> *Id.* at 236.

<sup>297</sup> *W. Can. Wilderness Comm.*, 15 B.C.L.R.4th at 248.

[Stern] dealt with this information “by taking a cautious approach to enhancing [owl] habitat in SRMZ’s and monitoring effectiveness.” In other words, she recognized that the question of whether this method of harvesting would enhance owl habitat was not susceptible to strict proof and that caution was, therefore, required. Her concerns in that regard played a significant role in her decision not to permit logging in the other three cutblocks and to limit harvesting to cutblock 37-1, which was considerably smaller in size and easier to monitor.<sup>298</sup>

While it is informative to recognize the degree to which legislation—or in this case, absence of legislation—influenced the court’s decision to uphold Stern’s approval of cutblock 37-1, of equal importance remains the manner in which legislation influenced Stern to apply the precautionary principle in her decision to withhold permits for the other three cutblocks.<sup>299</sup>

In the United States, the inadequacy of judicial or administrative intervention necessitates that legislative bodies will have to take direct action if a precautionary approach to scientific uncertainty is ever to be the standard by which environmental decisions are made.<sup>300</sup> As the foreign case studies illustrate, the presence or absence of legislation supporting the precautionary principle can significantly affect the extent to which courts and agencies apply the precautionary principle when faced with questions of scientific uncertainty.<sup>301</sup> Presently, few city, state, or federal statutes incorporate and promote the precautionary principle as a means to guide decisionmaking or policy determinations.<sup>302</sup> While this reality may excite Graham and like-minded individuals, the precautionary principle may yet pervade the consciousness of citizens, judges, and governmental decisionmakers alike, ultimately establishing itself as a viable alternative to status quo risk assessment and cost-benefit approaches.<sup>303</sup> Not only are there numerous foreign and international examples from which beneficial guidance may be gleaned, but important statutes have already been passed in the United States that may serve to pave the way for others

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<sup>298</sup> *Id.*

<sup>299</sup> *See id.* at 235–36, 248.

<sup>300</sup> *See supra* Parts III–IV.

<sup>301</sup> *See, e.g., W. Can. Wilderness Comm.*, 15 B.C.L.R.4th at 247–48.

<sup>302</sup> *See* Sci. & Health Envtl. Network, Precautionary Principle, <http://www.sehn.org/precaution.html> (last modified Feb. 18, 2005); *see also* Graham, *supra* note 3, at 2, 4.

<sup>303</sup> *See* Graham, *supra* note 3, at 4.

at all levels of government.<sup>304</sup> Before turning to these statutes, however, it is informative to examine the various ways past legislation has affected the precautionary principle.<sup>305</sup>

When examining the legislative history of the precautionary principle in the United States, *Ethyl Corp. v. EPA* stands out as an important yet easily misunderstood case.<sup>306</sup> As noted earlier, the significance of the case lies not in the judiciary's deferential support of the precautionary approach adopted by EPA in its decision to phase out leaded gasoline, but rather in the underlying legislation that encouraged EPA to adopt the precautionary approach in the first place.<sup>307</sup> The CAA, the relevant statute in this case, with its "will endanger" standard, empowered EPA to implement the regulation on leaded gasoline, despite the inconclusive correlation between this product and adverse health effects.<sup>308</sup> For this reason, EPA's decision in the *Ethyl* matter parallels the decision Stern made in *Western Canada* to deny permits for three of the four proposed cutblocks.<sup>309</sup> While the "will endanger" provision of the CAA illustrates the potential influence statutes can have on agency adoption of the precautionary principle, not all environmental legislation is as precautionary in nature.<sup>310</sup>

In contrast to *Ethyl*, *Sierra Club v. Marita* illustrates the typical approach to environmental legislation, where protection of health and the environment is but one of many factors comprising the cost-benefit, risk analysis, or overall multiple-use analysis performed by agencies.<sup>311</sup> In *Marita*, the National Forest Management Act required the Department of Agriculture to consider biological diversity in developing Land and Resource Management Plans (LRMPs) for the Chequamegon and Nicolet Forests.<sup>312</sup> However, the statute does not go so far as to mandate the preservation of biological diversity.<sup>313</sup> In fact, the Department of Agriculture need only take steps to preserve the diversity of tree species "where appropriate" and "to the degree

<sup>304</sup> See Sci. & Health Envtl. Network, *supra* note 302; see also *supra* Part II.A–C.

<sup>305</sup> See *Sierra Club v. Marita*, 46 F.3d 606, 614–15, 620–21 (7th Cir. 1995); *Ethyl Corp. v. EPA*, 541 F.2d 1, 13, 27–28 (D.C. Cir. 1976).

<sup>306</sup> See *supra* Part III.

<sup>307</sup> See *Ethyl*, 541 F.2d at 13, 28.

<sup>308</sup> See Clean Air Amendments of 1970, Pub. L. 91-604, § 211(c)(1)(A), 84 Stat. 1698, 1698 (current version at 42 U.S.C. § 7545 (2002)).

<sup>309</sup> See *W. Can. Wilderness Comm. v. British Columbia* (Ministry of Forests, S. Island Forest Dist.), [2003] 15 B.C.L.R.4th 229, 248.

<sup>310</sup> See *Marita*, 46 F.3d at 614–15; *Ethyl*, 541 F.2d at 13, 28.

<sup>311</sup> See *Marita*, 46 F.3d at 614–15.

<sup>312</sup> See *id.* at 609, 614–15.

<sup>313</sup> See National Forest Management Act, 16 U.S.C. § 1604(g)(3)(b) (2002).

practicable.”<sup>314</sup> Furthermore, the court recognized that the Department of Agriculture had authority to allow for a reduction of plant and animal diversity when needed to meet overall multiple-use objectives.<sup>315</sup> In light of this tempered statutory stance on the importance of biological diversity, it should come as no surprise that the agency opted to adopt LRMPs, allowing for division of the forest into a patchwork of different habitats, despite scientific uncertainty concerning the viability of local plant and animal species resulting from this approach.<sup>316</sup> In an equally predictable move, the court, having no legislative framework with which to work, ultimately denied the precautionary principle as embodied by the conservation biology approach proposed by the Sierra Club.<sup>317</sup> In this way, the outcome of this case is similar to the outcome in *Western Canada*.<sup>318</sup>

While the legislation relied upon in *Marita* may represent the norm in the United States, advocates of the precautionary principle may find hope in a recent legislative development in the city of San Francisco.<sup>319</sup> In the summer of 2003, the city of San Francisco became the first city to formally adopt the precautionary principle.<sup>320</sup> Having based its version of the principle—known as the Precautionary Principle Ordinance (Ordinance)—on existing formulations, the language takes on a familiar appearance:

Where threats of serious or irreversible damage to people or nature exist, lack of full scientific certainty about cause and effect shall not be viewed as sufficient reason for the City to postpone cost effective measures to prevent the degradation of the environment or protect the health of its citizens.<sup>321</sup>

The drafters of the Ordinance, however, knew that an environmental policy based on the precautionary principle, which was to apply to all officers, boards, commissions, and departments of the city and county of San Francisco conducting affairs in their governmental capacity,

<sup>314</sup> *Id.*

<sup>315</sup> *Marita*, 46 F.3d at 615.

<sup>316</sup> *Id.* at 610.

<sup>317</sup> *See id.* at 621.

<sup>318</sup> *See id.*; *W. Can. Wilderness Comm. v. British Columbia (Ministry of Forests, S. Island Forest Dist.)*, [2003] 15 B.C.L.R.4th 229, 247–48 (B.C. Ct. App.).

<sup>319</sup> Ruth Rosen, *Better Safe than Sorry*, S.F. CHRON., June 19, 2003, at A25, [http://www.sfgov.org/sfenvironment/articles\\_pr/2003/article/061903.htm](http://www.sfgov.org/sfenvironment/articles_pr/2003/article/061903.htm).

<sup>320</sup> *Id.*

<sup>321</sup> S.F., CAL., ENVTL. CODE ch.1, § 101 (2003), <http://www.sfgov.org/sfenvironment/aboutus/innovative/pp/sfpp.htm>.

would have to include a statement of the precautionary principle, a detailed explanation of the processes involved, and the benefits accruing from its implementation.<sup>322</sup> This detail, which distinguishes the Ordinance from many of its predecessors, ultimately gives legitimacy to this relatively nascent and widely unknown method of environmental decisionmaking.<sup>323</sup>

In terms of process, the Ordinance prompts governmental actors, when faced with the threat of “serious or irreversible” damage to human health or the environment, to consider alternatives using the best science available.<sup>324</sup> This process of alternative assessment attempts to shift the decisionmaking process away from risk assessment, which asks how much harm can be tolerated.<sup>325</sup> In contrast, alternative assessment asks whether the potentially hazardous activity is necessary, whether less hazardous options are available, and how little damage is possible.<sup>326</sup> In analyzing alternatives, governmental actors are to consider both short-term and long-term effects and costs, as well as the “potentially adverse effects of each option, noting options with fewer potential hazards.”<sup>327</sup> Furthermore, the Ordinance also stresses the importance of public participation in the assessment of alternatives.<sup>328</sup> The lawmakers envisioned that the public would play an integral part in both setting the range of alternatives to be addressed and in determining the potential for each alternative assessed.<sup>329</sup>

Additionally, the Ordinance highlights the numerous benefits that will result from implementation of an alternatives-based precautionary policy.<sup>330</sup> First, the Ordinance notes that anticipatory action, as outlined by the precautionary principle, will result in the reduction of harm to both people and the environment.<sup>331</sup> Second, the precautionary principle fosters the implementation of safer alternatives that are technologically possible and fiscally responsible, and which may have been overlooked or underappreciated under the former risk-management regime.<sup>332</sup> An offshoot benefit of this alternatives-based

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<sup>322</sup> See *id.* §§ 100–01.

<sup>323</sup> See *id.*; *supra* Part I.B.

<sup>324</sup> S.F., CAL., ENVTL. CODE ch.1, § 101 (2003).

<sup>325</sup> S.F. DEP’T OF THE ENV’T, *supra* note 237, at 13.

<sup>326</sup> S.F., CAL., ENVTL. CODE ch.1, § 100(F) (2003).

<sup>327</sup> *Id.* § 100(F), (G).

<sup>328</sup> See *id.* §§ 100(G), 101.

<sup>329</sup> See *id.* § 100(G).

<sup>330</sup> See *id.* §§ 100–01.

<sup>331</sup> See *id.* § 101.

<sup>332</sup> See S.F., CAL., ENVTL. CODE ch.1, §§ 100(F)–(G), 101 (2003).



approach will be the promotion of technological advancements, which will play a crucial role in the cultivation of safer, cost-effective alternatives.<sup>333</sup>

The Ordinance, by promoting public involvement in the decisionmaking process, works to increase public awareness.<sup>334</sup> Such public involvement benefits society on two fronts.<sup>335</sup> First, it helps to increase the representative nature of government, as all citizens will be empowered and given an important voice in decisions concerning their own health and the health of the environment.<sup>336</sup> Second, public involvement and increased awareness of environmental issues may help to spur a “behavioral revolution,” where citizens increasingly recognize the personal responsibilities and obligations inhering to them as critical participants in the ongoing struggle to ensure that the “air, water, earth and food be of a sufficiently high standard that individuals and communities can live healthy, fulfilling, and dignified lives.”<sup>337</sup>

The Ordinance can be utilized to counter critiques leveled by detractors of the precautionary principle, such as John Graham.<sup>338</sup> One critique of the precautionary principle is that its vagueness renders it useless.<sup>339</sup> This critique serves as the basis for Graham’s characterization of the principle as a “subjective concept” that will inevitably lead to “precaution without principle.”<sup>340</sup> In rebuttal, proponents have pointed to the specificity of the Ordinance, which details the who, the what, the where, the when, the why, and most importantly, the how, of applying the precautionary principle to environmental decisionmaking.<sup>341</sup> Another argument raised by detractors of the precautionary principle, including Graham, is that the precautionary principle, in shifting the burden of demonstrating human and environmental safety to producers, necessarily stifles scientific and economic progress.<sup>342</sup> Advocates of the precautionary principle respond, however, that these arguments fail to take into account the inherent

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<sup>333</sup> See *id.* §§ 100(E), (I), 101.

<sup>334</sup> See *id.* § 100(G).

<sup>335</sup> See *id.* § 100(G), (I).

<sup>336</sup> See *id.* § 100(G).

<sup>337</sup> *Id.* § 100(A), (I).

<sup>338</sup> See S.F., CAL., ENVTL. CODE ch.1, §§ 100–01 (2003); Graham, *supra* note 3, at 3.

<sup>339</sup> See Mary O’Brien, *Critiques of the Precautionary Principle*, RACHEL’S ENV’T & HEALTH NEWS, No. 781 (Dec. 4, 2003), available at [http://www.sfgov.org/sfenvironment/articles\\_pr/2003/article/120503.htm](http://www.sfgov.org/sfenvironment/articles_pr/2003/article/120503.htm).

<sup>340</sup> See Graham, *supra* note 3, at 3.

<sup>341</sup> See O’Brien, *supra* note 339.

<sup>342</sup> See *id.*; Graham, *supra* note 3, at 4.

flexibility of an alternatives-based approach.<sup>343</sup> The Ordinance does not require zero harm, only less harm.<sup>344</sup> In analyzing alternatives, the expectation is not “that all harm, all impact, [and] all risk of harm will be absent,” but rather that after consideration of foreseeable economic, health, and safety concerns, a feasible alternative will be chosen with the “least potential impact on human health and the environment.”<sup>345</sup> In this regard, the Ordinance anticipates outcomes similar to Stern’s decision to withhold permits for three proposed cutblocks, Judge Stein’s decision to forgo the proposed highway in favor of an alternative northern route, and the India Supreme Court’s decision to mandate conversion of diesel-fueled buses to CNG.<sup>346</sup>

### CONCLUSION

From its inception in the early 1970s as a German response to increasing air pollution, the precautionary principle has slowly developed into an internationally-recognized environmental management tool. In practice, the precautionary principle provides one method by which to address questions of scientific uncertainty, which commonly arise when dealing with issues affecting the environment and human health. Despite growing popularity of the precautionary principle, as evidenced by its inclusion in a plethora of international agreements and treaties, governments from around the world have responded in markedly different ways when determining the extent to which, if at all, it should be assimilated into governmental decisionmaking. The federal government of the United States currently takes the position that the precautionary principle does not represent a viable solution for dealing with questions of scientific uncertainty. The government suggests that the precautionary principle actually poses a threat to this country because of its supposed vagueness and imprecise nature, and its inherent requirement that proponents of action or activity carry the burden of proving safety, both of which the government believes will lead to a stifling of economic progress and a decrease in the standard of living.

Internationally, countries have taken varying stances regarding the precautionary principle. These choices provide valuable insight into the role governments can play in either the adoption or rejection

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<sup>343</sup> See O’Brien, *supra* note 339.

<sup>344</sup> *Id.*

<sup>345</sup> *Id.*

<sup>346</sup> See *supra* Part II.A–C.

of this relatively new environmental management tool. More specifically, they help emphasize the potential for agency indifference, the obstacle of judicial deference, and the importance of legislation in lessening the impact of these roadblocks. Additionally, and importantly, they illustrate that the precautionary principle, in order to be effective, need not be as inflexible as detractors portray it. Transferring these concepts to situations in the United States will help to illuminate the ways in which the precautionary principle may continue to prosper and grow in use, despite the federal government's current opposition.

The Ordinance passed in San Francisco exemplifies this potential. In adopting the precautionary principle, San Francisco not only ensured future health for both humans and the environment, but it provided a detailed, flexible policy that will serve to guide other legislative bodies interested in adopting an alternative to the status quo risk-assessment and cost-benefit approaches to scientific uncertainty. In stressing the importance of an alternatives-based approach to precaution, as well as overall public awareness and involvement, the city of San Francisco created a policy capable of standing up to the federal government's attack on the precautionary principle. While San Francisco was the first city to pass legislation adopting the precautionary principle, it most likely will not be the last. Together, the San Francisco Ordinance and its future progeny may eventually inspire the federal government to dedicate itself to responsible management of both human health and environmental protection through adoption of a widely unknown and highly misunderstood, yet powerful and flexible environment management tool—the precautionary principle.