

**The Delhi Pollution Case:**  
**The Supreme Court of India and the Limits of Judicial Power**

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## CONTENTS

- I. Introduction**
- II. The Court's Decision in Legal and Constitutional History**
  - A. Relevant Environmental Laws in India: 1970s to Present
  - B. Air and Water Act
  - C. Legal Precedent for the Court's Decision: Public Interest Litigation
  - D. Past Successes of Public Interest Litigation in Protecting Citizens' Fundamental Rights
- III. History of the Delhi Pollution Case**
  - A. Resistance From Governmental Agencies
  - B. Ultra Low Sulfur Diesel as an Alternative Fuel Source
  - C. Bhure Lal Committee
  - D. Supreme Court's Order of April 5, 2002
- IV. Economic Analysis of the Court's Decision**
  - A. Concerns Over Supply of Compressed Natural Gas (CNG)
  - B. Cost Comparison Between CNG and Diesel
  - C. Other Concerns for CNG Conversion
- V. Environmental Analysis of the Court's CNG Decision**
  - A. Effects of Air Pollution on Health
  - B. The Impact of Diesel and CNG on Air Pollution: The Role of Technology in Cleaning up the Air
- VI. Weaknesses of the Court's Decision In Providing Lasting Environmental Protection**
  - A. Need for Strengthening of Pollution Control Boards
  - B. Current Situation in Delhi Presents Unique Opportunity to Environmentalists
  - C. The Supreme Court as the "Last Resort"
  - D. The Court's Decision Takes Legal Advantage Away From Environmentalists
  - E. Recent Developments May Further Weaken the Supreme Court's Ruling
- VII. Conclusion**

## I. INTRODUCTION

The Indian Supreme Court has created major reforms in the protection of human rights. Taking a judicial activist role, the Court has put itself in a unique position to intervene when it sees violations of these fundamental rights. But while some see the Court as a beacon of hope for the oppressed, others warn that the Court's eagerness can easily develop into judicial excess and contend that the Justices "ought not soil their judicial robes by entering the administrative area and taking decisions which are within the province of specialist enforcement agencies."<sup>1</sup> By usurping the role of existing agencies and directing policies through its orders, the Court risks making decisions that may not be the most effective solutions to the cases that come before it.

In 1998, the Indian Supreme Court, embracing its activist role, issued a controversial order *suo moto* mandating the conversion of the entire Delhi fleet of diesel-powered buses to compressed natural gas (CNG).<sup>2</sup> Steadfast resistance from the agencies responsible for enforcing the court order has raised serious questions about the wisdom of this decision. Many opponents have disputed the reliability and practicality of CNG, arguing that the technology is still in development, making the conversion both risky and costly. By disregarding the pleas of the Delhi government and insisting upon the implementation of its orders, the Court seems to be usurping the authority of the existing pollution control authorities to fulfill their duties independently. This raises both institutional and constitutional questions, as the Court wrestles to determine which branch of government is best suited to handle pollution control matters. An examination of the environmental legislation and bureaucracy in India makes clear that the infrastructure is already in place for effective environmental management. While the Court evidently intended to protect the health of the citizens of Delhi, and protect their constitutional right to life, it may in fact be impeding the development of more effective environmental controls in the country.

In this article we will explore the different perspectives from which the case must be considered to understand its complexities. Part II provides a background on environmental law in India as it has evolved through public interest litigation, and as it pertains specifically to air pollution. Part III gives the history of the case, including the struggle between the Supreme Court and the agencies responsible for enforcing the Court's orders. Part IV examines the economic and logistical considerations associated with converting buses to CNG. Part V highlights the superiority of CNG over diesel buses in minimizing environmental degradation and benefitting human health. Part VI analyzes the impacts of the Court's decision on environmental management in India as a whole, highlighting the weaknesses of a court order to bring about such major reforms in the transportation sector. We conclude that by usurping the authority of enforcement agencies designed to handle the air pollution problem, the Court's ruling to convert the city's buses to CNG may actually become an impediment to the growth of environmental protection in India.

1. SHYAM DIVAN & ARMIN ROSENCRANZ, ENVIRONMENTAL LAW AND POLICY IN INDIA 148 (2d ed. 2001).

2. S.C. Writ Pet. (Civil), M.C. Mehta v. Union of India (July 28, 1998) (No. 13029/1985), available at <http://www.elaw.org/resources/text.asp?ID=1051> [hereinafter *Delhi Pollution Case 1998*].

## II. THE COURT'S DECISION IN LEGAL AND CONSTITUTIONAL HISTORY

The Supreme Court's decision to control Delhi's air pollution was consistent with precedent. Although many parties have challenged the Court's position in this case, the history of environmental regulation in India has established the Court as a responsible and often effective instrument of environmental improvement. The Supreme Court's determination to use its power to manage Delhi's vehicular pollution may, however, have been a mistake in judgment, as will be discussed later in this article.

### A. Relevant Environmental Laws in India: 1970s to Present

Because environmental protection ultimately stems from the right to life, the Indian Constitution is the primary reference for all other environmental regulations in the country. The Indian Constitution protects the right to life,<sup>3</sup> obligates the State to secure the health of its citizens,<sup>4</sup> and defines the need of the State to protect and improve the environment.<sup>5</sup> This establishes the Indian Constitution as one of only a few in the world that contains specific provisions for environmental protection.<sup>6</sup> These articles have guided the interpretation of many environmental public interest cases and have been cited by the Supreme Court in its 2002 Delhi pollution order as the justification for its activism.<sup>7</sup>

During the 1970s, Parliament began to devote more serious attention towards protecting the environment. The 42nd Amendment to the Constitution, passed in 1976, highlighted this new focus. It provided for the fundamental duties of citizens and the State to protect and improve the environment.<sup>8</sup>

With the passage of the Environmental (Protection) Act of 1986, Parliament gave the Central Government explicit power to regulate polluting industries and shut down operations that were unable to meet environmental standards.<sup>9</sup> Amendments to the Air Act in 1987 gave this power to shut down polluting facilities specifically to the Pollution Control Boards.<sup>10</sup> The Environmental (Protection) Act also established the Ministry of Environment and Forests (MoEF) as the nodal agency for the coordination of environmental programs throughout the country, giving it the legal authority and responsibility to effectively handle the country's complicated pollution problems.<sup>11</sup>

3. INDIA CONST. art. 21 ("No person shall be deprived of his life or personal liberty except according to procedure established by law.").

4. *Id.* art. 39(e) ("that the health and strength of workers, men and women, and the tender age of children are not abused . . ."); *id.* art. 47 ("The State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties . . .").

5. *Id.* art. 48A ("The State shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country.").

6. DIVAN & ROSENCRANZ, *supra* note 1, at 41.

7. For more information on public interest litigation and the Constitution, see discussion *infra* Part IID.

8. Government of India, *supra* note 3, amend. 42. The Forty-Second Amendment includes two relevant "Directive Principles of State Policy." Article 48A states, "The State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country." Article 51A(g) imposes a similar responsibility on every citizen "to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures." (DIVAN & ROSENCRANZ, *supra* note 1, at 45.)

9. Environment (Protection) Act, No. 29 (1986) (India), § 5, available at <http://envfor.nic.in/legis/env/env1.html>.

10. DIVAN & ROSENCRANZ, *supra* note 1, at 245.

11. O.J. KUIK ET AL., POLLUTION CONTROL IN THE SOUTH AND NORTH 75 (1997).

In 1992, the government reaffirmed its devotion to environmental protection when the MoEF issued the “National Conservation Strategy and Policy Statement on Environment and Development”<sup>12</sup> and the “Policy Statement for Abatement of Pollution.”<sup>13</sup> These directives sought to incorporate environmental concerns into all forms of government planning, encourage environmental education of India’s citizens, and, most importantly, strengthen the enforcement of environmental regulations.<sup>14</sup> The policy statements also made clear the need to develop clean technologies instead of “clean-up” or “end-of-pipe” technologies,<sup>15</sup> lending credence to the Supreme Court’s decision in the Delhi pollution case to shift to CNG instead of devising ways to make diesel more environmentally benign.

## B. Air and Water Acts

To help fulfill its obligation to protect the environment, Parliament set up pollution control enforcement structures through the passage of the Water (Prevention and Control) Act of 1974<sup>16</sup> and Air (Prevention and Control) Act of 1981.<sup>17</sup> These acts established the Pollution Control Boards (PCBs) under the Department of Environment<sup>18</sup> at both the state and national level to develop and enforce emissions standards on polluting industries.<sup>19</sup> Since their inception, the Boards have relied upon the Courts to assist them in closing industries that refused to comply with existing environmental regulations.<sup>20</sup> However, due to a chronic lack of funding, the Boards have been relatively ineffective, and as of 1997, no one has ever been jailed for polluting the environment.<sup>21</sup>

The PCBs have a two-tier administrative structure composed of the national Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCB) for each state.<sup>22</sup> The CPCB meets only once every three months and is responsible for setting up emissions standards, coordinating the actions of the SPCBs, and taking other necessary administrative actions.<sup>23</sup> The SPCBs implement the policies set forth by the CPCB, mainly through monitoring pollution levels of various industries.<sup>24</sup> Furthermore, each SPCB is encouraged to create and enforce its own emissions standards, provided these restrictions are more stringent than those set by the CPCB.<sup>25</sup> Although the SPCBs were originally fairly ineffective, the amendments to the Air Act in 1987 sought to increase industrial compliance by giving the SPCBs the power to cut off the water and electricity supply to industries that violated the emissions standards set forth by the PCBs, effectively forcing industries to comply with environmental regulations.<sup>26</sup>

12. MINISTRY OF ENV’T & FORESTS (INDIA), NATIONAL CONSERVATION STRATEGY AND POLICY STATEMENT ON ENVIRONMENT AND DEVELOPMENT (June 1992).

13. MINISTRY OF ENV’T & FORESTS (INDIA), POLICY STATEMENT FOR ABATEMENT OF POLLUTION (Feb. 1992), available at <http://envfor.nic.in/legis/air/air1.html>.

14. See KUIK ET AL., *supra* note 11, at 75.

15. DIVAN & ROSENCRANZ, *supra* note 1, at 36.

16. Water (Prevention and Control of Pollution) Act, No. 6 (1974) (India).

17. Air (Prevention and Control of Pollution) Act, No. 14 (1981) (India).

18. The Department of Environment was later revamped to become the Ministry of Environment and Forests as a result of the Environment (Protection) Act of 1986.

19. Water (Prevention and Control of Pollution) Act, *supra* note 16.

20. Air (Prevention and Control of Pollution) Act, *supra* note 17, art. 22A.

21. DIVAN & ROSENCRANZ, *supra* note 1, at 252 (citing S.C. Maudgal, Senior Advisor to the Ministry, as quoted in HALARNKAR, LEAKING PLUGS IN INDIA TODAY 69 (1997)).

22. KUIK ET AL., *supra* note 11 at 78.

23. *Id.*

24. *Id.*

25. *Id.* at 79.

26. Air (Prevention and Control of Pollution) Act, *supra* note 17, art. 31.

In practice, there are great variations among the SPCBs. The staff size in each office varies widely; some offices have twice the staff size of others.<sup>27</sup> The SPCBs also differ greatly in the number of cases brought against polluting industries; as of 1994, while the Maharashtra SPCB had only filed 183 cases under the Air and Water Acts, the Gujarat SPCB had filed over 2,000.<sup>28</sup> This disparity in cases filed was not the result of decreased funding on the part of the Maharashtra Board, which had an annual budget more than double the size of the Gujarat Board.<sup>29</sup> Furthermore, despite the fact that the Gujarat Board had filed so many cases, Gujarat was described by Dilip Biswas, director of the CPCB, as the most polluted state in the country.<sup>30</sup>

These figures prove that disparities in funding, distribution of industrial units, and different degrees of eagerness to bring suit against polluting industries has prevented India from establishing uniform environmental protection across the country. Notwithstanding the disparities and inefficiencies in India's pollution control machinery, the courts have been a recourse for those interested in compliance with and enforcement of environmental regulations.

### C. Legal Precedent for the Court's Decision: Public Interest Litigation

In the last twenty-five years, the Indian Supreme Court has been instrumental in advancing environmental concerns. Prior to the late 1970s, the Supreme Court's decisions were generally characterized by judicial restraint. It avoided confronting Parliament on issues of economic regulation and civil liberties, preferring to help establish the legitimacy of the Central government.<sup>31</sup> It was not until the emergency period in the mid-1970s that the Court began to establish itself as a powerful activist force. In 1975, in response to charges of election fraud in the election of 1971, Prime Minister Indira Gandhi declared a state of emergency and suspended civil rights across the country to maintain control over her opposition. She forced a number of economic reforms through Parliament, as well as some more controversial legislation, including a constitutional amendment that confirmed her election in 1971.<sup>32</sup> Stepping forward in such an uncertain era as a protector of the people, the Court intervened in the case of *Indira Gandhi v. Raf Narain* and declared the amendment unconstitutional.<sup>33</sup>

In the twenty-five years following the emergency period, the Supreme Court has continued to reinvent itself. Taking on the role of "the last resort of the oppressed and bewildered,"<sup>34</sup> the Court initiated a period of judicial activism in a wide range of legal areas. One of the most important judicial reforms came with the establishment of public interest litigation (PIL), which enables any citizen to bypass ordinary legal proceedings and appeal directly to the Supreme Court to protect his/her fundamental rights.<sup>35</sup> In the 1984 case of *Bandua Mukti Morcha v. Union of India*, Justice P. N. Bhagwati stated that if a person was physically or economically unable to approach the Court, he/she "may move the Court even by just writing a letter," because the legal system would otherwise be inaccessible to some of its citizens.<sup>36</sup>

27. David Shaman, World Bank Group, *New Ideas in Pollution Regulation (NIPR)*, *India's Pollution Regulatory Structure and Background* (Jan. 5, 1996), available at <http://www.worldbank.org/nipr/india/india-back.htm#T3>.

28. *Id.*

29. *Id.*

30. *Id.*

31. S.P. Sathe, *Judicial Activism: The Indian Experience*, WASH. U. J.L. & POL'Y 29, 40 (2001).

32. P.N. DHAR, *INDIRA GANDHI, THE "EMERGENCY," AND INDIAN DEMOCRACY* 259 (2000).

33. *Indira Gandhi v. Raf Narain*, A.I.R. 1975 S.C. 2299.

34. *State of Rajasthan v. Union of India*, (1977) 3 S.C.C. 592.

35. S.K.V. KUSUM, *FIFTY YEARS OF THE SUPREME COURT OF INDIA* 77 (2000).

36. *Bandhua Mukti Morcha v. Union of India*, A.I.R. 1984 S.C. 802.

By breaking down the barriers of justice for the lower classes of Indian society, the Court hoped to rebalance the distribution of legal resources to encompass all of India's citizens.<sup>37</sup> This suspension of *locus standi* requirements, the rules specifying who has the right to bring a lawsuit, has not only enabled poor people to address the Court, but has also allowed concerned citizens to approach the Court on the behalf of a person whose fundamental rights have been violated.<sup>38</sup> This breakdown of the formalities of the Court has enabled public interest lawyers, such as M.C. Mehta in the Delhi Pollution Case, to fight to expand human rights protection in India through PIL suits.

#### D. Past Successes of Public Interest Litigation in Protecting Citizens' Fundamental Rights

In the past, PIL cases have been successful in making major advances in the fields of education, prisoners' rights, and environmental protection. In 1993, the Court ruled that the right to an education until the age of fourteen is a fundamental right and therefore falls under the protection of Article 21 in conjunction with Article 41.<sup>39</sup> Prisoners' rights have been expanded throughout the years to provide for reasonable pre-trial waiting periods,<sup>40</sup> free legal services to the accused,<sup>41</sup> and protection against police brutality.<sup>42</sup> PIL cases involving environmental protection have developed from the Supreme Court's interpreting the Constitution's guarantee of the right to life to include the right to a healthful environment.

The relationship between the right to life and the control of environmental pollution requires the recognition that not only is health itself a fundamental right, but so are conditions that promote good health, such as clean air and water. In the *Bandhua* case, stone quarry workers charged that their right to health was denied by the inhumane conditions under which they were forced to work.<sup>43</sup> The Court ruled in favor of the afflicted and charged that the Court must "abandon the laissez-faire approach in the judicial process particularly where it involves a question of enforcement of fundamental rights and forge new tools" to make "fundamental rights meaningful for the large masses of people."<sup>44</sup> A few years later, in the 1988 case, *M.C. Mehta v. Union of India*, involving tanneries on the Ganges river, the Court found that water pollution and industrial hazards were violations of fundamental rights and that polluters must compensate those afflicted by their environmental damage.<sup>45</sup> Tying in most pertinently to the current Delhi Pollution Case, the Supreme Court held in 1989 that Article 21 of the Constitution guaranteeing the right to life must be interpreted to include the "right to live in a healthy environment with minimum disturbance of ecological balance," and "without avoidable hazard to [the people] and to their cattle, house and agricultural land, and undue affection (sic) of air, water, and environment."<sup>46</sup> The subsequent ruling in *Charan Lal Sahu v. Union of India* expanded upon this decision when Justice Kuldeep Singh described the government's role in the protection of fundamental rights: "[I]t is the obligation of the State to assume such responsibility and protect its citizens."<sup>47</sup> The Court held that the government's obligation to protect fundamental rights forces it to protect the environment.<sup>48</sup>

37. Sheetal B. Shah, *Illuminating the Possible in the Developing World: Guaranteeing the Human Right to Health in India*, 32 VAND. J. TRANSNAT'L L. 468.

38. *Bandhua Mukti Morcha*.

39. *Unni Krishnan v. State of Andhra Pradesh*, A.I.R. 1993 S.C. 2178. Article 41 states: "The State shall, within the limits of its economic capacity and development, make effective provision for securing the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement, and in other cases of undeserved want."

40. *Hussainara Khatoon v. Bihar*, A.I.R. 1979 S.C. 1360.

41. *M.H. Hoskot v. State of Maharashtra*, A.I.R. 1978 S.C. 1548.

42. *Raghubir Singh v. State of Haryana*, A.I.R. 1980 S.C. 1087.

43. *Bandhua Mukti Morcha*.

44. *Id.*

45. *M.C. Mehta v. Union of India*, A.I.R. 1988 S.C. 1037.

46. *Rural Litigation and Entitlement Kendra v. State of Uttar Pradesh*, A.I.R. 1989 S.C. 359.

47. *Charan Lal Sahu v. Union of India*, A.I.R. 1990 S.C. 1480.

48. KUSUM, *supra* note 35, at 489.

### III. HISTORY OF THE DELHI POLLUTION CASE

The Supreme Court's involvement in Delhi's air pollution problem originated over concerns that the city's polluted air was slowly poisoning its citizens.<sup>49</sup> A widely cited study conducted in Delhi estimates that 10,000 people die every year due to complications from air pollution. This staggering total breaks down to more than one death every hour.<sup>50</sup> Alarmed by this unchecked pollution and its health impacts on the Delhi population, environmental lawyer M.C. Mehta, an advocate at the Supreme Court bar, filed a PIL suit in the Supreme Court against the Union of India in 1985, charging that existing environmental laws obligated the government to take steps to help reduce Delhi's air pollution in the interests of public health.<sup>51</sup>

For the first several years following the initial suit, the Court did little more than set up fact-finding commissions to determine the status of air in Delhi and to begin to recommend general solutions to the problem. In 1986, expressing its desire to "protect the health of the present and future generations," the Court directed the Delhi Administration to file an affidavit specifying steps it had taken for controlling emissions of smoke, dust, and noise from vehicles plying in Delhi.<sup>52</sup> In 1990, based on the opinion of the MoEF, the Court acknowledged that heavy vehicles including trucks, buses, and defense vehicles are the main contributors to air pollution.<sup>53</sup>

In 1994, in its first action to regulate the type of fuel used in the buses, the Court mandated the phasing out of lead from all fuel in India's four largest cities—Delhi, Bombay, Calcutta, and Madras.<sup>54</sup> In 1996, the Court ruled that all government vehicles in the city be converted to CNG, a technology known to reduce vehicular air pollution.<sup>55</sup> However, the case took on its current significance in 1998 when the Court, on its own motion, mandated that all buses in the city had to be converted from diesel fuel to CNG by March 31, 2001.<sup>56</sup>

#### A. Resistance From Governmental Agencies

The conversion of the Delhi bus fleet to CNG will require a great deal of effort and coordination on the part of the implementing agencies. The Ministry of Surface Transport for the city of Delhi will have to set emissions norms for CNG, so that buses converted to CNG can be properly certified.<sup>57</sup>

49. Air quality is generally evaluated by measuring the levels of various pollutants in the air, including sulfur oxides, nitrogen oxides (NOx), greenhouse gases like carbon dioxide, and particulate matter (PM), which is comprised of microscopic particles suspended in the air usually under 10 µm in length. Because of the proven health risks associated with air pollution, the United States Environmental Protection Agency (USEPA) has mandated that annual average levels of atmospheric PM 2.5, "fine" particulate matter smaller than 2.5 µm in length, should not exceed 15 mg/cum. The national annual average levels of PM across India is approximately 60 mg/cum, while the average in Delhi ranges from 150-200 mg/cum, more than 10 times the standards set in the United States. See also S.C. Writ Pet. (Civil), M.C. Mehta v. Union of India (April 5, 2002) (No. 13029/1985), available at <http://www.elaw.org/resources/text.asp?ID=1102>. [hereinafter *Delhi Pollution Case 2002*].

50. Press Release, Centre for Science and Environment, *Centre for Science and Environment Accuses Delhi Government of Trying to Sabotage Supreme Court Orders to Move Diesel Buses to CNG* (July 18, 2000), at [http://www.cseindia.org/html/cmp/air/press\\_20000718.htm](http://www.cseindia.org/html/cmp/air/press_20000718.htm).

51. S.C. Writ Pet. (Civil), M.C. Mehta v. Union of India (1985) (No. 13029/1985).

52. *Delhi Pollution Case 2002*, supra note 49.

53. S.C. Writ Pet. (Civil), M.C. Mehta v. Union of India (Nov. 14, 1990) (No. 13029/1985), available at <http://www.elaw.org/resources/text.asp?ID=1076>. Nine years later, an official study conducted by the Bhure Lal Committee, an advisory board to the government, determined that diesel emissions are responsible for 90% of the vehicular emissions of PM and NO<sub>x</sub> over the city. S.C. Writ Pet. (Civil), M.C. Mehta v. Union of India (April 16, 1999) (No. 13029/1985), available at <http://www.elaw.org/resources/text.asp?ID=1106>. [hereinafter *Delhi Pollution Case 1999*].

54. S.C. Writ Pet. (Civil), M.C. Mehta v. Union of India (Oct. 21, 1994) (No. 13029/1985), available at <http://www.elaw.org/resources/text.asp?ID=1078>.

55. S.C. Writ Pet. (Civil), M.C. Mehta v. Union of India (April 26, 1996) (No. 13029/1985) available at <http://www.elaw.org/resources/text.asp?ID=1074>.

56. *Delhi Pollution Case 1998*, supra note 2.

57. *The CNG Sabotage*, DOWNTOW EARTH, March 15, 2001, at 36.

The Union Ministry of Petroleum and Natural Gas must coordinate the installation of appropriate numbers of fueling stations in the city and determine efficient ways to supply the city with CNG.<sup>58</sup> To do this, increased amounts of CNG will have to be supplied to the city through the Hazira-Vijaipur-Jagdishpur (HBJ) pipeline,<sup>59</sup> and appropriate structures will have to be set up to supply the city's fueling stations. According to the Supreme Court, the Delhi government as a whole has the responsibility to encourage public support for the CNG plan, to educate the public on the benefits of CNG, and to allay the public's concerns over transportation disruptions.<sup>60</sup>

While the conversion to CNG requires the determined cooperation of all branches of government, the reality is that Executive Branch officials have consistently tried to prevent the conversion to CNG. In 1998, in an attempt to quell public concern over the air pollution problem, the Delhi Health Minister, Dr. Harsh Vardhan, said that air pollution does not increase the risks of heart and lung disease.<sup>61</sup> Other officials have attempted to attack the practicality of introducing CNG by arguing that no other city in the world has converted such a high percentage of its bus fleet to CNG. Parvez Hashmi, the Delhi Transport Minister, has tried to attack the reliability of CNG as a fuel source by claiming that the government will be "blindly spending public money on an unproven technology. We don't want CNG. . . ."<sup>62</sup> A combination of bureaucratic inertia, concerns over cost, the seeming magnitude of the new infrastructure requirements, and the likely disruptions of a municipal transport system on which the bulk of the population depends may account for the sometimes fierce opposition to CNG buses.

In 2001, sixteen years after the inception of the case, the Union of India finally established a committee headed by Mr. R.A. Mashelkar, Director General of the Council of Scientific and Industrial Research, to independently investigate the effects of vehicular pollution and potential solutions to the problem.<sup>63</sup> The Mashelkar Committee report recommended that emission norms be established and that decisions on fuel source be left to the consumers.<sup>64</sup> When opponents of the conversion rallied around this study as scientific support for their position, the Supreme Court scoffed at the recommendations of the Committee, pointing out that no member of the committee was either a doctor or an expert in public health.<sup>65</sup> It further noted that many emission norms had already been established and that it would be "naïve of the Mashelkar Committee to expect that merely laying down fresh emission norms will be effective or sufficient to check or control vehicular pollution."<sup>66</sup>

58. *Id.* at 37.

59. The Hazira-Vijaipur-Jagdishpur pipeline, operated by Indraprastha Gas Ltd. (IGL), is at present the only supply line of CNG to the city of Delhi.

60. In the United States, in order to help allay the public fears over the conversion to CNG and to help prevent the spread of misinformation by opponents to CNG, the Department of Energy issued a notification in 2000 entitled, "Natural Gas Buses: Separating Myth from Fact," available at <http://www.afdc.doe.gov/pdfs/MythsvsFact.pdf>. This report explains many of the benefits of CNG, including the long term monetary savings, reduced greenhouse gas emissions, and reduced particulate matter emissions. It also contests many commonly argued problems with CNG buses, refuting the claims that CNG buses are prone to explode, cost more to maintain, and would be made obsolete by cleaner diesel technology.

61. Press Release, Centre for Science and Environment (June 17, 1998), available at [http://www.cseindia.org/html/cmp/air/press\\_19980617.htm](http://www.cseindia.org/html/cmp/air/press_19980617.htm).

62. Press Release, Centre for Science and Environment (Dec. 14, 2000), available at [http://www.cseindia.org/html/cmp/air/press\\_20001214.htm](http://www.cseindia.org/html/cmp/air/press_20001214.htm).

63. *Delhi Pollution Case 2002*, *supra* note 49.

64. *Id.*

65. *Id.*

66. *Id.*

## B. Ultra Low Sulfur Diesel as an Alternative Fuel Source

In an attempt to avoid the infrastructure overhaul necessary to convert Delhi's buses to CNG, opponents to conversion have argued that ultra low sulfur diesel (ULSD) might be an attractive alternative. Citing a study conducted by a research team at Harvard University,<sup>67</sup> several ULSD proponents, including the Lieutenant Governor of Delhi, have charged that reducing the sulfur content of diesel fuels reduces nitrogen oxides and particulate matter emissions to levels comparable to CNG.<sup>68</sup> The findings of this study were called into question, however, when it was discovered that this "study" was nothing more than a four-page pamphlet that lacked any references and was funded by Navistar International, the world's largest truck manufacturer.<sup>69</sup> A former U.S. Environmental Protection Agency official recently commented, "[A]ny undergraduate who turned such a report in to his professor would surely get a very poor grade."<sup>70</sup> However, in response to opposition claims that a more economically favorable way to clean up the Delhi buses could exist, the Court directed the Bhure Lal Committee, an advisory research board for the government, to investigate these claims and determine which fuel types could be considered environmentally acceptable.<sup>71</sup>

## C. Bhure Lal Committee

The Environmental (Protection) Act of 1986 gave the federal government the authority to act in the interests of "protecting and improving the quality of the environment and preventing, controlling, and abating environmental pollution."<sup>72</sup> Recognizing the need for expertise in specific cases, the drafters of the Act also empowered the government to establish committees to handle these individual cases.<sup>73</sup> Exercising this authority regarding air pollution in Delhi, the Ministry of Environment and Forests (MoEF) established the Environment Pollution (Prevention and Control) Authority (commonly and hereafter referred to as the Bhure Lal Committee) in 1998.<sup>74</sup> This five-member committee was originally composed of a representative from the Central Pollution Control Board, the Automobile Manufacturers Association of India, the Centre for Science and Environment (an environmental NGO), the Transport Department, and the Central Vigilance Commission.<sup>75</sup> Because the committee was designed to express the interests and expertise of the major affected parties, the Supreme Court has consistently looked to the committee as its fact-finding commission and has relied almost exclusively on its findings when making its decisions in the Delhi Pollution Case.

## D. Supreme Court's Order of April 5, 2002

In its order of April 5, 2002, the Supreme Court reaffirmed its commitment to CNG conversion and voiced its frustration with the implementing agencies. It scolded the Delhi government for its defiance of the Court's orders to implement the CNG conversion and discredited the claims that CNG was not technically or economically feasible.<sup>76</sup> It pointed out that India does not currently import any CNG and that its domestic supply is more than adequate for both the country's and

67. Press Release, Centre for Science and Environment, (March 30, 2001), at [http://www.cseindia.org/html/cmp/air/press\\_20010330.htm](http://www.cseindia.org/html/cmp/air/press_20010330.htm).

68. Press Release, Centre for Science and Environment (June 29, 1998), available at [http://www.cseindia.org/html/cmp/air/press\\_19980629.htm](http://www.cseindia.org/html/cmp/air/press_19980629.htm).

69. Press Release, Centre for Science and Environment (March 30, 2001), *supra* note 67.

70. *Id.*

71. *Delhi Pollution Case 1998*, *supra* note 2.

72. C.I.S. Part IIA (1986), *supra* note 9, § 3, art. 1.

73. *Id.* § 3, art. 3.

74. MINISTRY OF ENV'T & FORESTS (INDIA), Order (Jan. 29, 1998), available at <http://envfor.nic.in/legis/ncr/ncrauthority.html>.

75. *Id.*

76. *Delhi Pollution Case 2002*, *supra* note 49, art. 5.

Delhi's transport needs.<sup>77</sup> After consulting bus manufacturers, the Court concluded that diesel bus replacement was proceeding at an unacceptably slow rate due to an "imaginary shortage in the availability of gas."<sup>78</sup> The Court sought to further establish itself as a protector of public health, standing against corporate greed to ensure the rights of citizens and especially children, whose "sound is not heard" by the government otherwise.<sup>79</sup>

The Court's orders attempted to discredit any existing concerns with the CNG implementation. To prevent the government from blaming the lack of implementation on a shortage of CNG buses, the Court, after consulting officials from Ashok Leyland and Tata Engineering Locomotive Company, the two main manufacturers of CNG-equipped buses, ordered the immediate installation of 1,500 CNG buses and the replacement of 800 diesel buses per month beginning May 1, 2002, until the entire fleet is converted.<sup>80</sup> Any diesel bus continuing to operate in defiance of this order would be fined Rs. 500 per day for the first thirty days and Rs. 1,000 per day thereafter.<sup>81</sup> Because some opponents to the conversion continue to charge that a CNG shortage could paralyze public transportation in Delhi, the Court ruled that the "Union of India will give priority to [the] transport sector including private vehicles all over India with regard to the allocation of CNG."<sup>82</sup> The Court also recognized that other energy sources like liquefied propane gas (LPG) could be considered clean fuels, and permitted the use of any other such fuels as are recommended by the Bhure Lal Committee.<sup>83</sup>

Despite the resistance from enforcement agencies and countless attempts to subvert its orders, the Court has maintained its independence from private interests in seeking to champion the public good. By relying on the most up-to-date research provided to it by unbiased sources, the Court has been able to counter the arguments of its opposition, while it continues to push for more environmentally friendly transport options.

77. *Id.* art. 13.

78. *Id.* art. 40.

79. *Id.* art. 23.

80. *Id.* art. 39.

81. *Id.* art. 41. These fines, however, are trivial, amounting to only U.S. \$10 and \$20 per day.

82. *Id.* art. 43.

83. *Id.* art. 42. The committee has investigated and rejected the certification of ULSD as a clean fuel.

## IV. ECONOMIC ANALYSIS OF THE COURT'S DECISION

The conversion of the entire Delhi bus fleet from diesel to CNG will require a complete overhaul of the fuel supply structures within the city. In addition to the fact that all of the existing diesel buses will either need to be replaced or upgraded to CNG, the Delhi government will need to figure out how to supply the city through existing or new pipelines, and will have to develop a distribution plan to allow fast and easy access to this fuel. Such reforms in the distribution infrastructure will require a considerable financial investment, one that many opponents to the conversion say is too large to justify. However, the Court has maintained that public health interests must supersede the financial interests of a private company and continues to reject economic concerns in opposition to its orders.<sup>84</sup> Furthermore, based on the findings of the Bhure Lal Committee, the Court has scolded the Delhi government for exaggerating the economic hardships associated with the conversion, strengthening its resolve to stand up for the health of the citizens of Delhi.<sup>85</sup>

### A. Concerns Over Supply of Compressed Natural Gas (CNG)

At present, CNG is supplied to the city of Delhi through the HBJ pipeline operated by the fuel company Indraprastha Gas Ltd.<sup>86</sup> The pipeline, capable of transporting 33.4 million standard cubic meters per day (mmscmd), is at present the only source of CNG for Delhi.<sup>87</sup> Access to fueling stations represents another major problem for the CNG conversion. In its initial order to convert the city's buses to CNG, the Court recommended increasing the number of CNG fueling stations from nine to eighty.<sup>88</sup> Silencing the expressions of the Delhi government that the timely installation of so many stations is impossible, Indraprastha Gas Ltd. reports that they currently have ninety-seven fueling stations in operation in Delhi.<sup>89</sup> However, to enhance the effectiveness of these existing stations, many outdated nozzles must be replaced to allow the filling of automobiles in a timely manner. The use of more modern technology in the form of NGV1 nozzles<sup>90</sup> would quickly reduce long queues at filling stations.<sup>91</sup>

The Ministry of Petroleum and Natural Gas (MoPNG) seems concerned that the CNG bus conversion may not be sustainable in the long term, arguing that Delhi's increased demand for CNG will diminish the supply for other industrial consumers around the country.<sup>92</sup> However, studies conducted by the Bhure Lal Committee suggest otherwise. The increased demand for CNG will only require the city to use about five percent of the current supply of gas through the HBJ pipeline.<sup>93</sup> Furthermore, India's supply of CNG comes from entirely domestic sources;<sup>94</sup> whereas India imports sixty percent of its crude oil.<sup>95</sup> To further solidify the case in favor of CNG, the

84. *Id.* art. 15.

85. *Id.* art. 13.

86. Press Release, Centre for Science and Environment (Nov. 15, 2001), available at [http://www.cseindia.org/html/cmp/air/press\\_20011115.htm](http://www.cseindia.org/html/cmp/air/press_20011115.htm).

87. ENV'T POLLUTION (PREVENTION & CONTROL) AUTH. FOR THE NAT'L CAPITAL REGION, REPORT ON CLEAN FUELS 4.

88. *Delhi Pollution Case 1998*, *supra* note 2, art. 3.

89. Indraprastha Gas Ltd., *CNG Station Locations*, at <http://www.iglonline.net/station.asp> (last visited April 2, 2003).

90. CENTRE FOR SCIENCE AND ENVIRONMENT, STATUS OF IMPLEMENTATION OF CNG AS A FUEL FOR URBAN BUSES IN DELHI 16 (2001). NGV1 nozzles have a higher flow capacity of gas and are designed to reduce the time of refueling to approximately five minutes.

91. *The CNG Sabotage*, *supra* note 57.

92. ENV'T POLLUTION AUTH., *supra* note 87, at 13.

93. *Id.* at 4. The MoPNG estimated that Delhi's demand for CNG would increase to 2.0 mmscmd by the middle of 2002, while IGL, the company actually responsible for supplying the CNG, estimates that the demand will only reach 0.95. By either estimate, the increased supply would account for no more than 6% of the pipeline's capacity.

94. *Delhi Pollution Case 2002*, *supra* note 49, art. 52.

95. Clean Cities International, India—Relevant Data and Facts, at [http://www.ccities.doe.gov/international/india\\_background.shtml](http://www.ccities.doe.gov/international/india_background.shtml).

country is expected to deplete its existing oil reserves by the year 2012.<sup>96</sup> Thus, instead of jeopardizing the national supply of CNG, the conversion could make the country much less dependent on oil imports and strengthen its balance of payments.

Because the HBJ pipeline is currently the city's lifeline of CNG, there is concern that a disruption in the pipeline could paralyze the city's public transport. However, the Bhure Lal Committee rejected these claims as well, pointing out that pipelines are designed to continue working through minor disruptions in pumping stations and that the city's meager demand could be satisfied even if the flow of CNG is restricted in the pipeline.<sup>97</sup> To further ease these concerns, the Court mandated that the Delhi transport sector receive priority in CNG supply over other industries in the event of a disruption or shortage of gas.<sup>98</sup> The committee also examined other cities that rely upon piped gas and found that many maintain reserve stores of LPG that can be readily converted to CNG in the event of a serious disruption in the pipeline.<sup>99</sup>

## B. Cost Comparison Between CNG and Diesel

The economic concerns over the conversion to CNG revolve around the cost of infrastructural changes that must be made. All of the city's diesel-powered buses will either be replaced or will have to be refitted with CNG engines. This conversion becomes especially unattractive due to the fact that a new CNG bus costs approximately Rs. 16 lakhs, (\$32,000) compared to a new diesel bus, which costs about Rs.10 lakhs (\$20,000).<sup>100</sup> Coupled with the high costs of reforming the distribution infrastructure, the cost of these conversions has made the bus and fuel industries reluctant to make such radical changes.

However, according to the findings of the Bhure Lal Committee, the resisting industries have exaggerated the cost of converting the bus fleet to CNG. For one thing, CNG is less expensive than diesel; according to recent figures, CNG costs approximately Rs. 12.81/litre<sup>101</sup> compared to over Rs. 16.60/litre for diesel.<sup>102</sup> The nature of CNG as a fuel decreases the internal wear on engines, resulting in decreased maintenance costs and increased engine life compared to diesel.<sup>103</sup> In the United States, where costs of CNG are comparable to India, the Department of Energy estimates that despite the increased cost of a CNG bus, the average CNG bus pays for itself in about three years.<sup>104</sup>

## C. Other Concerns for CNG Conversion

Some opponents to the conversion to CNG have argued that CNG is highly explosive and therefore puts riders at an increased risk. However, the Natural Gas Vehicle Coalition argues that CNG has an excellent safety record and points to the structural integrity of CNG fuel storage containers as well as to the physical properties of CNG that make it at least as safe as diesel.<sup>105</sup> Natural gas

96. *Id.*

97. ENV'T POLLUTION AUTH., *supra* note 87, at 17.

98. *Delhi Pollution Case 2002*. *supra* note 49, art. 43.

99. ENV'T POLLUTION AUTH., *supra* note 87, at 17.

100. R. Ramachandran, *The Bottleneck*, FRONTLINE MAGAZINE, March 1, 2002, available at <http://www.flonnet.com/fl1904/19040930.htm>.

101. R. Prasanna, *Missing the Bus—CNG Crisis: Commuters Switch to Scooters and Cars in Delhi*, THE WEEK, August 19, 2001, available at <http://www.the-week.com/21sep02/events12.htm> (citing Tata Energy Research Institute).

102. Ranjan Kumar Bose & Daniel Sperling, *Transport in Delhi, India: Environmental Problems and Opportunities* 6 (2002), available at <http://www.its.berkeley.edu/conferences/trb/01091.pdf>.

103. NATURAL RES. DEF. COUNCIL, NO BREATHING IN THE AISLES: DIESEL EXHAUST INSIDE SCHOOL BUSES 19 (2001), available at <http://www.nrdc.org/air/transportation/schoolbus/schoolbus.pdf>.

104. U.S. DEP'T OF ENERGY, NATURAL GAS BUSES: SEPARATING MYTH FROM FACT (May 2000).

105. NAT'L GAS VEHICLE COALITION, ABOUT NATURAL GAS VEHICLES, at <http://www.ngvc.org/ngv/ngvc.nsf/bytitle/fastfacts.htm>.

storage cylinders are much stronger and more secure than ordinary fuel tanks due to government mandated “severe abuse” tests, exposing them to heat extremes, gunfire, and collisions.<sup>106</sup> Furthermore, the ignition temperature for CNG is about 600°F greater than gasoline, making it less likely to combust accidentally.<sup>107</sup> It also has a very narrow range of flammability; if the CNG concentration in the air is lower than five percent or greater than fifteen percent, the gas will simply not ignite, making “accidental ignition or combustion of natural gas unlikely.”<sup>108</sup>

Finally, officials in the Delhi government have charged that no other country in the world has converted such a large fleet of buses to CNG, making Delhi’s move risky and irresponsible. These charges are simply untrue. In the United States, natural gas buses account for over twenty percent of all new bus orders<sup>109</sup> and the use of alternative fuels continues to increase.<sup>110</sup> Argentina boasts the world’s largest fleet of natural gas vehicles, with 686,496 such automobiles as of October 2001.<sup>111</sup> Partially motivated by hosting the 2004 Olympic games, the Chinese government has begun to convert the country’s buses to alternate energy sources.<sup>112</sup> By the beginning of the games in the summer of 2004, the government expects to have 18,000 CNG, LPG, and electricity-powered buses plying the streets of Beijing.<sup>113</sup> In light of this international comparison, Delhi’s target fleet of 10,000 CNG buses seems more than reasonable.

106. *Id.*

107. *Id.*

108. *Id.*

109. U.S. DEP’T OF ENERGY, *supra* note 104.

110. U.S. GEN. ACCOUNTING OFFICE—REPORT TO CONGRESSIONAL COMMITTEES, MASS TRANSIT: USE OF ALTERNATIVE FUELS IN TRANSIT BUSES (Dec. 1999), available at <http://www.gao.gov/>.

111. WORLD BANK ENERGY SECTOR MANAGEMENT ASSISTANCE PROGRAMME (ESMAP), URBAN AIR POLLUTION: INTERNATIONAL EXPERIENCE WITH CNG VEHICLES (Oct. 2001), available at [http://lnweb18.worldbank.org/SAR/sa.nsf/Attachments/Briefing2/\\$File/Briefing\\_Note\\_No\\_2\\_revised.pdf](http://lnweb18.worldbank.org/SAR/sa.nsf/Attachments/Briefing2/$File/Briefing_Note_No_2_revised.pdf).

112. *Delhi Pollution Case 2002*, *supra* note 49, art. 32.

113. *Id.*

## V. ENVIRONMENTAL ANALYSIS OF THE COURT'S CNG DECISION

In addition to setting legal precedents, the Supreme Court ruling to convert all of the buses in Delhi to CNG represents a cogent environmental decision. Although many agencies responsible for implementing the Court's orders argue otherwise, it is clear that CNG is a much more environmentally friendly fuel than even the safest forms of diesel. Also, although the Court orders will require major infrastructural changes, the public health benefits of such reforms seem to far outweigh these financial concerns.

### A. Effects of Air Pollution on Health

While several officials responsible for enforcing the Court's orders, including the Delhi Health Minister, have tried to argue that air pollution does not increase the risk of cancer,<sup>114</sup> a recent study based on research conducted by the American Cancer Society from 1982-1998 proves otherwise. This study of over 1.2 million participants determined that an increase of 10 µg/cum of particulate matter (PM), like dust and smoke in the atmosphere, is associated with a four-percent increase in all-cause mortality, a six-percent increase in cardiopulmonary mortality, and an eight-percent increase in lung cancer mortality.<sup>115</sup> The Supreme Court of India cited the study in one of its recent rulings.<sup>116</sup> Another study conducted by the Natural Resources Defense Council, a U.S. NGO, determined that the physiology of developing lungs makes children more susceptible to the health risks (asthma, lung cancer, and respiratory infections) of PM in the atmosphere.<sup>117</sup> This study went on to identify CNG as a safe fuel to help minimize the exposure of children to PM.<sup>118</sup>

The citizens of Delhi have already begun to feel the effects of such high levels of PM. The winter months create atmospheric conditions that trap PM close to the ground, making the air pollution problem increasingly potent.<sup>119</sup> As a result, hospitals report increased admissions of patients with cardiac and respiratory symptoms during the winter months; in 1998, the number of asthma cases in the city increased over 900 percent from November to December.<sup>120</sup> The city also has the highest rates of air pollution-aggravated diseases in the world, with twelve percent of all deaths in the city resulting from acute respiratory disease.<sup>121</sup> As noted earlier, approximately 10,000 people die in Delhi every year from complications caused by air pollution.<sup>122</sup> These studies, and an overwhelming array of scientific data, show that the air pollution in Delhi poses a very serious health risk.

114. Press Release, Centre for Science and Environment (June 17, 1998), available at [http://www.cseindia.org/html/cmp/air/press\\_19980617.htm](http://www.cseindia.org/html/cmp/air/press_19980617.htm).

115. C. Arden Pope et al., *Lung Cancer, Cardiopulmonary Mortality, and Long-Term Exposure to Fine Particulate Air Pollution*, JAMA, March 6, 2002, at 1132.

116. *Delhi Pollution Case 2002*, supra note 49, art. 19.

117. NATURAL RES. DEF. COUNCIL, supra note 103, at 15.

118. *Id.* at 18.

119. Press Release, Centre for Science and Environment (Dec. 14, 2000), available at [http://www.cseindia.org/html/au/au4\\_20001214.htm](http://www.cseindia.org/html/au/au4_20001214.htm).

120. *Id.*

121. *Delhi Pollution Case 2002*, supra note 49, art. 26.

122. Press Release, Centre for Science and Environment (July 18, 2000), available at [http://www.cseindia.org/html/cmp/air/press\\_20000718.htm](http://www.cseindia.org/html/cmp/air/press_20000718.htm).

## **B. The Impact of Diesel and CNG on Air Pollution: The Role of Technology in Cleaning up the Air**

Additional studies have identified the contribution of diesel emissions to the city's overall pollution levels. A report submitted to the Court by the Bhure Lal Committee in 1999 concluded that ninety percent of the PM and nitrogen oxides (NOx) from vehicular emissions in Delhi come from the exhaust of diesel-powered vehicles.<sup>123</sup> It became clear from these findings that developing an environmentally friendly alternative to diesel could have a significant impact on air quality in the city.

Numerous emissions studies conducted in the United States, Australia, and India prove that CNG is a much cleaner fuel than diesel or even ULSD. Working in conjunction with the U.S. Department of Energy, the Mechanical and Aerospace Engineering Department at the University of West Virginia has developed a portable chassis dynamometer capable of measuring pollutant levels in vehicular exhaust.<sup>124</sup> In a study conducted on the emissions from public buses in Boulder, Colorado, the group observed that CNG buses give a fifty-eight percent reduction in NOx levels and a ninety-seven percent decrease in levels of PM.<sup>125</sup> Although many officials in the Delhi government have proposed to list ULSD as a clean fuel on par with CNG, another study sponsored by the Australian government in 2000 determined that PM emissions from ULSD buses are six times the levels measured on CNG buses.<sup>126</sup> It has been estimated that the carcinogenic effect of one diesel car is the equivalent of 85-94 new CNG cars.<sup>127</sup> In its report to the Supreme Court submitted in July of 2001, the Bhure Lal Committee determined that low sulfur diesel<sup>128</sup> "cannot be regarded as an environmentally acceptable fuel."<sup>129</sup> It concluded that only CNG and liquefied propane gas (LPG) met the appropriate criteria to be considered environmentally acceptable.<sup>130</sup>

123. *Delhi Pollution Case 1999*, *supra* note 53, art. 1.

124. U.S. DEP'T OF ENERGY, *supra* note 104.

125. *Id.* University of West Virginia's portable chassis dynamometer study tested commercial buses in Boulder, Colorado and found these significantly reduced PM and NOx emissions in CNG buses.

126. TOM BAER ET AL., COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANIZATION, LIFE CYCLE EMISSIONS ANALYSIS OF ALTERNATIVE FUELS FOR HEAVY VEHICLES 22 (2000).

127. NATURAL RES. DEF. COUNCIL, *supra* note 103 at 19.

128. ULSD has a sulfur content of 500 ppm.

129. ENV'T POLLUTION AUTH., *supra* note 87, at 12.

130. *Id.*

## VI. WEAKNESSES OF THE COURT'S DECISION IN PROVIDING LASTING ENVIRONMENTAL PROTECTION

With the decision to convert the Delhi bus fleet to CNG, the Supreme Court has demonstrated its dedication to environmental protection and the well being of the citizens of Delhi. Its ruling represents a plan that is not only environmentally sound but could also be economically feasible. Despite the fact that the Court's ruling is environmentally friendly and has a realistic chance of successfully controlling air pollution in Delhi, it may nonetheless be detrimental to the future of environmental management in India.

S.P. Sathe, the director of the Institute of Advanced Legal Studies in Pune, India, argues that "(Judicial) activism . . . is excessivism when a court undertakes responsibilities normally discharged by other co-ordinate organs of the government."<sup>131</sup> While many environmental advocates are delighted by the strong stance of the Supreme Court in the Delhi pollution case, this rise in judicial power might be at the expense of other environmental improvements, including much needed funding for the PCBs and the MoEF, and the strengthening of inspection, monitoring, and enforcement structures. The Court's devotion to the case has greatly increased governmental and public awareness for the air pollution problems in Delhi, making it a success in some ways, but this awareness must now be harnessed to ensure permanent environmental protection throughout India.

### A. Need for Strengthening of Pollution Control Boards

One of the most serious problems with the Supreme Court's decision to mandate a conversion of the Delhi bus fleet to CNG is that its effects will be limited to the city of Delhi. The Court's decision will have no impact on vehicle regulations or emissions in other cities, and will do nothing to mitigate air and water pollution in other industries. The Water and Air Acts created the Pollution Control Boards as autonomous bodies under the Ministry of Environment and Forests to design and enforce emissions and effluent standards for polluting industries.<sup>132</sup> Accordingly, it is the responsibility of these PCBs, and not the Supreme Court, to devise solutions to Delhi's pollution problem. Environmental lawyer Shyam Divan describes the Supreme Court's decision as a "mistake of judgment," arguing that "judicial activism has restricted the growth of a responsible and independent bureaucracy."<sup>133</sup> Strengthening these monitoring and enforcement structures would seem to provide the most effective long-term solutions.

Despite their apparent power, the PCBs have not yet fulfilled their potential as enforcement agencies. They have no authority to impose fines, cannot threaten imprisonment for non-compliance, and are reliant on the courts to enforce their orders.<sup>134</sup> Their power to shut down polluting factories is often compromised by their reluctance to bring about unemployment and economic dislocation.<sup>135</sup> Funding for the Boards is also a serious problem. Although the Water

131. Sathe, *supra* note 31, at 43.

132. See Section II.B.

133. Shyam Divan, *A Mistake of Judgment*, DOWN TO EARTH, April 30, 1992, at 51.

134. KUIK ET AL., *supra* note 11, at 87.

135. Pravinbhai J. Patel v. State of Gujarat, (2) Guj. L. Rep. 1210 (1995), reprinted in DIVAN & ROSENCRANZ, *supra* note 1, at 226-28: Neither the industry, which causes pollution, nor the government nor the [Gujarat Pollution Control Board] . . . have paid more than lip service to the [e]nvironmental laws . . . the continued violation of the law by the industrial units has become a habit, and condoning it by the governmental authorities, a practice. . . . Since 1980, till today, not a single unit or person has been convicted of having violated any of the pollution laws. In fact not in a single case [has] the prosecution proceedings . . . been completed. . . . [Government] has abetted or collaborated with the industry in breaking the law . . . .

Closure of some of the units would, undoubtedly, cause them a financial set back. . . . [I]n these . . . units, about 25,000 workers are employed. . . . As against this, pollution . . . caused by these units is adversely affecting nearly [one million] people.

Cess Act of 1977<sup>136</sup> attempted to raise funds for the Boards while regulating water consumption, the money generated by the cess (charge) provides very modest revenue for the operating budgets of the SPCBs.<sup>137</sup>

As one example, the state of Karnataka SPCB had a 1993 budget of Rs. 41.416 million to pay for the monitoring of over 138,000 industrial units in the state.<sup>138</sup> This amounts to about Rs. 300 per industrial unit, or a U.S. equivalent of about \$6.<sup>139</sup> As a result, the Karnataka SPCB was only able to monitor 8,966 of the state's industrial units, a meager 6.5 percent.<sup>140</sup> Furthermore, the Karnataka SPCB has lacked the resources to effectively prosecute and shut down offending industries. From the inception of the Water and Air Acts, in 1974 and 1981 respectively, until 1994, it had launched only eighty-seven prosecutions under the Water Act and thirty-seven prosecutions under the Air Act, resulting in the closing of only twenty-two industrial units.<sup>141</sup> Despite whatever limited successes the PCBs may have had, declining air and water quality continue to be serious issues in India.

The Indian government has already recognized the need to increase funding for agencies that enforce environmental regulations. In the National Conservation Strategy and Policy Statement on Environment and Development, drafted in 1992, the MoEF recognized that to effectively implement any environmental laws it must strengthen the requisite enforcement machinery.<sup>142</sup> Therefore, for any environmental regulations to be effective in India, Parliament must appropriate money to the MoEF to strengthen the enforcement capabilities of the PCBs.

In addition to Parliamentary funding, the Boards must be given power to impose and collect fines from polluting industries in amounts proportional to their emissions levels. If appropriately levied, these taxes would establish pollution as an economic liability and could encourage corporate investment in environmentally friendly technology and research.<sup>143</sup> Also, in contrast to a system of regulation, industries are rewarded for reducing their emissions below the required levels. Economic incentives and tax cuts can be offered to industries that exceed the established standards.<sup>144</sup> The revenue generated from these taxes can yield a "double dividend" if tax revenues are used to help rectify market distortions caused by existing government subsidies.<sup>145</sup> For example, to make transport more affordable to the general public, diesel fuel is highly subsidized in India.<sup>146</sup> Money raised by the PCBs could be devoted towards reducing or eliminating this subsidy, thereby encouraging conversion to more environmentally friendly fuels.

136. Water (Prevention & Control of Pollution) Cess Act, No. 36 (1977) (India). Created to raise funds for the Central and state pollution control boards, the Water Cess Act allows the government to collect a cess on water consumed by industries, thus discouraging wasteful water usage while raising money to further combat air and water pollution.

137. KUIK ET AL., *supra* note 11, at 101. Water cess reimbursement funds account for less than 10% of the revenue for the Karnataka SPCB and this fraction has been on the decline. Furthermore, the cess has been ineffective as an incentive to encourage the installation of pollution control technologies because such equipment often costs much more than the water cess. ARMIN ROSENCRANZ ET AL., *ECONOMIC APPROACHES FOR A GREEN INDIA* 100 (1999).

138. KUIK ET AL., *supra* note 11, at 100.

139. *Id.*

140. *Id.* at 101.

141. *Id.* at 98.

142. MINISTRY OF ENV'T & FORESTS, *supra* note 12.

143. ARMIN ROSENCRANZ ET AL., *ECONOMIC APPROACHES FOR A GREEN INDIA* 57 (1999).

144. *Id.*

145. *Id.* at 58.

146. Prasannan, *supra* note 101.

## B. Current Situation in Delhi Presents Unique Opportunity to Environmentalists

The current air pollution problem in India provides environmental advocates with a unique opportunity to force the government to enact large-scale reforms in the regulation of air pollution. Historically, it has been such extreme cases that have prompted the government to act. The country's most devastating environmental disaster occurred in the city of Bhopal in 1984 when a toxic cloud of methyl isocyanate was accidentally released from the Union Carbide pesticide plant killing over 2,500 people and injuring thousands more.<sup>147</sup> In the aftermath of the accident, the government enacted major legislative reforms that impacted the country as a whole, attempting to devise ways to minimize the risk of another devastating industrial disaster. The Environment (Protection) Act of 1986, which set up the Ministry of the Environment and Forests and recognized the government's need to control the release of potentially harmful elements in the atmosphere and water,<sup>148</sup> was inspired by the disaster at Bhopal.<sup>149</sup> The fallout of the Bhopal disaster even inspired the spread of environmental legislation across the world. For example, in 1986, the U.S. Congress passed an Emergency Planning and Community Right-to-Know Act, which set up a checklist of hazardous chemicals and required industries to disclose how much of each listed chemical they were releasing into the environment.<sup>150</sup>

While some may argue that Bhopal was a more serious and acute environmental disaster than the current air conditions in Delhi, the air pollution in Delhi has a chronic harmful effect on the health of its residents. While over 2,500 people died in the Bhopal catastrophe,<sup>151</sup> 10,000 people die in Delhi every year due to complications from air pollution, and thousands more are at risk.<sup>152</sup> For environmentalists, the extreme situation in Delhi represents more than just a violation of human rights; it is an opportunity to effect lasting change. The pollution problem in Delhi is political capital that could be used to enact nationwide environmental reforms that could provide regulations and funding for more than just vehicular pollution. In the wake of the Delhi pollution case, it will be difficult to motivate the country to develop nationwide management reforms in response to air pollution levels in another city, where air pollution problems and resulting health impacts are less egregious than those in Delhi.

## C. The Supreme Court as the "Last Resort"

It is also imperative for the Prime Minister to act boldly to prevent the Indian Supreme Court from usurping the executive branch's constitutional obligation to protect the environment. The Air and Water Acts, Environmental (Protection) Act, and policy statements made by the MoEF all require the government to take steps to protect the environment. The Supreme Court cannot become a crutch upon which environmentalists are forced to lean in order to protect the environment. By ruling in this case on its own motion instead of mandating that the Central government use its statutory powers to control air pollution throughout the country, the Supreme Court is establishing itself as the main protector of the environment, and enabling the Executive to shed this controversial responsibility. Similarly, not wishing to alienate their corporate supporters in the

147. DAN KURZMAN, *A KILLING WIND: INSIDE UNION CARBIDE AND THE BHOPAL CATASTROPHE* ix (1987).

148. MINISTRY OF ENV'T & FORESTS, *supra* note 13 art. 6.

149. KUIK ET AL., *supra* note 11 at 75.

150. U.S. EPA, FACT SHEET: EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 (EPCRA) (1994), *available at* <http://es.epa.gov/techinfo/facts/pro-act6.html>.

151. KURZMAN, *supra* note 147 at 130.

152. Press Release, Centre for Science and Environment, *supra* note 50.

diesel industry, many legislators may fail to demand rules that implement controversial environmental legislation, leaving these matters to Supreme Court justices—just as the U.S. Congress frequently relies on the federal judiciary to rein in polluters.

When Justice Goswami described the Supreme Court as “the last resort of the oppressed and bewildered,”<sup>153</sup> he was careful to point out that the Court is truly the last resort, responsible for intervening in only the most exceptional cases. Although the Court is currently sensitive to environmental concerns, entrusting it with the future of environmental protection seems unwise. While increased funding to the PCBs might provide long-lasting strengthening of environmental regulations across the country, the Court has thus far failed to require such measures.

The Supreme Court has, in a number of cases, required government agencies to perform various statutory duties. As far back as 1980, in *Municipal Council Ratlam v. Vardhichand*, the Supreme Court compelled a statutory body to carry out its duties to the community by constructing sanitation facilities. The Court directed the Municipality to take immediate action within its statutory powers to construct a sufficient number of public latrines, provide water supply and scavenging services, construct drains and cesspools, and provide basic sanitation to the public.<sup>154</sup> In several cases, the Court has taken over detailed administrative aspects of the pollution or resource depletion problems at hand.<sup>155</sup>

#### **D. The Court’s Decision Takes Legal Advantage Away From Environmentalists**

By ruling in this case, the Supreme Court also takes away the legal advantage granted to the PCBs by the Air Act Amendments of 1987 and the Water Act Amendments of 1988. Prior to these amendments, the PCBs had to mount a case against a polluting industry by proving that its emissions were a danger to public health, and by recommending economic solutions to the problem.<sup>156</sup> These measures involved the Boards in lengthy and costly legal battles to shut down an offending industry, using funds that might have been better spent on more effective monitoring and inspection efforts. The amendments in 1987 gave the PCBs the authority to restrict the “supply of electricity, water, or any other service” in order to effectively shut down offending industries.<sup>157</sup> This withdrawal of services forces an affected industry to sue the SPCB, thus shifting the burden of proof from the Boards to the offending industries.

However, in the Delhi Pollution Case, the Supreme Court seems to have given this legal advantage back to the industries by placing the burden of proof on environmentalists. Despite the fact that the Court praises the “precautionary principle,” which places the “onus of proof” on the industry to prove that its action is environmentally benign, by ruling in this case, the Court contradicts this principle and relieves the industry of this legal obligation.<sup>158</sup> As applied in India, the precautionary

153. *State of Rajasthan v. Union of India*, *supra* note 34.

154. *Municipal Council, Ratlam v. Vardhichand*, (1980) 4 S.C.C. 162.

155. In *T.N. Godavarman Thirumulpad v. Union of India*, (1997) 2 S.C.R. 642, the Supreme Court not only took over the administration of forests in the country, but also issued directions requiring strict enforcement of the Forest (Conservation) Act, 1980 (India). In the *CRZ Notification Case*, (1996) 5 S.C.C. 281, rather than assume responsibility for protection of the coast, the Court directed the Central Government to form special coastal authorities to protect stretches of coastline. In cases involving individual polluters, the Court has required the state Pollution Control Board to strengthen its enforcement after it obtains an independent report from the Central Pollution Control Board or the National Environmental Engineering Research Institute (NEERI). *See, e.g., Re: Bhavani River-Sakthi Sugars Ltd.*, (1998) 3 S.C.R. 929. A few months later in the same case, the Court observed, “We are somewhat unhappy about the manner in which the Pollution Control Board gave its consent, unmindful of the grave consequences which have been . . . demonstrated before us.” (1998) 3 S.C.R. at 930. The Court then remanded the matter to the Madras High Court, asking it to bring about recovery of the pollution-damaged areas (1998) 3 S.C.R. at 931.

156. *KUIK ET AL.*, *supra* note 11 at 85.

157. *Air (Prevention and Control of Pollution) Act*, *supra* note 17 art. 31.

158. *Delhi Pollution Case 2002*, *supra* note 49.

principle works under the assumption that air pollution emissions are harmful until proven to be environmentally benign.<sup>159</sup> However, in the Delhi Pollution Case, because the polluters were sued by concerned citizens, the Court placed the burden of proof on the citizen enforcers, rather than on the transport sector.

By attacking vehicular pollution in Delhi, environmentalists are focusing their attention on motor vehicles in the country's most polluted city. Even if the Court is successful in reforming the bus system in Delhi, the ruling will affect only the instant case. It will not affect other industries or cities, which will argue that their emissions, or total pollution load, are not as severe as the pollution levels in Delhi. Therefore, before any restrictions could be applied against an industry that produces less pollution, environmentalists would again have to successfully attack the industry in court.

The Supreme Court's ruling could also backfire for environmentalists if the Court's orders are not enforced. If the enforcement agencies are successful in inspiring public opposition to the ruling and obstructing its implementation, it will appear that no pollution controls are warranted. If the Court cannot regulate one of the worst polluters in the country, most likely it will not have the legitimacy to attack less severe polluters. Environmentalists have little to gain and everything to lose—if they win, the Court's decision applies to few if any other industries; if they lose, further environmental litigation could be stymied by a precedent that even the worst polluter in the country—the Delhi bus management—is free from regulations.

### **E. Recent Developments May Further Weaken the Supreme Court's Ruling**

The partial implementation of the Supreme Court's orders to convert Delhi buses to CNG suggests that there are practical limits to the exercise of judicial power in India. A recent rash of fires on CNG-powered buses has raised questions about the safety of CNG as a fuel source.<sup>160</sup> Long queues at refueling stations have curtailed bus service by reducing the number of active buses in the already depleted bus fleet.<sup>161</sup> Public opinion seems to be swaying against the CNG conversion and in favor of the recently opened Delhi subway system, where sixty-two miles of track will soon connect ninety stations throughout the city.<sup>162</sup>

Some of the roadblocks to CNG implementation could have been avoided, or at least minimized, had the conversion been originally mandated through the normal legislative process. In the recent haste to accommodate the Court's orders and convert existing buses to CNG, safety considerations seem to have been overlooked, resulting in frequent gas leaks and fires at refueling stations.<sup>163</sup> Legislative and executive intervention is now needed to establish safety protocols and manufacturing standards that will ensure a smooth and safe transition.<sup>164</sup>

159. DIVAN & ROSENCRANZ, *supra* note 1, at 42; see also *Vellore Citizens' Welfare Forum v. Union of India* A.I.R. 1996 S.C. 2715.

160. Lennart Erlandsson & Christopher Weaver, Centre for Science and Environment, *Safety of CNG Buses in Delhi* (Aug. 9 2002), at 5, available at <http://www.cseindia.org/html/cmp/air/pdf/SAFETYRE.PDF>. The majority of gas leaks and fires occurred during refueling due to a defective pressure seal.

161. Jill McGivering, *Striking Delhi Drivers Cause Travel Chaos*, BBC NEWS, Aug. 10, 2001, available at <http://news.bbc.co.uk/1/hi/world/south.asia/1483915.stm>. In frustration for waiting several hours a day to refuel, thousands of Delhi taxi and rickshaw drivers went on strike in 2001.

162. David Rhode, *Clean, Modern Subway, Efficiently Built. In India?*, N.Y. TIMES, Jan. 29, 2003, at A4.

163. Erlandsson & Weaver, Centre for Science and Environment, *supra* note 160 at 3-4, 7. Some gas station attendants estimate the number of leaks at almost one per day. Furthermore, if not properly installed, a converted CNG bus can actually give off more harmful pollutants than a diesel-powered bus, making the CNG conversion costly and pointless.

164. *Id.* at 4, 23-24.

Furthermore, the Court cannot coordinate the installation of dozens of CNG fuelling stations, a task that might have been accomplished had the conversion been originally planned and overseen by the Delhi Transport Corporation (DTC) in conjunction with Indraprastha Gas Limited (IGL).<sup>165</sup> While the DTC and IGL have finally begun to work together, the Court's deadline has prevented them from converting to CNG in a cost effective manner and with minimum congestion at refueling stations.<sup>166</sup>

The Supreme Court should also take notice of the opening of the Delhi subway system, reportedly one of the most advanced in the world. In contrast to the Delhi Pollution Case, which has resulted in a clumsy and partial conversion to CNG after eighteen years of litigation, construction of the multi-billion dollar Delhi subway system remains on schedule and on budget.<sup>167</sup> By subcontracting most of the work to private firms and relying heavily on bilateral (Japanese) aid money, major civil projects can apparently be completed efficiently, without any element of compulsion by the Court.<sup>168</sup>

165. Indraprastha Gas Limited (IGL) is the exclusive supplier of CNG to Delhi. By August of 2002, the CNG compression capacity of the city was 65,600 kg per day (Centre for Science and Environment, *supra* note 29).

166. As of May 31, 2002, ninety-four CNG fueling stations had been installed throughout Delhi. Erlandsson & Weaver, Centre for Science and Environment, *supra* note 160, at 22.

167. Rhode, *supra* note 162.

168. *Id.*

## VII. CONCLUSION

Alexander Hamilton described the judiciary as the weakest branch of government, because it lacks control over the purse or the sword.<sup>169</sup> Instead, it must derive power from its role as the protector of the people. In the Delhi Pollution Case, there is a chance that public opinion may fail to support the Supreme Court if the Delhi government drags its heels, leaving the roads with fewer buses than are needed. To many Delhi residents living below the poverty line, environmental regulations are subordinate to access to basic necessities such as transportation. Should the Court's decision prove unpopular with the general public because it results in long lines and inefficient service, the Court risks losing some of the respect and credibility it needs to remain an effective instrument of change.

The Supreme Court ruling to mandate the conversion of the Delhi bus fleet to CNG was a well-informed and logical decision. The Court's order was strongly backed by scientific research that proved not only the dangers of diesel air pollution, but also the economic potential and environmental safety of compressed natural gas. Furthermore, the Court fulfilled its promise as a protector of common people by refusing to yield to the Delhi government's objections, and by articulating the view that economic concerns must not outweigh the protection of fundamental rights.

However, the Supreme Court's activism in the Delhi Pollution Case shows how difficult it is for a court—even the Supreme Court—to manage the environment in a nation of a billion people. Environmentalists cannot help but praise the Court for its defense of the environment and human rights, but they must see the harmful institutional and constitutional consequences of the Court's ruling. In the Delhi Pollution Case, the Court's action seems likely to impede capacity building in the pollution control agencies, and thereby to compromise the development of sustained environmental management in India.

Many developing countries look to India as a country where human rights are championed by an independent judiciary. They would be enormously discouraged to see the authority of the Indian Supreme Court diminished. U.S. President Andrew Jackson once reportedly observed, “[U.S. Supreme Court Justice] John Marshall has made his decision. Now let him enforce it.”<sup>170</sup> If the other branches of the Indian government withdraw their support and if people refuse to obey the Court's orders, the Supreme Court of India would be severely weakened. Indian civil society groups need to recognize what is at stake: They cannot afford to win this case at the cost of a discredited and diminished Supreme Court.

169. Sathe, *supra* note 31, at 50.

170. THOMAS BAILEY & DAVID KENNEDY, *THE AMERICAN PAGEANT: A HISTORY OF THE REPUBLIC* 267 (12th ed. 2002).