

## **Clearing the Air: Why Air Quality Reforms Finally Took Hold in Delhi**

Ruth Greenspan Bell, Kuldeep Mathur, Urvashi Narain, and David Simpson<sup>1</sup>

Delhi has suffered for decades from declining air quality. In the early 1990s, despite a plethora of environmental laws and numerous government-initiated policies to combat pollution, India's capital gained the dubious distinction of being the fourth most polluted city in the world.

In recent years, however, there have been some significant changes in air quality. In response to a "public interest" lawsuit filed in 1985, the Indian Supreme Court issued a series of orders, the best known of which is the requirement that tens of thousands of commercial transport vehicles switch to compressed natural gas (CNG) rather than use more highly polluting fuels. These orders have been implemented. Under the Court's supervision, Delhi has been able to break through seemingly impervious bureaucratic and institutional logjams to put in place a number of measures to reduce harmful emissions.

The city's apparent progress in improving its air has been noted by its neighbors in the developing world, many of which face the same challenges--- high levels of pollution and disappointing legal and policy implementation. "Copy-cat" lawsuits have been filed in Pakistan and Bangladesh, and Malaysia, Indonesia, Nepal, Sri Lanka and Philippines, among others, have identified the Delhi experience as a model.<sup>2</sup>

The attention focused on Delhi and its unusual developing-world environmental regulatory success story, motivated us -- researchers from Resources for the Future in Washington, D.C. and the Centre for the Study of Law and Governance at Jawaharlal Nehru University in Delhi -- to undertake an independent inquiry. Our purpose was to examine the record, reconstruct events, speak to the key actors, and then critique the policy process and the policies themselves from a non-allied, non-advocacy point of view.

We wanted to test the story that is commonly repeated in India and around the region: M.C. Mehta, a lawyer and head of a local NGO, filed a "public interest litigation" before

---

<sup>1</sup> Provide references for each of us. The authors are very grateful to the extraordinary research support they received from Aaron Severn and Nicholas Burger. Our project received critical support from Ford Foundation Delhi and the United States Agency for International Development, and we want particularly to thank John Smith-Sreen and Todd Harding. Melinda Kimball of the Better World Foundation provided support for dissemination of our results. Many people in India took time out of their busy lives to speak with us, and provided invaluable information; these include Dilip Biswas, Ranjan K. Bose, A. K. Dey, K.K. Gandhi, Prem Gehlot, M.M. Pal Singh Goldi, A. K. Gumber, H.S. Kalra, Sindhushree Khullar, B.N. Kirpal, Bhure Lal, Dinesh Mohan, Sunita Narain, Vijay Panjwani, Anumita Roychowdhury, Harish Salve, Aparajita Singh, and S. Sundar. Finally, we thank Mrs. Usha Narain for providing a place to work in Delhi, wonderful food, and psychic support.

<sup>2</sup> See, e.g., Bangladesh -- Farooque v. Government of Bangladesh WP 300 of 1995 (1995.02); and Pakistan -- Dr. Amjad H. Bokhari vs. Federation of Pakistan, (Constitutional Petition 45/2003).

the Indian Supreme Court invoking fundamental constitutional rights against the failure of the government to protect Delhi's environment. An activist Supreme Court took charge when legislative and regulatory agencies would not. One of several remedies imposed by the Court was the conversion to CNG. Often the impression is left that much of this happened in a very short time.

Is the story so straightforward? What specifically was the role of the Supreme Court in the effort to put the reins on environmental pollution in Delhi, and did it act alone? Was it appropriate for a judicial body to make environmental regulatory decisions that are normally reserved to legislators and specialized regulatory bodies in the executive branch? If, as is commonly assumed, the Indian Supreme Court did play a central role, what are the long-term consequences when judicial bodies make and implement regulatory policy. What impact will this have over time on governance structures in India and on future efforts to regulate pollution? Will the Court's efforts embolden regulatory bodies or relieve them of the charge to develop their own competence?

We concluded that the Supreme Court did play a central role, especially when it directed the conversion to CNG. But the Court did not act alone, nor could it have. Most of the policies attributed to the Court originated in the government, but the government apparently lacked the political will to undertake the bold action necessary to carry out the programs it had announced. When the government was paralyzed, or reneged, the Court forced it to implement its announced policies and in some cases to develop new ones.

The Court's authority to issue orders to the government that would be obeyed derived from its unique status in Indian public life. Over time, the Court had staked out a role as the protector of fundamental rights in Indian society. It acted on the firm foundation of a public belief that the Court is independent and relatively uncorrupted. But the Court also acted under the watchful eye of public watchdogs in the form of an active NGO community and a free press, whose actions in turn helped create public awareness that put pressure on the government.

None of this deliberation or decision-making happened overnight. Issues were chewed over and worked through over a long period of time, as illustrated by the 1998 CNG decision. In fact, CNG was being considered as an alternative fuel for the transportation sector as early as 1988. In part, the lengthy decision process seemed to reflect the extraordinary difficulties of introducing new technology, and was further extended by a continuing battle that raged even after the Court issued definitive orders. The disputes were finally resolved when the government and stakeholders decided that the Court would not back down.

Critics, including some we interviewed in India, argued that the Court-driven decision process led to outcomes that were more costly and inefficient than India could afford. We concluded that ideally, it would have been more cost effective to set vehicular and fuel standards, and leave the decision of which technology to use to the consumers. But the court had evidence that fuel adulteration was rampant and politically impossible to check. CNG's gaseous nature made adulteration impracticable, and thus became, by

process of elimination, the most efficient option, in view of the institutional realities in India.

Whether the Court's actions constituted good government is a very difficult question to answer. The Court acted with relative restraint. Its reliance upon independent committees was admirable and a good model for, as opposed to an alternative to, future such deliberations that are placed before a court of law. Perhaps the most difficult question is whether courts should be making these kinds of decisions at all, or whether they should be made by technical experts in the executive branch. In the case of Delhi's pollution, the Indian Supreme Court apparently was the only authoritative body willing to take these hard decisions and make them stick. One can also speculate whether something is at least better than nothing. The jury is out, however, on the question whether the Court's pervasive presence ultimately will encourage firmer future actions by environmental regulators or whether they will continue to avoid direct responsibility.

*A short background on India and the role of its Supreme Court in public life<sup>3</sup>*

What the Court did cannot be understood outside of the context of Indian history. India achieved its independence from Britain in 1947 and incorporated a government structure that included a Supreme Court and the British tradition of Parliamentary supremacy. The constitutional drafters had to decide whether that document would contain a declaration of fundamental rights, to assure proper treatment of minorities and safeguard against arbitrary rule. The final product enumerated rights (such as the right to life) as well as restrictions on who may act under what circumstances.

The Supreme Court began as a technocratic body. The early period following independence reflects founding father Jawaharlal Nehru's vision that judges should have only limited powers, mainly to make sure everyone plays by the rules. In the intervening years, the Indian judiciary has gone through a fascinating evolution. Over time, the Court took an activist stance and assumed its current incarnation, a unique adjudicative body that will consider a wide range of social issues under the rubric of protection of fundamental rights granted by the constitution.

Initially, the Court worked under the constraint of legislative supervision. Parliament could reverse any court decision with a constitutional amendment. But in the mid-1960s, a narrow Supreme Court majority ruled that Parliament's right to amend the constitution was limited. The legislature could not use amendments to take away or abridge fundamental rights to life and personal liberty as articulated in Article 21 of the constitution.<sup>4</sup> The 1975 "emergency" proved a watershed event in the evolution of the

---

<sup>3</sup> The discussion in this section relies heavily on S.P. Sathe, *Judicial Activism in India, Transgressing Borders and Enforcing Limits* (Oxford University Press, Second Edition) 2002.

<sup>4</sup> Fundamental rights are contained in Part III of the Indian Constitution. Unlike, for example the United States Constitution, India's Constitution is detailed and specific, which is why amendments are necessary. About 81 amendments have been passed in the past 50 years. Sathe p.64. In comparison, the U.S. Constitution is much more general and very difficult to amend.

doctrine. Prime Minister Indira Gandhi attempted to suppress the political movement against her regime and to change the constitution to whittle down checks on the power of the executive. The Court's Solomon-like response (limiting Parliament's ability to overrule the Court but upholding Mrs. Gandhi's election) remains controversial to this day.<sup>5</sup>

Eventually, the Court extended fundamental rights to include the right to a clean environment. The doctrine of fundamental rights protected by the Court advanced in a way that gave the Court the last say on the basic structure or basic features of the constitution.<sup>6</sup> Despite the huge power inherent in this authority, the Court has used these powers sparingly. In 25 years, it has struck down provisions of constitutional amendments in only five cases.

The Court also liberalized the rules of standing (who can bring a case to court) and justiciability (what issues a court will determine). Thus, as M.C. Mehta demonstrated, social activist organizations or individuals can litigate on behalf of the poor and disadvantaged, and citizens can complain about bad governance, bad development practices, or environmental degradation. And, the Court allows fundamental rights issues to be brought to it in unusual ways, from the point of view of Western lawyers. For example, a letter from an ordinary citizen rather than a formal pleading can start a case. The only restriction is that the petitioner "not be a busybody or meddlesome interloper."

The distinguished Indian legal writer, S. P. Sathe, calls this a "counter-majoritarian" check on democracy, in which the Court supports unpopular causes and protects politically powerless minorities. He has concluded that social action groups use this type of litigation strategically when political mobilization or direct agitation alone does not yield results.<sup>7</sup>

In many nations, the highest court is principally an appellate body, reviewing, affirming, or reversing the decisions of lower courts. When fundamental rights are involved,

---

<sup>5</sup> Sathe p. 8-9, and pages 73-76. In 1975, the election of Mrs. Indira Gandhi to the Indian Parliament was set aside by a state high court on grounds that she had "taken recourse to a corrupt practice" under the election law. She went in appeal to the Supreme Court, which upheld the decision allowing her to continue as PM without voting rights. On June 25, 1975, Mrs. Gandhi declared an Emergency under article 352 of the Constitution, and caused a constitutional amendment to be passed to prevent scrutiny of her election by the Court. The clause not only substituted a new law that made her free from liability with retrospective effect but also provided that her election would continue to be valid even if a contrary decision was given by a court in accordance with the law as it prevailed before the coming into force of the 39<sup>th</sup> amendment." (Sathe, p. 75). In the subsequent litigation, the Court upheld the election but struck down the amendment. As Sathe states (p. 76): "although the court unanimously held that the impugned amendment was unconstitutional and void, only three judges unequivocally said that the amendment violated the basic structure of the Constitution. ...[This] "helped the court to assert its power of judicial review over the constituent power of parliament while avoiding immediate confrontation with the political establishment."

<sup>6</sup> Sathe p. 18. Indeed, the Court itself has characterized its role in this way. In *Bheshwar Nath v Commissioner, Income Tax, Justice Subba Rao* ...held that persons could not even voluntarily waive their fundamental rights. ["it is the duty of this court to protect [the] rights [of the economically poor, educationally backward and politically not conscious] against themselves."]

<sup>7</sup> Sathe, 20 or 18? (to be checked)

however, the Indian Supreme Court sits as a court of initial jurisdiction, essentially a trial court. In this capacity, as in the Delhi pollution issues, the Supreme Court receives factual “affidavits” from the parties and is deeply involved in the details of the matter before it.

In practical terms, the Supreme Court’s “one-stop shopping” reduces the time in which significant issues are heard and adjudicated. The average litigation in Indian lower courts takes 15 years to come to closure, and this before any appeals.<sup>8</sup> The Supreme and High Courts take relatively less time, balanced as in M.C. Mehta’s case, against the challenges of managing a writ petition that asks for a great deal of relief involving many kinds of pollution.

How is it that a court came to be deciding matters of social policy? Sathe posits that the Court increasingly came to be seen by the public as the defender of ordinary citizens against the abuse of powers by ministers and administrative officials. It was assisted in this perception of independence by its relatively disinterested appointment and tenure process.<sup>9</sup> But Sathe also admits that many of these decisions are essentially political.

“The judges are required to take political decisions and the Court performs the political function of legitimizing or censuring the acts of the other organs of governments. To be ‘political’ in this sense and yet appear to be ‘apolitical’ in the eyes of the large number of people is the source of the court’s legitimacy.”<sup>10</sup>

### *The Indian legal framework for managing environmental pollution*

As noted, India hasn’t lacked for environmental authority to attack its growing pollution. The authority starts in the Indian constitution. Part XI establishes the relationship and relative authority of the parts of India’s government. Constitutionally, the “Center” or Union Government of India has legislative authority over functions such as defense, foreign affairs, interstate transportation and other issues that are considered to transcend state interests. States have exclusive power to legislate on local issues. A “Concurrent List” enumerates matters for which Center and state legislatures have overlapping and shared jurisdiction. The city of Delhi is considered a state and part of a federal system.

---

<sup>8</sup> See, e.g., Shyam Divan and Armin Rosencranz, *Environmental Law and Policy in India, Cases, Materials and Statutes*, Oxford University Press, 2<sup>nd</sup> Edition, 2002, footnote 49 at page 123 (“For example, in the Bombay High Court the delay in a writ petition is 6 years compared to over 15 years for a suit”).

<sup>9</sup> The composition of the Court plays a role in establishing its credibility: (Sathe, p. 22) Care is taken to appoint judges from various regions and communities, considering religion and gender, not merely professional expertise. Sathe also argues that partisan considerations are minimized, and that after appointment, independence is maintained by rules that a justice cannot be removed except for proven misbehavior or incapacity and unless charges against him are found valid by a committee of judges and jurists. A resolution of his removal must be passed in each house of parliament by a majority of the total membership of that house, and by a majority of not less than 2/3 of members present and voting.

<sup>10</sup> Sathe goes on to say that the “legitimacy of the Court depends upon a feeling among the people that its decisions are principled, objective and just.... Strengthened by the constitutional provisions that ensure independence... that the court is independent and objective, that [it] provides the real sanction for its decisions and orders.... Even then a recalcitrant minority may at times disobey them. The law of contempt of court’ is then required to be invoked. (Sathe, 22).

India's earliest air pollution legislation, the 1981 Air (Prevention and Control of Pollution) Act, is rooted in the Center's power to make laws implementing decisions taken at international conferences, in this case India's participation at the United Nations Conference on the Human Environment held at Stockholm in 1972.<sup>11</sup> The 1981 Air Act created Central and State "Pollution Control Boards" and gave them authority over air pollution. The initial concept of a Pollution Control Board was found in a 1974 act, but the Central Board set up in that act was limited to water issues. The 1981 Act broadened the discretion of the Central Pollution Control Board (CPCB) to "lay down standards for the quality of air;" "advise the Central Government on any matter concerning the improvement of the quality of air and the prevention, control, or abatement of air pollution;" and "perform such other functions as may be prescribed."<sup>12</sup>

In the mid to late 1980s, the Indian Parliament enacted a number of other laws that gave the government further authority to enact policies to curb air pollution. These included the Environmental (Protection) Act of 1986, the 1987 Air Act amended, the 1988 Motor Vehicles Act, and the 1989 Central Motor Vehicle Rules. The 1988 Motor Vehicles Act and the 1989 Central Motor Vehicle Rules authorized the government to set standards for vehicular emissions for manufacturers and users.

### *Delhi's pollution load*

The proliferation of laws apparently had little impact on the actual state of pollution in Delhi. Air quality began to decline in the mid-1980s. A 1992 World Bank study estimated that the annual health costs of ambient air pollution in Delhi were on the order of 10 billion Indian Rupees or about U.S. \$200 million.<sup>13</sup>

Industrial, residential, and transportation sources all contribute to the problem. But in recent years the largest share of the responsibility, between 60 to 70 % of total pollution, has been attributed to transportation, reflecting Delhi's considerable population growth.<sup>14</sup>

At the time of independence, Delhi contained some two million people. Transportation was largely in the form of foot, bicycle, or animal-drawn conveyance. Recent census data shows the population swollen to 14 million and growing, and the number of motorized vehicles has skyrocketing even more rapidly. Motor vehicle registrations increased three times as rapidly as population between 1980 and 2000.

---

<sup>11</sup> Shyam Divan & Armin Rosencranz, *Environmental Law and Policy In India*, at page 244. The delegation of executive functions is permitted by Article 258(2) of the Constitution. Article 258(3) requires the Central Government to compensate the states for the cost of carrying out these delegated functions.

<sup>12</sup> It is true that these provisions generally use the word "may" rather than "shall" with a fair inference from this (at least from a U.S. legal point of view) that these powers are permitted, not mandated.

<sup>13</sup> ADB. *Key Indicators: Population and Human Resource Trends and Challenges*.

<sup>14</sup> "Air Quality Improvement in National Capital Region Delhi, India—A Case Study," presented by B. Sengupta at International Seminar, *Better Air Quality – 2003*, held at Manila, Philippines 17 – 19 December, 2003.

The mix of vehicles in recent years includes buses, taxis, large numbers of two-stroke auto-rickshaws or three wheelers (small vehicles used as taxis or for light hauling), two-stroke scooters, and privately owned automobiles. Buses are used so heavily that Delhi was ranked in the world's top 20 of public transportation in 2002. But, as in the West, everyone aspires to own his own vehicle and increasing affluence means that many can achieve this goal.

The air quality deterioration is usually attributed not just to the number of vehicles, but also to the way they have been built, maintained and fueled. The vehicles propelled by two-stroke engines illustrate the public policy challenge. They are basically highly inefficient lawn mower engines whose oil combustion causes clouds of oily smoke,<sup>15</sup> and account for 70% of the total vehicle population in Delhi.<sup>16</sup>

*What were the roles of the government and the Supreme Court in air pollution policy formulation?*

Concerned with growing pollution and a government apparently disinclined to deal with this growing problem, M.C. Mehta asked the Supreme Court to protect fundamental constitutional rights by directing government ministries and departments to implement the 1981 Air Act in Delhi. Mehta's petition sought relief against almost all Delhi pollution, not just air quality, but our discussion will concentrate on air, and in most cases vehicular pollution. In response, in 1986, the court began to press the Delhi Administration to explain what it was doing to reduce air pollution. Responses to the Court's questions were filed in the form of affidavits.

Sometime in the mid-1980s, quite possibly in response to the Court's pressure for answers, or perhaps on their own initiative, the Central and the Delhi Governments began to announce a number of new policies. But none of these had much tangible impact. For example, in 1989, the Central Government said it would raise the penalty on owners of polluting vehicles. The initiative failed because the Delhi government lacked emissions testing equipment to implement the new penalties. In 1990, the Central Government tried again when it announced vehicular exhaust emission standards for smoke, visible vapor, grit, sparks, ashes, and cinders. These failed for the same reason -- lack of testing equipment, and testing standards that were generally considered inadequate, easily manipulated, and often simply fraudulent.

Other efforts to limit vehicular pollution were either slowed down or watered down to the point of being ineffective. In 1993, the Ministry of Environment and Forests (MoEF) "notified" (announced) the first set of vehicular mass emission standards for India. The Ministry was working from recommendations made by a distinguished Central Government-appointed committee, established in April 1991 and headed by Professor H.B. Mathur. The Committee was given directions to recommend vehicular mass

---

<sup>15</sup> Each time a new charge of air plus fuel is loaded into the combustion chamber, part of it leaks out through the exhaust port. Smoke results from the combination of leaking hydrocarbons from the fresh fuel and leaking oil.

<sup>16</sup> B. Sengupta, *supra*, footnote 14.

emission norms that would be put into place in 1995 and 2000. The emission standards that were eventually notified were a diluted version of the Mathur Committee recommendations and more lenient than an initial proposal for consideration put up by the CPCB. Under pressure from the automobile industry, the MoEF extended the deadline for the diluted standards from April 1995 to April 1996. Press reports from this period indicate that the automobile industry continued to lobby to further relax the emission standards set for 2000.

When the Supreme Court did begin to push the government to act, it did not start with vehicular pollution. The first interventions by the Court were to force relocation of hazardous, noxious, heavy, and large polluting industry, also called “category H,” from Delhi. The relocation policy came out of the second master plan for Delhi, a planning document that was approved by the Central Government in August of 1990.<sup>17</sup> This plan identified category H industries for removal from Delhi within three years, or 1993. The deadline passed but the industries stayed put. With the Court’s persistence, category H firms were finally moved by 1997.

With respect to vehicular pollution, the Court managed three separate efforts in the time period 1994 through 1998, each of them policies originating in the government that had died on the vine. These were the phase out of unleaded gasoline, introduction of premixed fuels for two stroke engine vehicles and the phase out of 15-year-old commercial vehicles. Unleaded gas and premix fuels met with some resistance, but were phased in with relatively few problems.

The history of the phase out of 15-year-old vehicles, however, was more troubled and a good example of the complicated back and forth between the Court and the government. In October of 1997, after much prodding from the Supreme Court, the Delhi Government announced that 15-year-old commercial vehicles would be phased out by March 1998. A few months later, in February of 1998, facing parliamentary elections and protests, the Delhi Government withdrew this policy initiative and said it would make an “objective” decision later. On July 28, 1998, the Court ordered that the previously announced policy be implemented by October 2, 1998. In response to a plea from the Delhi Government, the Court later extended the deadline to December 31, 1998 at which date these vehicles were in fact phased out.

---

<sup>17</sup> The “Delhi Master Plan is part and parcel of the Act by which Delhi Development Authority [DDA] was created and land acquired compulsorily in Delhi over 40 years only for development according to Plan. Most accurately described as a document of citizens’ entitlements in benefits of balanced equitable and sustainable development, the Plan came into force in 1962, was revised in the ‘80s for 2001 and is now being revised for 2021. Plan revision modifies entitlements and the law protects them from being downsized in this process.” <http://www.delhiscienceforum.org/dmp2021/main.htm> DDA has called the first Delhi Master Plan of 1962 the “first step toward modern planning in India.” The plan was designed as a twenty-year plan and was prepared with assistance from the Ford Foundation. The goal of the plan was the “integrated development of Delhi” and was developed per the Delhi Development Act of 1957. <http://ddadelhi.com/planning/mpd-2021.htm>

The apparent perception of certain Delhi NGOs was that these amounted only to piecemeal actions and that pollution was continuing to rise. However, what motivated the Court's next push is subject to some debate. In 1996, the NGO Center for Science and Environment (CSE) published the book-length report "*Slow Murder*."<sup>18</sup> CSE's report made the case that Delhi's high pollution was causing severe health impacts and argued that the fault lay in backward vehicular technology and maintenance, poor fuel quality, and virtually nonexistent traffic planning. Anumita Roychowdhury of CSE suggested that this report motivated the Court to act,<sup>19</sup> and one observer, Anna Telestam, reported that Chief Justice Kuldeep Singh promptly issued a *suo moto* order (an order issued on its own initiative rather than in response to a pleading or request) demanding that the Delhi Government take action directly in response to *Slow Murder*. But in our interview with retired Chief Justice Kirpal, he thought the *suo moto* order was entirely the Court's initiative.

Whatever the reason or motivation, on November 18, 1996, the Supreme Court issued a notice on its own initiative. It told the Delhi Government to submit an action plan to control the city's air pollution. In response, the Delhi Government in 1996 and the Central Government in 1997 developed their first comprehensive plans.

The Delhi Government's action plan called for the construction of a Mass Rapid Transport System (MRTS)<sup>20</sup> and a highway by-pass around Delhi.<sup>21</sup> The MRTS would deal with the growing need for transportation and help reduce the use of private vehicles. The by-pass would reduce exposure to trucks and buses from other Indian States forced to pass through Delhi. The plan also called for improved vehicular technology and fuel quality, increased use of CNG and propane (and the financial incentives and construction of necessary infrastructure to make CNG and propane viable), restrictions on excessively polluting in-use vehicles, further landscape "greening" of Delhi, and a program for public awareness.

Once again, with one exception, good intentions faded into bad practices. The exception was a regulation for stricter vehicular emissions norms. In early 1997, the Delhi government announced that it would introduce new vehicular norms in the capital in 1998 instead of 2000. The new norms were notified by the Central Government in March of 1997.

On December 3, 1997, the Central Government's MoEF issued its own pollution plan for Delhi. The "White Paper on Pollution in Delhi with an Action Plan," ("White Paper") outlined measures to deal with vehicular, industrial, water, and noise pollution, but its

---

<sup>18</sup> CSE is a prominent Delhi environmental advocacy group. It has the advantage of size (a staff of about 180) and a good funding base that allows it to do independent research. CSE also now has a lab for testing, which gives it an advantage in the policy debate. CSE is not a membership organization but it does significant public outreach through publications and its web site. It is adroit in how it provides information to the press.

<sup>19</sup> Telestam, Anna. "Thesis on Air Pollution and CNG Adoption in Delhi." 2001, p 21. and Roychowdhury, Anumita. Personal Interview. July 1, 2003. New Delhi.

<sup>20</sup> The MRTS was eventually built and opened on December 25, 2002.

<sup>21</sup> As of the writing of this paper, no bypass has yet been constructed.

main focus was on transportation. Some of its proposals were very similar to ideas in the Delhi Government's action plan —phasing out of old vehicles, possible phase out of two-stroke vehicles that included two and three wheelers, improved traffic flow, a by-pass around Delhi, mass rapid transit in the form of a MRTS, improved fuel quality, and the introduction of CNG-fueled buses -- and the MoEF also offered a timetable for achieving them.

The Court used the release of the White Paper to step up its pressure on the Central Government. Most importantly, it directed the MoEF to use its authority under Section 3(3) of the Environment Protection Act to establish a committee to monitor the implementation of the White Paper and to suggest other policies to control pollution. This committee was the Environment Pollution (Prevention and Control) Authority (“EPCA”). This was not the first time that the Court had called for a statutory committee. The Saikia Committee, named after its chair, retired Supreme Court Justice K.N. Saikia was constituted in March 1991 also to devise a solution for vehicular pollution in Delhi.<sup>22</sup>

The emergence of the EPCA marked a major turning point. While the Saikia Committee is widely regarded as having been ineffectual, the EPCA proved to be a major powerhouse. It was helped in this because it had a clear mandate from the Supreme Court. The Court needed the EPCA because the issues before it were highly technical and because it was concerned that the adversarial nature of the hearings before it rendered them less useful. Indeed, one view expressed to us by an insider to the process was that the EPCA was established directly in response to government complaints that the Supreme Court was over-stepping its bounds and making policy decisions in place of the government.<sup>23</sup> Not only was the EPCA empowered to consider policy and provide specific recommendations, its composition provided a limited forum to feed in the points of view of at least some of the relevant stakeholders. While admittedly not broad-based, its members included government officials, a representative of the then still-government owned automobile manufacturer Maruti, and a public member from the NGO, CSE.

One of its defining characteristics was its leadership. Bhure Lal, who headed the EPCA, was a well-respected, long-time senior civil servant. Indeed, the EPCA is widely known in India as the Bhure Lal Committee. He was recommended to the post because he knew how to hold his ground, but was also a good consensus builder. One source characterized him as a “steam engine” and another from the automobile industry as a “great man.”<sup>24</sup> Perhaps because of Bhure Lal's leadership, the EPCA almost always acted unanimously, without dissent, although the members of the EPCA represented disparate points of view. The EPCA met once a week and reported back to the Court at regular intervals. In many

---

<sup>22</sup> The Saikia and Bhure Lal Committees were not the only way that the Court reached out for technical help. In 19xx, the Court appointed Harish Salve the Amicus Curiae. An Amicus is a device to provide legal representation in Supreme Court cases to individuals and groups who don't otherwise have counsel. In this case, the Amicus was a combination of special master and advisor to the Justices. He collected and sorted out factual material, and distilled from the numerous affidavits and other representations submitted to the Court a précis of their perspectives. At several critical junctions, he did factual research to debunk extravagant claims, and otherwise played a central role in moving the case forward.

<sup>23</sup> Salve, Harish. Personal Interview. July 6, 2003. New Delhi.

<sup>24</sup> Gandhi, K.K (Executive Director of Technology at SIAM). Personal Interview. July 3, 2003. New Delhi.

meetings, the EPCA heard from stakeholders who came to present data and information or argue for one position or another.

From the start, the EPCA monitored the implementation of the Delhi Government action plans and the MoEF's White Paper. It also went on to suggest additional policies and act as a fact finding body for the Court. In its first progress report, EPCA pointed out the limitation of the government's proposals as they did not deal with old, in-use vehicles or the quantum increase in new vehicles. EPCA urged that more drastic measures were warranted, namely that all taxis and autos switch to clean fuel, all 8-year-old buses except those on clean fuel be banned and, most dramatic, that the entire bus fleet be shifted to a single fuel—CNG by March 31, 2001. Previous plans would only have encouraged the use of clean fuels in public transportation. The Supreme Court in its seminal July 29, 1998, order adopted the EPCA recommendation as a mandate.

For the most part, the Court stayed faithful to the recommendations of the EPCA. The most prominent example in which the justices did not was the registration of diesel-fueled private vehicles. The EPCA recommended that private diesel cars should not be registered and that the Court should freeze sales of diesel cars. Lawyers for the auto industry strenuously opposed this. Instead of following the EPCA recommendation, the Court ordered that all private cars must conform to engine standards by new, tighter deadlines. Both sides declared victory. Diesel car registration was an exception. What was significant from our point of view is how closely most Court orders tracked already created government policy and the technical support provided to the Court by the EPCA.

Over the next few years, on EPCA's suggestion, the Court ordered improvements in emission standards and fuel quality. But the shift to CNG proved to be the most controversial change.

### *The shift to CNG*

Our review of the record refutes the popular belief that the idea of using CNG for transportation originated with the Supreme Court and illustrates a complex process of vetting solutions and working out agreements.

In fact, discussions about vehicular applications of CNG started at least as early as 1988, growing out of a World Bank study. At that time, the state enterprise Oil and Natural Gas Commission introduced CNG on an experimental basis in its own vehicles. In 1992, the Gas Authority of India Limited (GAIL) and the Indo-Burma Petroleum Company Limited attempted to popularize the use of CNG in Mumbai, Baroda, and New Delhi. GAIL floated long-term plans to convert bus fleets to CNG in cities along the Hazira-Vijaypur-Jagishpur pipelines (which did not include Delhi). The Delhi transport authorities converted five buses to CNG in 1992 and, by 1994, claimed the success of a pilot project for 40 vehicles. In 1994, the Delhi Government said it would open more CNG outlets and possibly subsidize the cost of CNG conversion kits.

The Saikia Committee in the early 1990s also suggested CNG as an alternative vehicular fuel on the basis it was less polluting, cheaper, and more widely available in the country than petrol or diesel. In response, the Supreme Court ordered that all government cars switch to CNG. But the Saikia Committee recommendations illustrate process obstacles that became apparent as ideas started to be translated into policy and then implemented. The initiative was short circuited when it became clear that there were not enough CNG conversion kits and CNG retail outlets. None of the early proposals took into account the substantial sequencing problems inherent in introducing new technology: increased demand for CNG could only be satisfied with in-place CNG infrastructure in the form of pipelines and filling stations, which were difficult and expensive to install; manufacturers were unlikely to produce new CNG vehicles without demonstration of increased demand.

Even the Court's seminal 1998 order did not turn things around. Despite the clarity of the order, response to it was not equally crisp. From the date the order was issued through late 2002, the government, in the best reading of the situation, vacillated, and in the worse interpretation, put up roadblocks to its implementation. In the first year following the order, the Delhi Government gave verbal support to the Court but little happened beyond a single CNG bus trial.<sup>25</sup> For reasons not apparent to us, the experience gained in previous CNG bus trials done in the early 1990s was ignored. In part this could be attributed to a change in government; the Indian National Congress ("Congress") party defeated the incumbent Bharatiya Janata Party ("BJP") in November of 1998. In almost all countries, a political shift frequently stops policies in their tracks while they are reassessed by the party newly in power. The Central Government also announced its support for the Supreme Court directive but did little to help implement it.<sup>26</sup> Frustratingly little happened for the better part of two years.

During this time, the EPCA monitored progress in the implementation of the Court's order and coordinated among different government departments to try to move implementation along. The Supreme Court for its part stood its ground and gave the EPCA with its support.

As the CNG conversion deadlines approached and the Supreme Court made clear the seriousness of its orders, a furious debate and blame-game ensued. Some key stakeholders began to become active for the first time. Private bus operators claimed that they hadn't previously known about the litigation or the Court's orders. In January of 2001, almost two and a half years after the Supreme Court judgment, they asked the

---

<sup>25</sup> On June 2, 1999, the Chief Secretary of the Delhi Government, Naresh Saigal, announced that his government would meet the deadlines set by the Supreme Court. He announced that all DTC buses plying in the capital would be converted to CNG by March 31, 2001 and that the State Government was planning to allow 2,500 new CNG buses owned by big transport operators to ply in Delhi. He also stated that only CNG three-wheelers would be allowed to ply in Delhi after March 31, 2000, but added that new three-wheelers would be given an additional year for the changeover (The Observer of Business and Politics, June 2, 1999).

<sup>26</sup> In a written reply to the Lok Sabha, the Minister of State for Environment and Forests said that by March 31, 2001, and as directed by the SC, DTC and private buses would be converted to CNG and all pre-1990 autos and taxis in Delhi would be replaced with new vehicles on clean fuels. He added that buses over 8-years old would only ply on CNG or "other clean fuels" by April 2000 (Asian Age, March 9, 1999).

government to request the Supreme Court issue an extension for bus conversion.<sup>27</sup> The operators pointed out that CNG bus technology was untested and CNG-filling stations were not available in adequate numbers.<sup>28</sup>

The Supreme Court demanded additional affidavits from the parties and asked specifically what efforts had been made to date to carry out its orders. It told the Delhi Government to file a status report detailing what it had done to implement the conversion order; ordered bus manufacturers TELCO and Ashok Leyland to report on their ability to manufacture CNG buses; and directed gas supplier GAIL to report on the number of available CNG outlets.<sup>29</sup> As it became clear that few private operators had converted their buses to CNG mode,<sup>30</sup> the Supreme Court mandated the Delhi Government to register only CNG buses (whether old or new), and ordered the private bus operators to place orders for CNG parts and buses.<sup>31</sup> The Court apparently found the availability arguments persuasive, and granted a limited extension to the March 31, 2001, deadline. Only groups that had ordered CNG buses and were awaiting delivery, especially those that supplied school buses, were granted an extension until the end of September 2001.<sup>32</sup>

But the Court also clearly placed the responsibility for making the extension a success on the Delhi Transport Department. On March 31, 2001, the government reported back that as of March 30, orders had been placed for 2,800 new buses and the conversion of 350 buses.<sup>33</sup> Only these operators were allowed to operate after March 31, 2001.

As the number of buses on the street declined, frustrated commuters set fire to buses and threw stones.<sup>34</sup> The Delhi and Central Governments again sought to dissuade the Court from its CNG decision. This time, they asked the Court to define "clean fuel" more precisely. The Central Government argued that low sulfur diesel (LSD) was a "clean fuel. The Court sent this to EPCA for examination.<sup>35</sup> EPCA's response was highly

---

<sup>27</sup> Private bus operators urged the Delhi government to "apprise" the Supreme Court about its failure to find "durable and authenticated CNG conversion technology." Delhi government leader Sheila Dixit supported this assertion, stating, "The conversion of the existing diesel buses was not possible as the technology to convert was neither authenticated nor fully certified by competent authorities." There were also complaints that CNG buses were almost double the price of diesel buses and that there were not enough CNG filling stations in the capital (The Hindu--Delhi, "Operators Plead Helplessness in Meeting CNG Deadline," 01/19/2001).

<sup>28</sup> Times of India--Delhi, "Technology for CNG is not Tried, Tested or Trusted," February 26, 2001

<sup>29</sup> The Hindu--Delhi, "Supreme Court Seeks Status Report on CNG Issue," February 1, 2001

<sup>30</sup> In March of 2001 IGL assured the Supreme Court and the Delhi government that there was enough gas to meet the growing demand of the transport sector (Telestsam).

<sup>31</sup> The order was on February 16, 2001; it was reported in "Manufactured Chaos" in Down To Earth, April 30, 2001

<sup>32</sup> Writ Petition order dated 26.03.0. For example, since DTC had placed orders for 1,880 new CNG buses, it was allowed to operate that many diesel buses until either the orders are filled or September 30th, whichever ever comes first ("Key Points of the March 26 ruling" in Down To Earth, 30.04.01).

<sup>33</sup> Additional Solicitor General Kirit Rawal made these representations

<sup>34</sup> "Manufactured Chaos" in Down To Earth, April 30, 2001

<sup>35</sup> Down To Earth, September 30, 2001. In response to pleas for a more precise definition of "clean fuel" (mostly from the MoPNG--Down To Earth, September 31, 2001), the Supreme Court asked EPCA to collect various opinions and determine whether other fuels, particularly low (0.05 %) and ultra low (0.001

influenced by evidence of rampant and uncontrollable fuel adulteration, largely from government-subsidized kerosene. EPCA said that only CNG, Liquefied Propane Gas (LPG), and propane were environmentally acceptable fuels for Delhi.<sup>36</sup>

Despite the EPCA's recommendation, the Union Government appointed a committee headed by Dr. R.A. Mashelkar, the Director General of the Council for Scientific and Industrial Research (CSIR), on September 13, 2001. The Mashelkar Committee's assignment was to recommend an appropriate auto fuel policy for the country. It was tasked to find a cost-effective, practical, realistic, and achievable way to reduce pollution.<sup>37</sup> The Mashelkar Committee's interim report recommended that the Central Government should only decide the vehicular emission standard and not the type of fuel or a particular technology.

From the point of view of the Supreme Court this was too little, too late, and failed to grapple adequately with the persistent problem of adulteration. The Court rejected the Mashelkar Committee's recommendations.

However, the Court did agree to extend the deadline to March 31, 2002. The Court expressed concern about the adequacy of CNG supplies for the transportation sector and the impacts on commuters.

On April 4, 2002, frustrated by delays, the Supreme Court scolded the Delhi Administration for stalling and issued another important order. It directed the immediate installation of 1,500 CNG buses and the replacement of 800 diesel buses per month beginning May 1, 2002. It did so after confirming with the two main manufacturers of CNG-equipped buses, Ashok Leyland and TELCO, that this schedule was feasible. Furthermore, it gave CNG supply priority to the transport sector in case of a shortage. Any diesel bus that ignored the order was to be subject to a heavy, daily fine (500 Rs. per day for the first 30 days and 1000 Rs. after) until compliance. The Supreme Court also fined the Union government Rs. 20,000 for repeatedly delaying the process.<sup>38</sup>

On April 5, 2002, nearly 7,000 diesel buses, about half of Delhi's bus fleet, went off the road because of the Supreme Court's decision. However, in the following month, Delhi received increased CNG supply and by December 2002 all diesel city buses converted to CNG.

We can only speculate on why the government eventually got behind the Supreme Court orders and ensured its implementation. One high ranking government official said the government did so once it realized that the Court was serious and was not going to change its order. At this point the government had the option to implement the order or face contempt of Court proceedings. Another reason may be that overall public

---

%) sulfur diesel, could be considered in addition to CNG for vehicles (Writ Petition order dated March 26, 2001).

<sup>36</sup> Down To Earth, September 30, 2001.

<sup>37</sup> Mathur 2002

<sup>38</sup> Down To Earth, April 30, 2002.

awareness and the public's support for the Court kept the government from taking the unpopular step of defying the Court. The fines imposed (and collected) on public and private operators also helped to hasten the conversion.

*What was the role of stakeholders and the general public in this policy evolution?*

The entire population of Delhi was impacted by the Court's decisions, but a relatively small number of stakeholders actually played a role in the deliberations. These included parts of the NGO community that asserted themselves into the debate, some persons and industry groups affected in one way or another by the Court's orders, and opposition political parties. But formal consultation with the public was not evident from the record, although the need to do so was remarked on at various times by members of the EPCA and by the Court.<sup>39</sup>

Two NGOs were prominent players. M.C. Mehta, the public interest lawyer who started this process, played an active role in the litigation for at least 10 years. CSE entered the fray with the publication of *Slow Murder*. Thereafter, CSE monitored the Court proceedings, brought the issues into the public domain, and provided data and information at critical points. One example was during the debate about possible adulteration of low- and ultra-low-sulfur diesel. CSE deliberately adulterated diesel and sent the sample to labs that were tasked to monitor fuel quality. The labs reported no adulteration. This demonstrated the technical difficulties of assuring that clean fuel would stay clean. But CSE also played an inside role; the late head of CSE was the "public" member of the EPCA and participated in its deliberative process.

The press covered each step of this process extensively. India has a large number of newspapers, published in English and in Hindi and other local languages. From time to time, newspapers identified pollution problems and criticized the authorities for failing to act decisively on them. But in the heat of the CNG battle, the press lambasted authorities for inconveniencing commuters and school-going children, when buses operators went on strike or the number of available buses was reduced.

Some parts of private industry understood the importance of the case and monitored it from its relatively early stages. Some retained legal counsel throughout the proceedings. Other stakeholders, particularly the private bus operators, were late in joining the battle; they argued that they didn't know earlier about the litigation or its potential impact. When they did engage, they felt frustrated by their inability to access to EPCA and the Amicus Curiae – a lawyer appointed by the Court to speak for the people -- neither of which (in the bus operators' opinion) were interested in their views. They also felt strongly that the Court did not appreciate their plight. Eventually, the bus operators hired counsel and appeared before the Court, but they continued to believe that they had been

---

<sup>39</sup> For example, the ninth progress report of the EPCA, covering July to September 2000, indicates that Anil Agarwal from CSE suggested that the EPCA hold a meeting with various NGOs to elicit their comments and suggestions on how to improve environmental quality in Delhi. A representative from TERI and Dinesh Mohan, the transportation expert from Delhi's Indian Institute of Technology, attended this meeting, which was held on September 30, 2000.

made scapegoats for a wider problem. They argued that the contribution of private buses to pollution was not significant compared to the sheer number of other vehicles on the roads of Delhi.<sup>40</sup>

The public at large did not have much role either in the Court proceedings or the decision process. To some extent, both M.C. Mehta and CSE “represented” the interests of some parts of the wider public, and CSE made efforts to bring the issues into the public domain, but both were self-appointed, and they did not engage in public consultations as they formulated their positions. No organized group represented other points of view such as the interests of the bus-riding public. At various points, the EPCA tried to inform the public through, for example, media advertisements, but none of this could be characterized as true, two-way communication. The Amicus Curiae’s responsibility was to speak for un-represented views before the Court and to review the many affidavits filed with the Court.<sup>41</sup> But there was never a systematic effort to keep the public at large abreast of judicial developments or encourage comment on the various options considered, except as reported in the press. In fairness, though, the Indian Parliament also does not have a good track record for public outreach.

Finally, many of these issues got caught up in electoral politics, as the two major Indian parties, Congress and the BJP, repositioned themselves at various times. For example, BJP, the opposition political party in Delhi, became spokesmen for transporter unions who were against the introduction of CNG, but then-ruling Congress Party also saw and tried to exploit opportunities, particularly when the bus operators went on strike and angry commuters burned buses and stalled traffic.

None of that should be surprising. The issues were controversial and debate heated. What should be noted is the apparent tension between political motivations and an underlying commitment to the sanctity of the Court process. Two examples, in which the government considered but chose not to try to overrule the Supreme Court with a parliamentary ordinance, illustrate this. In one, the diesel bus drivers, backed by a member of the BJP party, Mr. Madan Lal Khurana, went on strike. They demanded that the Central Government issue a law declaring existing diesel a clean fuel.<sup>42</sup> Taxi and auto-rickshaw owners also went on strike.<sup>43</sup> Despite intense lobbying and the threat of civil disruption, the government decided against this course of action.

The second example came during a very heated debate about the CNG policy. Prime Minister Vajpayee decided not to back the passage of a law that would allow existing diesel vehicles to operate on Delhi streets.<sup>44</sup> The Central Government was under

---

<sup>40</sup> We see some merit to the bus operator’s contentions. They were forced to make a big investment, and the scrap value of their buses declined when they moved to CNG technology, as they sell old buses in other parts of India that are not currently required to use CNG. On the other hand, now that the changes have been made, they are strong advocates for staying the course.

<sup>41</sup> See footnote 22.

<sup>42</sup> Down To Earth, 09/30/01

<sup>43</sup> Rediff.com, 08/28/01

<sup>44</sup> Timeline 8/30/2001, reported in Times of India – New Delhi “Panel Planned to Frame Auto Fuels Policy 8/31/2001

substantial pressure and could have argued that it was legal to override the Court. But in both instances, the government chose not to confront the Supreme Court and let the policies in question stand possibly because public awareness on this issues made such a confrontation unpopular. We think this provides insights into the larger framework within which all of these institutions work in India, including a basic respect for rule of law and a disinclination to cause damage to the very governmental fabric.

*Judging the polices from the point of view of efficiency*

One of the strongest attacks on the CNG decision is that it is not economically efficient to force all commercial vehicles to use a single technology—in this case, CNG. The Mashelkar Committee, and critics such as Dr. Ranjan Bose of TERI and Professor Dinesh Mohan of IIT Delhi, argued for a multiple fuel policy in which private vehicle operators would decide which technology to use and the most cost-effective way to come into compliance with government requirements. In their view, the government’s role would be confined to enforcement. They expressed publicly and in our interviews that the Court had made a substantial mistake on this issue.

But criticism of the choice of a single technology was not confined to Indian experts.<sup>45</sup> The Indian press reported that World Bank experts expressed skepticism about the CNG decisions. A World Bank study warned about the importance of favorable inter-fuel pricing, the development of suitable infrastructure, and the dangers of retrofitting older vehicles.<sup>46</sup> And still another argued that the solution to vehicular pollution problems is “sector reform,” for example by eliminating subsidies that motivate adulteration of clean fuels with cheaper ones.<sup>47</sup>

We disagree with these critiques. Fundamental reforms like removing subsidies for kerosene were not politically feasible, certainly not in a predictable timeframe. In any case, conditions in Delhi were far from ideal and not conducive to solutions that might have worked in more developed countries. Our research demonstrated that Indian environmental regulators were fully aware of the many approaches that could have been taken to control vehicular pollution and had, in fact, tried a number of them. However, few of these efforts bore fruit. India had a particularly hard time mounting effective enforcement. In the end, it was this experience that pushed the EPCA and the Court to the CNG solution.

---

<sup>45</sup> Masami Kojima, “Leapfrogging Technology,” World Bank Private Sector and Infrastructure Network, Public Policy for the Private Sector series, Note Number 254, February 2003. “. . . many policymakers and environmental groups . . . conclude that the technical solutions are the best way to get around the culture of noncompliance. But the same problems that have led to heavy pollution by conventional gasoline- and diesel-fueled vehicles would probably also condemn state-of-the-art control technology to failure.” Similar sentiments seem to have been expressed by World Bank experts in a December 2001 meeting in Delhi on CNG adoption; see The Hindu--Delhi, "CNG Experiment Bound to Fail: World Bank," 12/13/2001.

<sup>46</sup> “International Experience with CNG Vehicles,” World Bank South Asia Urban Air Quality Management Briefing Note no. 2, October 2001, online at [www.worldbank.org/sarurbanair](http://www.worldbank.org/sarurbanair)

<sup>47</sup> Kojima, *op. cit.*, at 4.

Efforts to crack down on heavily polluting vehicles using inspections were undertaken sporadically for at least 15 years. There have been tough fines on the books since 1988, and at various times even stiffer penalties, including impoundment and permanent confiscations of vehicles (following multiple offenses), were threatened.

The Pollution Under Control (PUC) program illustrates the limitations of a program designed for better in-use performance. The CPCB and the Ministry of Road Transport and Highways set up this program to identify the most heavily polluting vehicles and require that they be repaired or retired. The difficulty is that PUC tests are easily manipulated.<sup>48</sup> And, it is arguably even easier and more straightforward simply to bribe the tester. Ronald Tharby has reported that “Technicians can . . . record numbers . . . without turning the analyzer on. For the small percentage of vehicles that have a current PUC certificate, this is believed to be one of the principal means of obtaining it.”<sup>49</sup> It is difficult to disagree with Delhi Administration Transport Minister Rajendra Gupta’s characterization that the program has failed “miserably.”<sup>50</sup>

The Court and its advisors could turn to other fuel-policy experience to inform their policy deliberations. The experience removing lead from petrol and the introduction of premix demonstrated the need for simplicity in regulatory change. In both cases, while the technical challenges of making the change were easier to overcome than the decision to shift commercial vehicles to CNG technology, the effort to achieve them was nevertheless considerable. Lead was removed from gas by early 2000 under Court order. This was a success story but some problems were encountered that foreshadowed difficulties in introducing CNG into Delhi. At some stages, there were not enough filling stations pumping unleaded petrol to meet the growing consumer demand. This encouraged some motorists to disable their catalytic converters.<sup>51</sup>

The second experience was the requirement that two-stroke engines use premixed fuel (petrol mixed with the proper 2% lubrication oil). The purpose of this was to reduce the problem of excess, and therefore highly polluting, lubricant. Many two-stroke vehicle owners were adding as much as 5% oil – two and a half times the appropriate amount -- and causing significant pollution. Since two-stroke engines powered about two-thirds of Delhi’s vehicle fleet in the mid 1990’s, pre-mix was an important reform.<sup>52</sup> This was not only a much easier change to make than the switch to CNG, it actually benefited vehicle owners. Excess use of oil causes deterioration of vehicle performance. Since the

---

<sup>48</sup> Ronald Tharby, “Making Vehicle Emissions Inspection Effective—Learning from Experience in India,” World Bank South Asia Urban Air Quality Management Briefing Note no. 9, July 2002, online at [www.worldbank.org/sarurbanair](http://www.worldbank.org/sarurbanair). Petrol fueled vehicles can be tuned to pass the test by firing “lean and late”, and then returned to their previous settings for regular use. Diesel vehicles are more likely to pass the test if the simulated conditions of acceleration under which they are performed are reduced.

<sup>49</sup> *Ibid.*

<sup>50</sup> Statesman--New Delhi, "Now Laser to Measure Pollution Emission," 04/28/98

<sup>51</sup> Indian Express--New Delhi, 10/13/95.

<sup>52</sup> The White Paper reported that “. . . in some instances the levels [of pollutants emitted by two-stroke engines] are so high they go beyond the measurable scale of test instruments.” *Ibid.*, at 7. And see "Third Report on Monitoring and Priority Measures Proposed by the Authority for Air Pollution Control." 1-7. New Delhi, India: EPCA, 1998.

economics of introducing new technology were largely favorable and compliance with the program did not require vehicle owners to make a substantial investment, the change could be made without much friction.

The sticking point for the Supreme Court in the debate on clean fuels was pervasive fuel adulteration. As early as 1994, a survey concluded that highly subsidized and therefore cheaper kerosene was being used as a substitute for diesel. Adulteration is very hard to fight. It can take place at many stages of the supply chain: at the refinery gates, during transport to retail outlets, at retail outlets, and by operators of diesel vehicles. Bus operators siphon off significant amounts of diesel which they sell, and substitute kerosene to make up the difference.<sup>53</sup> The evidence before the Court and the EPCA was that kerosene causes relatively little damage to diesel vehicles, and as a result, owners have no incentive not to use it (and every incentive to save money), even though it is harmful to the environment. The EPCA also heard allegations that even worse adulterants such as waste solvents were also introduced into transport fuels.<sup>54</sup>

The proponents of the more efficient multiple fuel policy were never able to provide a cogent response to the adulteration question. This is ultimately why the Court chose CNG, a gaseous fuel that cannot be adulterated.

In the end, the experience with PUC and other attempts to regulate polluting vehicles demonstrated the shortcomings of policies that might have been more efficient under more ideal circumstances. It might have been more efficient to identify vehicles that are actually the worst polluters than simply to assume that the oldest ones are, and ban them—but it is far easier to fake an emissions test than a vehicle's age. If increasingly clean fuels were put on the market, they might be a more efficient way of reducing particulate emissions—but there is simply no way to assure they would not be adulterated with kerosene, so long as the subsidies to kerosene remain in place. We concluded that the suggestions that accompanied the multiple fuel policy, such as stronger enforcement and decreased subsidies for kerosene, while logical, expressed the triumph of hope over experience.

*What is the long-term impact on governance structures in India and on future efforts to regulate pollution when the Court acts in place of regulatory bodies?*

What are the long-term consequences when a court assumes the kinds of responsibilities that the Indian Supreme Court here undertook, to sort out environmental protection options and force the government to implement its existing policies? On the one hand, it is not unusual for courts in Western democracies to hold government bodies accountable. Much of the U.S. Environmental Protection Agency's regulatory agenda is set by mandatory duty lawsuits in which the federal courts put the government on a schedule to achieve deadlines set in the environmental laws. Like the Delhi litigation, these cases are generally brought by essentially self-appointed public interest groups.

---

<sup>53</sup> Roychowdhury, Anumita and Chirag Shah. "Overhaul!" *Down to Earth*, November 15, 2003, 30-40.

<sup>54</sup> Times of India--Delhi, "Capital Gasps as Impurities are Added to Fuel," 12/10/2001; Hindustan Times--Delhi, "Petrol Adulteration Thrives in Capital," 02/08/99; Tharby, *op. cit.*

On the other hand, the Indian Supreme Court in this case did not merely take the government to task for its failures. The government experts essentially became advisors to the Court as it drove policy implementation forward. In contrast, in the U.S. EPA example, the initial role of the court is to determine whether mandatory deadlines established in the law have been violated and to establish and oversee a schedule in which the federal agency makes progress toward meeting those deadlines. In the U.S. system, the court's next opportunity to examine the regulations comes after they have been fully promulgated and, even then, the standard of review is generally whether the EPA has been arbitrary and capricious in its implementation of the relevant law. In other words, when it comes to the substance of regulatory decisions, the regulatory agency is granted a great deal of deference by the reviewing court, which is limited to asking whether the agency has acted within its statutory authority (which is usually broad enough to support several reasonable interpretations).

In the Indian case, if society increasingly looks to the Court rather than to the government to make environmental policy decisions, it is necessary to ask if this is a good outcome. The reality in India seems to be that the bodies charged with environmental regulation lack the political will to effectively implement policies, no matter how well they have been thought out. They seem to lack regulatory self-confidence or perhaps even much practice in the actual act of regulating.

One possible outcome is that the appropriate agencies of the Indian government will gain confidence from the Supreme Court's successes. In the fall 2003 Indian elections, numerous politicians, who at various points fought the CNG decision, took public credit for Delhi's cleaner air. The entire experience could be a lesson that bold action to manage difficult pollution problems will be rewarded. The existing Indian environmental authorities might be encouraged not only to announce, but also to enforce, standards. Today, India is considering whether to consolidate various EPCA-like committees and to form them into an EPA-like regulatory body. If this happens, and the new body is empowered to make and enforce real decisions, the Supreme Court's role will have been beneficial for India's long-term environmental regulation prospects.

The other, less optimistic possibility is an analogy to using a crutch and letting muscles atrophy. The regulatory muscles of the Delhi and Central authorities have not been exercised directly. At each critical point, the Court stepped in and relieved the authorities of the burden of moving forward on their own steam. While the government did, at two important points, demonstrate that it did have a backbone, by choosing not to overrule the Supreme Court in response to political pressure, that is very different from having taken affirmative actions to move events forward toward a successful regulatory conclusion.

It is our view that the Court acted with relative restraint even in its most dramatic and controversial decision, the order to shift public vehicles to a single fuel. It did not act precipitously, and it mostly relied on experts. Much of its effort involved pushing the government to implement already-announced policies that had lain dormant or been deferred. Options were vetted by the EPCA (and before that by the Saikia Committee). In

this respect, the Court may have provided a model for a more conventional regulatory process, and the success of the CNG program could invigorate regulatory bodies and give them confidence that the policies they developed were good ones and worth implementing. If this is the case, the net effects of the Court's actions will prove beneficial to the evolution of more mature regulatory institutions and processes.

However, we have a separate concern about how the Court's role has evolved. Although the Court relied, for the most part, on government analysis and existing policies as it made its CNG decision, we are not sure that this same discipline has continued into the most current activities of the Court. Recently, the Court has focused on very small details of policy implementation, many of which seem increasingly far afield of the original set of issues. For example, the Court seems ready to adjudicate issues such as CNG pricing and intercity transport. While these matters are indirectly related to the core issues before the Court, we would argue that the legislative branch would more properly decide them. We are not alone in this concern; similar worries were expressed to us by a lawyer close to the case and an NGO advocate. It's not hard to see how the Court could become a victim of its own success and push too hard on issues that are really beyond its technical competence. And, this is not a situation in which relying on the competence of the EPCA will necessarily remedy the basic inappropriateness of diverting these substantive decisions into a judicial body.

*What lessons are there for neighboring countries that seek to emulate the Delhi experience?*

Much of the international attention to the Delhi experience has focused on the litigation and its outcome and little on the surrounding institutions or the role of the government in its various facets, including committees such as the EPCA. As a result, there are similar lawsuits in Bangladesh, Pakistan, Sri Lanka, and Nepal asking the Court to act where the government has not. Often, the Indian case is cited as legal precedent. In some of these cases, the country's highest Court has issued orders, but their orders have been entirely or selectively ignored by the government or the public. When this has happened, the lawyers and public interest organizations that have brought such cases are understandably frustrated and looking for alternatives. In Pakistan, the Court is in the process of establishing an EPCA-like committee to try to develop consensus on the outstanding issues

We recommend that observers and those who seek to emulate the Delhi experience should consider the following important factors.

First, a dependable decisionmaker must exist. This must be a body that commands respect and has the requisite independence to order the necessary environmental reforms. In India, this was the Supreme Court. The Court enjoyed a unique status in Indian society, such that even very high-ranking political officials would think twice about resisting once the Court had clearly acted. The Indian Supreme Court clearly was able to navigate Indian tradition and its legal and political culture and knew where the boundaries of its authority lay. Do analogous bodies exist in the other societies that are

looking to Indian experience? In some countries, the Supreme or High Court may enjoy this status. But not every country has independent courts. In some countries, judges are subservient to the political process and some even receive political training to assure that their results will be in line with official doctrine. Some Asian countries have little experience functioning under a law-based society. In those countries, some other body with the social and moral authority to act may need to take the lead.

It is also important to consider the general milieu in which the decision body works. In India, the Government was unwilling to defy Supreme Court at critical junctures. Perhaps officials recognized that to do so could damage the fragile foundations on which its democracy rests. In the United States, during the Watergate crisis, Richard Nixon chose to turn over the Watergate tapes rather than defy the federal court, although he commanded the armed forces and the courts had only a few, generally unarmed marshals. The issue at stake was not relative power but the basic foundations on which the society rested.

Perhaps in the Indian context, the importance of an independent judiciary was heightened by a strong sense of history. Mrs. Gandhi's emergency period, in which she tried to rein in the Courts and limit personal freedoms, is remembered many years later with bitterness. Indians take great pride in having the world's largest democracy. Where there is no similar tradition of an independent judiciary or a law-based society, a single case is unlikely to reverse history. Part of the challenge in such countries may be not only to bring these kinds of cases but also to educate judges and the public.

Second, countries should only consider environmental tools that are consistent with their prevailing technical and institutional realities. These realities include the strength and performance of existing enforcement procedures, and whether there exists a culture of compliance. It is possible to set performance standards in the United States where there is relatively consistent enforcement, transparency of emission information, and many "eyes" to watch for potential offenders, including the prospect of citizen enforcement suits.

In India, an on-the-ground, realistic appraisal of the situation led the EPCA and the Court to conclude that fuel adulteration was almost unavoidable. India does not have dependable environmental enforcement, in part because there are not many people assigned to environmental enforcement, and because the lower courts, to which most cases would be brought, are extremely slow to act.<sup>55</sup> Faced with this kind of pervasive temptation to cheat, it was reasonable to conclude that a performance standard was doomed to failure. The EPCA and Supreme Court took a realistic response to the facts.

Third, no court in any country acts in an institutional or political vacuum. Any country that seeks to replicate the Delhi process must understand how its Court's actions fit into the larger milieu of people and institutions. Are there other parts of government or society in general that support its activities or act as "watchdogs" against official inaction or even intentional failure to implement the laws? Is there some level of transparency so

---

<sup>55</sup> Salve, Harish. Personal Interview. July 6, 2003. New Delhi.

that decisions can't be sabotaged outside of public view? India has the advantage of a very open press and an independent NGO community. The Court's decisions were reported in the press, and the government's failures were also subject to lively comment. CSE could generate independent research and disseminate it and its reports reached a wide audience. Indeed, CSE very adroitly fed its findings to the press, to assure that they would be paid attention. Not all of India's geopolitical neighbors enjoy all these factors. Nor is the NGO community always as diverse and as sophisticated.

### *Conclusion*

Much as one would like to believe it possible, an expansive and far reaching change in society – such as cleaning the air of Delhi or even the more limited but still daunting task of shifting commercial vehicles to CNG - can't originate from a single body acting alone. Too many parts of society must play a role in the change and must acquiesce and change their own practices and habits.

The Supreme Court's orders were successful at least in part because the Court seemed to be at the same time reflecting and driving a wider agreement within society that the air quality in Delhi was unacceptable. India had been through the searing experience of the Bhopal gas tragedy, which no politician could ignore. And India's pollution was coming to the attention of the international community. Perhaps the time was right for the Court to act. The question we cannot answer is why the time was not right for the government to act without Court interference, but Indians may hope that the experiences of recent years will embolden their elected government to fulfill its rightful role in protecting their environmental well being.