

## **Air Pollution Abatement Strategies\***

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In the mid-1990s I traveled to Brazil on business. As Vice President of Engineering for a U.S. firm that provided automotive emissions testing services, my business in Brazil was to oversee and contribute to the technical portions of a complex proposal in response to a request for proposals issued by the government of Sao Paulo. The request concerned implementation and operation of a new pollution control program for automobiles. Brazil was under pressure from the International Monetary Fund (IMF) to curb air pollution in its largest metropolitan areas as a prerequisite to continued access to IMF funding. In response to IMF pressure, Sao Paulo's government was undertaking a competitive bid process to select a contractor that would build, equip and operate vehicle emissions test centers. Under newly passed legislation, motorists would be required to bring their vehicles to the test centers annually and to pay the contractor for an emissions test. If the vehicle failed, the motorist would be required to seek repairs and return for a retest. Vehicle inspection programs similar to this had been in place in metropolitan areas throughout Europe and the U.S. for two decades. Therefore, this Sao Paulo project seemed a worthy cause and fine example of more-developed nations assisting lesser developed nations while schooling them to be responsible in their economic development.

Lacking technical expertise in the field of vehicle emissions, several established Brazilian companies were forming exclusive partnerships with well-experienced European or U.S. firms to pursue this potentially lucrative, government-sponsored contract. The winning team would

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obtain exclusive rights to perform emissions tests on *millions* of vehicles each year throughout the sprawling metropolitan area of Sao Paulo. A great deal of money would change hands and air quality would improve.

Within minutes of landing in Sao Paulo for the first time, I began to suspect that environmental concerns were being trumped by larger issues. During the taxi ride from the airport to the hotel, the narrow, sloped space beneath underpasses was occupied by families with children. The road above served as a roof for their homes. Walls were cobbled from scrap wood and discarded boxes. No mind was given to the noisy, speeding cars and trucks passing within a foot or two of their flimsy walls. I soon learned that destitute families were a fixture throughout the city.

As we penetrated deeper into the city, our cab driver instructed me to remove my elbow from its perch on the window sill and roll up my window. He explained that, at stop lights, thieves would sometimes pin the arm of an unsuspecting passenger to the sill using a knife – this to ensure cooperation while they removed wrist watches or jewelry. I closed the window. The driver also warned me against handing money out to begging mothers with crying infants. Under his tutelage, I observed mothers pinching infants to get them to cry as we pulled up to stop lights. Each cry would be accompanied by a mother's plea for coins to buy food for the baby. I tried not to notice the crying infants and, when we finally arrived at the hotel, realized I had forgotten to note the air quality along the way.

The prior paragraphs illustrate how real-world circumstance reminds us of the need for a pragmatic perspective in our judgments about the moral preeminence of pollution abatement programs. Compared to the economic and criminal strife suffered by much of Sao Paulo's population, the hazards of air pollution seemed trivial. Even though, by Western standards, Sao

Paulo's air was atrocious, one might conclude that the IMF would occupy higher moral ground by adopting a utilitarian approach, namely: focus first on reparation of poor economic conditions that are causing greater hazard to citizen health than smoggy air...then deal with the air. This was, in fact, my first reaction – the local government and the IMF would better serve the populace by redirecting pollution abatement funds to projects that spur economic growth – i.e. abate crime and fill stomachs first. But my story is not yet over.

The following day, my very first meeting with our local Sao Paulo business partner was interrupted by an urgent phone call. Since our business relationship included a strict non-disclosure agreement, I will refer to our Sao Paulo business partner by the false name 'SP-Inc.'. SP-Inc. already provided some public works services to Sao Paulo under government contract. Few of their unskilled laborers had use for bank accounts and the company therefore paid each employee in cash – distributing earnings from the back of armored trucks each payday. The call interrupting our meeting was to inform management that one of the trucks was under assault. The truck's armed guards were hunkered down, exchanging gun fire with an organized gang of thieves in hope of holding them off until the police arrived. This was not an unusual occurrence on payday and it reinforced my suspicion that the IMF might do better to encourage investment in economic stimulus so as to address the economic desperation behind these assaults. SP-Inc.'s Operations Manager calmly thanked the caller and asked for a call back when the outcome of the gun battle was known. We continued our meeting.

Following several days of project definition and proposal preparation, our work with SP-Inc. turned to cost summaries and bid pricing. If we were fortunate enough to win the bid, many large inspection centers would need to be constructed at various locations throughout the metropolitan area. Drive-through inspection lanes would need to be equipped with computers,

emissions test systems and money collection safes. Hundreds of new employees would be hired and trained as emissions inspectors. The sizable project startup costs were to be amortized over a multi-year contract period and recovered by way of vehicle test fees collected from individual motorists. Our proposed fee had to be competitive in order to win the government contract – or so I thought.

Having digested the compiled cost data, SP-Inc.'s Operations Manager settled on a proposed vehicle test fee (i.e. bid price). It was roughly twice the motorist fee charged for comparable emissions tests in the U.S. – despite the fact that labor costs in Sao Paulo were a paltry fraction of U.S. wages. I objected! We could not win a competitive bid with such an unreasonable level of profit taking. I was informed that winning was not a concern. SP-Inc. had already met with each major competitor and agreed upon sharing some portion of the test fee in exchange for those competitors bidding even higher. SP-Inc. would have the lowest bid price and share the excessive profits with its competitors. Everybody won – except the motorists. Our company withdrew from Sao Paulo's bidding process.

### **Comparing the Imperatives**

The decision to withdraw was mercifully easy since there was no moral gray area here – despite an assertion by SP-Inc.'s attorney that crooked bidding was better than none at all when it came to cleaning up the air. It was only later, while reflecting on the moral imperative to withdraw, that I noticed an analogous relationship between that imperative and IMF's duty to insist on pollution abatement.

*The moral imperative to withdraw:*

*If persons are being harmed financially (i.e. paying double because of procurement fraud), then our moral obligation is to refuse participation in the pollution control project even if some net social/environmental good comes of it.*

***The moral imperative to force abatement:***

*If persons are being harmed physically (i.e. pulmonary disease due to irresponsible economic growth), then our moral obligation is to refuse participation in the economic growth process even if some net social good comes of it.*

Denial of either of these imperatives amounts to viewing the situation through the lens of a false disjunction. In the case of denial of the imperative to withdraw from the bidding process, the false disjunction can hardly fail to escape detection. The pathetic attempt of SP-Inc.'s attorney to assert that a crooked bid was better than none at all (since the air would get cleaned up in the process) improperly implies that the choice is either dirty air or crooked bidding. I was being invited to pretend that clean bidding was not an option since "that's just not how things work in Brazil."

In the case of denial of the imperative to force abatement of pollution in return for continued access to IMF funding, the false disjunction is seeing the choice as either dirty air or no economic growth. Witnessing desperate families in the grips of poverty and crime temporarily blinded me to the likelihood that both effective growth and abatement could be fostered. The more appropriate question is how much and in what proportion the conjuncts should be arranged.

If Sao Paulo business persons and politicians have an obligation to manage growth responsibly, then Western partners have an obligation to facilitate that responsibility. Funneling Western wealth into their system (i.e., IMF loans) without mandates on social and environmental

responsibility is as immoral as giving money to the begging mother who pinches her baby. The infant's misery is *less* likely to be assuaged by your contribution, since that contribution reinforces the behavior preceding it.

I cannot deny that the financial desperation of a sizable portion of Sao Paulo's citizenry makes a utilitarian approach seem emotionally compelling. Such an approach would seek to bring the greatest happiness to the greatest number of people by maximizing funds spent on economic growth instead of spending on abatement – i.e. helping only the statistically few who suffer a lot, or the many who suffer only a bit, due to polluted air. Yet, the creation of a false disjunction (i.e. demanding economic growth at the exclusion of abatement) is not really what is on trial here. The question is: Does Brazilian society have a need regarding economic stimulation that somehow trumps the right of its individual citizens to breath safe air? It seems more likely there is a moral imperative to eschew irresponsible economic growth when that growth *avoidably* harms those it is helping. Additionally, the observed fraud (which I suspect permeated local business dealings) was itself responsible for at least some of the economic strife.

### **Objection 1 – From Whence?**

My view hinges on an assumed right of individuals to clean air and this assumption may well invite some to demand, 'From whence comes this supposed right?' In response, an indelicate empiricist might invite these antagonists to discover the source by requiring them to breathe from a mask filled with automotive exhaust until such time as their right to do otherwise becomes apparent. Alas, charity requires that we view the objection as a serious concern about ontological existence. Where exactly is the evidence for the existence of a right to safe air? For that, we may look to H.L.A. Hart's, *Are There Any Natural Rights?* In this seminal work, Hart convincingly argues that, if there are *any* moral rights, there exists *at least one* natural right,

namely: the right of all humans to be free. (Hart 175) He does so by pointing to the intimate connection between moral rights and legal rights – a connection that helps us to see moral rights as distinct from other moral concepts. (Hart 177) We routinely acknowledge these moral rights through social codes and law for they are rights we give to others by way of promise, authorization, consent or mutual restriction. For example, you may visit a car dealership and drive away in a shiny new hybrid after signing an agreement to pay the manufacturer monthly. Your promise gives the manufacturer a right to expect your payment and the dealer's acceptance gives you the right to drive the vehicle. In this context, when a promise is freely given, it creates a right for the receiver – the right to expect what is promised. Similarly, we create rights by way of authorization. For example, through elections we authorize our town officials to hire a police force for our protection. This authorization creates a moral right for police to restrain or coerce individuals who impinge on our freedoms.

If promises, authorizations, consents and mutual restrictions are ways that we create moral rights, then where may we find the source or evidence for natural rights? Hart reasons that we need only look at what these created moral rights are meant to replace. For example, in accepting that someone's promise gives the promisee a right to expect delivery, we presuppose that (in the absence of the promise) the promisor has a right to liberty in regard to delivery or non-delivery of the promised thing – otherwise there is no need for the promise. Therefore, at the moral core of our social and legal codes lies an implicit pointer to our natural right to freedom. Our acknowledgement of a promise and our subsequent moral right to expect satisfaction presupposes the right of the promising person to otherwise be free. This presupposition is pointing to the natural right that Hart has illuminated.

So as to avoid being misunderstood: I am not making a case for the existence of environmental rights in general. I am focusing here only on the well-established pernicious effects of polluted air and what sorts of moral reasoning ought to guide our abatement policies. When so focused, we are clearly in the realm of Hart's natural right in that impingement on an individual's health without their consent is a violation of their freedom.

### **Objection 2 – Government Interference**

Government mandates to abate pollution fit squarely in the realm of rights protection. In fact, they fit within the definitional confines of a Nozickian minimal state in that they amount to a protective service. (Nozick 26-28) There can be no appeal to the liberty of (for example) Sao Paulo businesses to run their enterprises as they see fit or Sao Paulo citizens to drive their vehicles in any state of repair they see fit – not if other individuals are involuntarily paying the price with lung disease. Under *orthodox* libertarian principles, a violation of rights is intolerable and – given the well-documented, pernicious effects of air pollution on individuals – an air pollution abatement ethic is therefore an entailment of the libertarian view.

Where we find ourselves weighing economic growth against pollution abatement (abroad or at home) our policy decisions ought to be guided first by an ethic that gives primacy to the rights of individual citizens. In plain terms, a reduction of the monies available for economic growth (in favor of increasing abatement) is *a reduction in the rate of increase of choices* available to individuals. In contrast, a failure to abate burgeoning pollution is *an elimination of choices* by denying individual's their natural right to freedom from human-caused harm. The moral high ground clearly belongs to abatement informed by a libertarian right to freedom as opposed to economic growth informed by utilitarian aggregate happiness. This is not to say that



utilitarian formulations have no role to play in society building. Where rights violations are not in play, utility may well be the preferred tool to illuminate our resource use decisions.

### **Objection 3 – Normal Risk**

Another way to challenge my view might be to assert that automotive air pollution is the same sort of normal risk we all accept in trade for participation in modern society. Think about automobile accidents. When I drive, I endanger persons who share the road or occupy the space near the road. My driving – even when performed with diligence – imposes some risk of accident on them. Am I violating their rights? Most urban dwellers would say not. What if my car pollutes as I drive past those same people? Its pollution does not guarantee lung disease for any individual. Therefore, in the same way that some small statistical probability of harm by accident exists for each person I drive past, some small statistical probability of harm by pollution-caused lung disease exists. In a large city, my vehicle is only one of millions contributing to pollution. The effects of my pollution are miniscule in relation to the whole and the whole itself has only a miniscule statistical probability of harming any given individual. It seems that we ought to view this as a risk normal to social belonging – a sort of Russian roulette played out with an ‘n’-chamber revolver where ‘n’ is a million or more and all but one of those chambers is empty.

As others have noted (e.g. Nozick 76-78), we might even consider a system of compensation for imposing such miniscule risk on individuals were it not that the transaction costs to precisely determine, collect and distribute payments would be astronomical and its implementation impractical. Therefore, since the risk to any individual is miniscule as well as ill-defined and the transaction costs and complexity to compensate for that risk render

compensation impractical, air pollution ought to be treated as the price for enjoying modern society's benefits.

There are two reasons to reject this price-to-play mirage: 1) the level of risk associated with unregulated automotive pollution is not necessary and 2) the type of risk is not analogous to Russian roulette with million-to-one odds. First, our cost to lower this particular risk is not onerous for individual travelers or vehicle owners, yet the damage to those who are harmed is substantial. For example, in the case of Sao Paulo the annual cost of the specified emissions test would have been \$7 to \$10 had the bid been competitive and non-fraudulent. Those owners whose vehicle failed the emissions test would have paid additional to repair their vehicle yet they would have received much of the repair expenditures back over time by way of improved gas mileage. Given that this abatement cost is low relative to automobile ownership and operation costs and the harm to particular individuals is great if pollution is unabated, it is unnecessary to leave the risk unregulated. Under the libertarian ethic, our right to free action ends where our actions unnecessarily harm the freedom of others.

Is the harm to others great? According to the World Health Organization, 800,000 premature deaths per year can be attributed to urban air pollution worldwide. In addition, an estimated 7,900,000 disability-adjusted life years are lost each year to the same cause. (W.H.O. 81) In other words, in addition to the 800,000 premature deaths, an estimated 7.9 million persons suffer with a disability caused by urban air pollution. (W.H. O. 12) One may counter that these numbers are not so great in comparison to a total world population of 6.8 billion humans. Additionally, not all of the urban air pollution is due to automobiles – much is from factories and power plants. Furthermore, abatement via automobile repair is not elimination of pollution – it is only reduction. Therefore our abatement efforts alleviate only a portion of a

problem that amounts to a small statistical risk for any given individual. This risk-dilution view is countered with my second reason for rejecting the price-to-play mirage, namely: risk mischaracterization.

In fairness, it is not inaccurate to view air pollution's risk to a given individual as amounting to a statistical improbability of harm. But there is another view of this same situation and it is not only accurate but better suited to moral rumination. It is grounded by the dark fact that we *do* have a large body count. In a game of Russian roulette with a million empty chambers, most of the time nobody dies when the trigger is pulled. Our game is very different. Instead of pulling the trigger on a mostly empty gun, we are pulling the trigger on a gun with thousands of bullets while standing in crowded stadium. It is true there is statistical uncertainty as to *which* persons will die, but there is no uncertainty as to *whether* people will die – and the body count is high. Worse yet, the targets are arranged such that the old and the very young as well as the weak and the poor are in the front rows. These are the folks who suffer most from polluted air. (see EPA) Each of us motorists may correctly assert that we do not bear sole responsibility for pulling the trigger. In fact, millions of us share in that responsibility. We drive our vehicles anyway for the very practical reason that much of the good in our society depends on our mobility. Somewhere between the necessity to drive automobiles and the un-necessity of unregulated pollution lies a moral choice. The practical utility of ignoring pollution is precisely why, in the face of 800,000 lifeless bodies, utility must be seen as having a lower moral standing than rights as our first guide to pollution abatement policy decisions.

#### **Objection 4 – Too Poor**

Finally, some may object to the abatement mandate in cases of extreme poverty. They might agree that rights violations due to unsafe air should be avoided and yet insist there is some point

at which people are simply too poor to be environmentally responsible. Not so. Consider a well-designed empirical study by van Kempen et al. in Tecpan, Guatemala – an area chosen for its very low per capita income and its forest sustainability issues. This study measured the propensity of poor persons to choose in favor of environmentally sourced firewood over identical but supposedly non-environmentally sourced firewood. (van Kempen) In cases where the cost penalty for a pro-environmental choice was modest (e.g. 25% reduction in amount of wood received), 72% of participants made the pro-environment choice. Even among the bottom tier, poorest of the poor, 25% of participants made the pro-environment sacrifice despite living near the razor edge of subsistence.

If the results from the Guatemalan study point to a human proclivity (and I think they do), then we may generalize from Guatemala to other regions (e.g. Sao Paulo). We may conclude that, in regard to impoverished peoples, it is reasonable for our decisions regarding assistance in their economic growth to reflect their desire to ascend from poverty virtuously with clean hands. Therefore, a pollution abatement ethic is not only a political concern that is both entailed by orthodox libertarianism and morally luminous more so under liberty than utility, but also a likely proclivity of humankind – a virtue that we have reason to honor.

#### Works Cited

EPA – United States Environmental Protection Agency website. Accessed 24 Oct. 2009.

<http://www.epa.gov/air/particlepollution/health.html>. Updated 9 May 2008.

[http://www.epa.gov/ttn/atw/3\\_90\\_024.html](http://www.epa.gov/ttn/atw/3_90_024.html). Updated 6 Jun. 2007.

[http://cfpub.epa.gov/ncer\\_abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/8462/report/2003](http://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/8462/report/2003). Updated 27 Jun. 2007.

- Hart, H. L. A. "Are There Any Natural Rights?" The Philosophical Review Vol. 64, No. 2 (1955): 175-191.
- Lercher, Aaron. "Are There Any Environmental Rights?" Environmental Values **16.3** (2007) : 355-368
- Mack, Eric. "Hart on Natural and Contractual Rights." Philosophical Studies **29** (1976) 283-285
- Mill, John Stuart. Utilitarianism. (1863) open domain. University of Adelaide. eBooks@Adelaide. Accessed 29 Oct. 2009 [http://ebooks.adelaide.edu.au/m/mill/john\\_stuart/m645u/](http://ebooks.adelaide.edu.au/m/mill/john_stuart/m645u/).
- Nozick, Robert. Anarchy, State, and Utopia. New York: Basic Books, Inc., 1974.
- Steiner, Hillel. "Mack on Hart on Natural Rights: A Comment." Philosophical Studies **32** (1977) 321-322
- Van Kempen, Luuk, et al. "Too Poor to be Green? A Field Experiment on Revealed Preferences for Firewood in Rural Guatemala." Ecological Economics **68** (2009) 2160-2167
- W.H. O. - World Health Organization. "The World Health Report 2002." [http://www.who.int/whr/2002/en/whr02\\_en.pdf](http://www.who.int/whr/2002/en/whr02_en.pdf)