THE DEBATE

Can Virus Response and Pollution Fight Learn From Each Other?

Environmental protection intersects with public health a considerable amount. Thousands of professionals work actively at the junction, protecting lives and livelihoods through measures to reduce exposure and resulting disease. It can be useful to draw lessons from one facet of the fight for life — and how society implements measures to counter a threat — for possible application in another.

The primary observation is that when thousands of lives are at risk, there can be an urgent response. That was true in the early days of environmental law, when Congress passed by huge majorities the signal statutes that are still at work today. But it has been 30 years since reauthorizion of the Clean Air Act despite the discovery that fine-particle pollution causes 100,000 deaths in the United States every year and the realization that climate change looms over humanity with the promise of even more death and destruction to come. A reauthorized CAA could tackle these problems more easily than the current law.

So those who work in the environmental field might envy the quick congressional action to combat COVID-19 and its economic effects, which hope-fully will be contained in a year or so when a vaccine is developed — whereas the toll from air pollution and greenhouse gas emissions will continue to add up every year and will ultimately vastly exceed the deaths from the virus.

Another lesson is that when the crisis is clear, money is no object. After President Nixon refused to sign the Clean Water Act because of the cost, Congress enacted the law over his veto. Cost doesn't seem to be a problem in enacting measures to fight the virus, either. Trillions of dollars have already been pumped into the U.S. economy.

Another lesson involves federalism. Fifty years ago, U.S. EPA led the fight for clean air and water, urging on the delegated states to carry out its legislative mandates through the regulatory apparatus. In the fight for turning the tide on the coronavirus, the situation has been reversed, as it has been the states in the lead enacting comprehensive measures to protect public health.

The *Forum* asked a quartet of experienced professionals from different sectors to shine a light on the common facets they observe, and to draw lessons from the fight against pollution for application in the coronavirus response and vice versa.

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Learning From the Pandemic: More Monitoring

By Adam Babich

How do we protect the public from COVID-19 without getting a handle on the scope, distribution, and other characteristics of the threat? Well . . . we've been trying to do something similar in environmental law for decades.

Almost any analysis of the pandemic's grip on the United States begins with our early failure to test people for the novel coronavirus — from the CDC's distribution of defective test kits, to that agency's delay in approving other testing methods, and on through supply chain problems and minimal federal guidance and coordination.

Testing is essential to understanding the basics of COVID-19, including the prevalence of the disease, the extent of asymptomatic infection, and the virus's effective reproductive number — the average number of people that each infected person passes the disease on to. Without this information, we are grappling in the dark — making decisions with enormous public health and economic ramifications based on semi-educated guesses. Inevitably, many of those decisions will turn out to be wrong. Science-based decisionmaking does not work if we deny our scientists reasonably reliable data.

Semi-educated guesswork is familiar to environmental professionals. At times, we have no choice but to rely on policy decisions made in the absence of solid scientific evidence. For example, for many hazardous chemicals, we lack data about dose-response — how much exposure will cause how much injury. We can't very well (or at least we should not) experiment on people as if they were laboratory mice. So we do the best we can with assumptions and estimates.

Often, however, information is within our grasp but we still fail to gather it. Either we don't want to spend the money, we would rather not face up to the data's implications, or both. For example, in 1997, when finalizing its Compliance Assurance Monitoring rule to implement a Clean Air Act mandate for enhanced monitoring, EPA disavowed "a bias toward instrumental monitoring." The agency explained that requiring "direct emissions and compliance monitoring where the technology is available and feasible" would be "expensive, and technically complex" and thus "technically unrealistic," at least in the short term. We have been playing catch-up ever since.

Nobody working in the environmental field over the last few decades has failed to notice the repeated failure of EPA-approved State Implementation Plans to achieve compliance with federal health protection standards for ground-level ozone in ambient air. Air quality studies that the National Oceanic and Atmospheric Administration, the University of Texas, and others conducted in 2000 and 2006 help explain why. Those studies found that the emission estimates that underlie implementation planning for the Houston nonattainment area significantly understate actual emissions of volatile organic compounds — which react with oxides of nitrogen in the presence of sunlight to make ozone. Thus, air quality models used to demonstrate the standard's ultimate attainment are skewed by a fundamental rule of data analysis: garbage in, garbage out.

Courts tend to defer to EPA's reluctance to base decisions on monitoring. A 2008 D.C. Circuit opinion upheld the agency's analysis of the public health risk from facilities that use or produce synthetic organic chemicals. The court approved the agency's reliance on emission estimates from an industry association questionnaire that had a 44 percent response rate. Why? Such reliance is a "well-established practice"; i.e., we've done it before. Also, it would have been "costly and time-consuming" to collect better data.

In 2015, the D.C. Circuit upheld EPA's decision to designate an area in Utah as "unclassifiable" under the Clean Air Act — meaning that more than four decades into the act's implementation, EPA lacked enough information to say whether the area met standards. In that case, EPA had data from ambient monitoring under federal consent decrees. The data showed nonattainment. But the agency rejected those results because it had not conducted "post-collection quality assurance checks on the data."

For a brief time, EPA seemed willing to grapple with the need for monitoring data — at least when dealing with air pollution. In 2015, the agency published a rule that oil refineries must monitor benzene concentrations in ambient air around their fence lines and respond if those concentrations exceed an "action level." If the fugitive emission estimates that the refineries reported to EPA had been correct, no refinery would have exceeded the action level. Instead, 10 refineries have blown the limit, including operations by major players such as Chevron, Shell, Marathon, Valero, and PBF Energy.

In 2018, EPA took a step backwards, withdrawing its 2015 Next Generation Compliance Tools guidance because it "tended to suggest" that the agency would routinely require "tools such as advanced monitoring and independent third-party verification" in settlements.

We cripple our ability to protect the public whether from environmental pollutants or pathogens when we fail to collect the data we need to make science-based decisions.

Adam Babich teaches environmental law and administrative law at Tulane Law School.

Lessons for Flattening the Climate Curve

By Stephen Harper

COVID-19's tragic death toll, and the resources spent to respond and recover from the virus, have some climate policy activists concerned that our current crisis has reduced the will and ability to tackle climate change. Call me a contrarian. I think there are several parallels between our immediate COVID-19 crisis and the longer-term challenge of climate change that may turn the first into a dress rehearsal for the second.

Despite claims, neither crisis is a Black Swan, a unique disaster that could not have been anticipated but seems obvious in retrospect. Pandemics such as coronavirus have come and gone throughout history. We should have been prepared for what we are going through. Lack of preparation turned an epidemic into a pandemic. Climate change has been on the radar screen for at least four decades, so it isn't a Black Swan either.

Responding to both COVID-19 and climate is a matter of "flattening the curve." The climate change curve is much more prolonged, and its threat is much more existential. The very length and seemingly modest slope of the climate threat curve makes it more difficult to respond to in time.

Both coronavirus and climate change are attacking fundamental weaknesses of our economic and social system. The damage done to our complex, fragile supply chains emphasizes the need to increase economic resilience as a buffer against inevitable, significant disruptions. At the same time, the disproportionate impact of COVID-19 on disadvantaged communities has been breathtaking, dramatically magnifying the environmental injustices of everyday life. Climate change is causing the same types of damage to our socio-economy.

Which brings us to the broader topic of social cohesion, a degree of which will be necessary to a successful response to both COVID-19 and climate change. Presently, it is unclear whether the virus is bringing us together or further reinforcing our tribalistic tendencies. If the latter is the case, addressing climate change will become even more difficult.

Finally, an optimal response to both crises will require that science and data serve as the North Star that guides public policy. We need to be able to accurately track the climate change curve, in terms of both temperatures and health and ecological impacts, and be able to predict and quantify the impact of various mitigation and adaptation measures.

Speaking of policy, I am reminded of that great Churchillian bon mot, "Never waste a good crisis." We are all in the midst of learning a new way of living and doing business, emphasizing greater use of technology and virtualization. The current moment will pass, eventually, but we are not likely to return to the status quo ante. Here are some policy thoughts relevant to creating a new and better normal:

Most fundamentally, we need to become more economically and socially resilient. Governments need to invest in delivering more services digitally, where possible. Schools at all levels must be able to offer more eLearning services as a baseline, with the ability to pivot to a virtual norm when circumstances dictate. This will require a serious effort to truly close the digital divide across society. You can't function in today's economy without a smartphone and a laptop.

Similarly, perhaps incented by public policies, businesses need to invest in operating remotely, making today's necessity a virtue. Part of that will include increasing the variety of jobs that can be done virtually, reducing perhaps the most striking digital divide of the COVID-19 crisis.

Enabling these changes in how we conduct our lives and business affairs will require massive public investments in 5G network technologies and the "digitalization" of virtually everything. Real-time advances being driven by the Internet of Things and artificial intelligence applications will lend a robust tailwind to these other advancements. Here too, government policy can play a big role in advancing progress.

A major part of investing in a more resilient society will need to include modernizing the electricity grid. A modern, more resilient grid — operating more like the Internet, featuring two-way flows of both information and electrons — is a precondition for the grid to run on 100 percent renewable energy. And a clean-powered grid is essential to meeting the climate challenge. The modernization imperative applies to our local water infrastructure as well.

Investing in the acceleration of the renewable energy future is key to "Building Back Better." The massive stimulus package following the 2008 Great Recession helped jumpstart a major increase in renewables penetration. The anticipated infrastructure package should double-down on that precedent. Otherwise we will simply be creating a new generation of soon-to-be (expensively) stranded assets. And those assets will not put us in any better position to respond to the next pandemic or ride out the ongoing curve of climate change.

Stephen Harper is director, environmental and energy policy, Intel Corporation.

Bad News for People Already Overburdened

By Vernice Miller-Travis

For going on four decades, the environmental justice movement has focused on unequal protection at all levels of government — federal, state, county, and municipal. We have pointed out in research, advocacy, and activism that communities of color are exposed to disproportionate levels of pollution over the course of our lives. We even raised with EPA the need to identify the cumulative and synergistic burden of exposure to multiple sources of pollution.

While most Americans are confronting the coronavirus pandemic, communities of color are confronting something worse, the Syndemic of Coronavirus and Environmental Injustice. A syndemic is a synergistic epidemic. It is a set of linked health problems contributing to excess disease. To prevent a syndemic, one must control not only each affliction in a population but also the forces that tie those burdens together.

Constant exposure to high levels of air toxics in communities of color has already resulted in explosive levels of respiratory disease, including asthma, chronic obstructive pulmonary disease, and emphysema, as well as heart disease. These pre-existing conditions have compounded the devastating impact of this pandemic; communities of color are now experiencing the highest rates of infection and death from COVID-19 in the United States. Lax attention to poor air quality has provided the perfect conditions for coronavirus to ravage the neighborhoods of people of color.

In April, the Harvard School of Public Health published a study that shows that COVID-19 is traveling through the air by attaching itself to fine particulate matter. They found that living in a county that experiences a slightly elevated level of $PM_{2.5}$ results in a higher likelihood of developing coronavirus and dying from it. Only 22 percent of all counties in the United States are majority African American, yet 57 percent of COVID-19 deaths are coming from these jurisdictions. The Navajo Nation has been devastated by the pandemic and has a higher per capita rate of death from the virus than do seven states.

Latino and other immigrant workers in meatpacking plants are particularly vulnerable to virus exposure. These workers toil in conditions that rapidly spread COVID-19, making them especially vulnerable. With little concern for the well-being of employees, their jobs have been designated as essential so that the rest of us can have an uninterrupted supply of meat.

In an article published in the British newspaper *The Guardian*, reporter Emily Holden writes, "The Trump administration has said it will not tighten rules for soot pollution ($PM_{2.5}$), despite research showing that doing so could save thousands of lives each year." Fine particles from the burning of wood and fossil fuels "penetrate the respiratory system and are linked with heart and lung diseases, higher rates of asthma, bronchitis, and cancer."

Holden explains that under the existing standard, "Polluters can emit enough soot to measure 12 micrograms per cubic meter. Strengthening the standards to 11 micrograms could save about 12,000 lives per year." The writer observes that "other research, noted in the government's own analysis, found that maintaining the soot standard at its current level could allow as many as 52,000 deaths a year in just 47 urban areas."

The Trump EPA "is now proposing to freeze the standards. The move comes as experts warn the coronavirus pandemic is unequally devastating communities of color that have been disproportionately burdened by pollution." The agency is also retaining its current standard for coarse particle pollution (PM_{10}).

Rob Brenner was deputy assistant administrator of EPA's air office and director of its policy shop. He says, "The science (based on thousands of high-quality studies) is clear: even a modest increase in the stringency of the standard would prevent thousands of premature deaths per year. . . . We need to continue to highlight the disproportionate effects of air pollution on already overburdened communities and urge a tighter standard."

The current administration has withdrawn several environmental regulations under the guise of expediting economic development and business interests. In this particularly difficult and unprecedented public health crisis, one where communities of color are already paying an extraordinarily high price, the federal agency needs to lean into stringently regulating air pollution. Instead, what we have seen is the administration giving many industries a free hand to pollute while relaxing enforcement, all in aid of supposedly fighting the coronavirus. This is exactly the opposite of what is needed.

These measures also reinforce the sense that all communities are not, in fact, equal before the law. Even when the evidence clearly demonstrates that communities of color are more in need of environmental protection than ever before, they can't expect their government to focus attention or resources on those most impacted and most in need of assistance.

These communities are on their own and their government is not coming to their aide. This is unacceptable though not unfamiliar.

Vernice Miller-Travis is executive vice president for environment and sustainability of the Metropolitan Group.

Pandemic's Other Casualty: Expertise

By Rena Steinzor

As the country prays for relief from the global pandemic, what have we learned that could help us protect the environment better? Most alarming, I would argue, are COVID-19's revelations about the power of conspiracy theories and the antipathy they generate toward scientific experts.

Take "America's Doctor" and the dark rumors percolating on right-wing websites. Anthony Fauci is a "Deep-State Hillary Clinton-loving stooge." He was paid off to the tune of $100 million by Bill Gates, who has invested heavily in the development of vaccines for COVID-19 and corruptly opposes chloroquine, a life-saving cure. The genesis of the pandemic was a Chinese virology lab, where scientists deliberately created frankenviruses.

Crazy conspiracy theories have alarming traction. The Pew Research Center surveyed 10,957 U.S. adults last spring and found that 43 percent say they have a "great deal of confidence" in medical scientists to act in the public interest, up from a measly 35 percent before the pandemic. But the upturn, which still accounts for less than half of respondents, broke down along party lines: only 31 percent of Republicans and GOP-leaning independents had faith in expertise.

Shifting arenas, in 2012, Donald Trump said climate change is a hoax invented by the Chinese. During a spate of cold weather in January 2014, he said it was a hoax perpetrated "by scientists [who] are having a lot of fun." By 2016, he denied calling the problem a hoax during a presidential debate. In 2019, he withdrew the U.S. from the Paris climate accord. A 23-country survey conducted by the YouGov-Cambridge Globalism Project in 2019 found that 13 percent of Americans said climate changes were not affected by human activities, and 5 percent said the climate was not changing. Only Saudi Arabia and Indonesia have larger numbers of climate deniers.

A group of psychologists has produced a short pamphlet explaining how we can spot COVID-19 conspiracy theories. Conspiratorial claims are contradictory, betray overriding suspicion, allege nefarious intent, claim persecuted victimhood, and are immune to evidence, among other characteristics. Common attacks on proposals to mitigate climate change resonate here.

Scientists have a vested interest in more research and exaggerate the nature of global warming. The problem may be happening, but it's not as bad as the scientists tell us. Even when scientists tell us we are in big trouble, their evidence is not as certain as they sound. Cutting greenhouse gas emissions would be ruinously expensive and would cause more harm than good. Loser countries like China want to hold us back as they sprint ahead. If the weather gets cold for a few days, it must mean the planet is not warming.

Of course, attitudes towards scientific experts are only one piece of the climate change puzzle. But those intent on slowing any advance toward mitigation spend a disproportionate amount of time and money disputing the exceedingly strong scientific consensus that changes are happening at a much faster rate than anticipated and, unless we take action soon, the planet will be in deep trouble. Even if those efforts focus on deconstructing (proponents would say energetically criticizing) individual studies, their cumulative effect is to suggest to Americans that after decades of study across multiple disciplines engaged in by many thousands of scientists, the world's experts still don't know what they are talking about.

The erosion of confidence in expertise, especially scientific expertise, will leave the regulatory system high and dry, susceptible to political currents that are quite powerful. The campaign against environmental regulation is operating at a fever pitch. Many commentators focus on the frequent losses the Trump administration is experiencing in the lower courts. They argue, with some justification, that, in the immortal words of former Trump guru Steve Bannon, progress toward "deconstructing the administrative state" is slower than it appears. But this optimistic perspective overlooks the hollowing out of EPA, where scientists and other career experts have left in droves. It will take years to restore the agency's deliberative processes.

Meanwhile, the pendulum is likely to swing back — at least partially — on Capitol Hill, generating legislation that a Democratic president would sign and that could be self-implementing. Companies need permits and licenses and citizen suit provisions remain on the books. A workforce with a dearth of experts could be exasperatingly slow in some respects and irrationally fast in others. Stability and certainty would continue to fade as confidence in expertise remains a minority opinion.

I often ask myself how we got to the point where expertise became so devalued. The Trump base, so often stirred into rage against elites, is one answer, and that faction isn't going anywhere, no matter what happens in November. Yet the campaign to discredit science that documents severe problems like climate change was created by elites who could now reap the whirlwind of what they have sown. The outcome won't be good for any of us.

Rena Steinzor is the Edward M. Robertson Professor at the University of Maryland Carey Law School.