



Air Apparent

BY HAMIDA KINGE / ILLUSTRATION BY ELEANOR GROLSCH

Over four decades after the Clean Air Act was signed by Congress, more than half the country continues to live in areas where pollution has reached unhealthy levels. Cities with different problems have taken steps to clean up the air. But is it enough?

Jesse Marquez, 57, has trouble breathing through his nose, and on high-smog days, he has trouble breathing, period. Marquez has lived his entire life in Wilmington, Calif., a mostly Hispanic neighborhood that borders the Port of Los Angeles Port and the Port of Long Beach.

Wilmington is home to two large oil refineries, and a third sits just on its border, but the ports are the single largest source of pollution in Southern California, accounting for approximately 25 percent of the region's diesel soot and 50 percent of sulfur oxide emissions, a key component in harmful particle pollution. "It touches your life," says Marquez, who believes his recurring sinusitis and bronchitis are due to the ports and who often drives to Tijuana

to buy discounted inhalers. “It touches all your family and friends’ lives.”

According to a 2008 study by the South Coast Air Quality Management District, concentrated diesel emissions near the ports spike the cancer risk in Wilmington and the nearby neighborhoods of San Pedro and West Long Beach to more than double that of the greater region: 2,900 in a million (compared to 1,200 away from the ports). Residents suffer from increased rates of respiratory problems, such as asthma, emphysema and bronchitis, as well as birth defects. The health risks are so pronounced that locals often refer to their neighborhoods as the “diesel death zone.”

The people of Los Angeles have been grappling with smog for more than a century; one day in 1903 industrial smoke and fumes were so thick that residents thought there was a solar eclipse.

Marquez, for one, has taken action: He’s the founder and director of the Coalition for a Safe Environment, a nonprofit that investigates the health effects of port expansion on area residents. Over the years his coalition has helped block 17 port projects after the port failed to provide Environmental Impact Statements, which are required by law. The Coalition is not unusual: Advocacy groups throughout the United States play an important role in the system of checks and balances put in place by the Clean Air Act, which maintains that the general public can bring enforcement actions when state or local government is not acting on violations. It presumes that the government can’t be everywhere at once and encourages citizen supervision of the air. Consequently, the role of advocates like Marquez is critical to protecting residents and improving air, especially in the cities, where pollution is often concentrated.

The people of Los Angeles have been grappling with smog for more than a century; one day in 1903 industrial smoke and fumes were so thick that residents thought there was a solar eclipse. On average, the nation’s air is significantly cleaner than it was just a few decades ago: From 1980 to 2007 there was an average national decrease of 21 percent in ground-level ozone (commonly known as smog), an air-polluting compound linked to respiratory illnesses. “Things like ground-level ozone have proven to be stubborn, but the air quality in and around many cities has improved,” says Cathy Milbourn, a senior press officer at the Environmental Protection Agency. Still, despite these major leaps forward, more than half the nation lives in areas where pollution is at unhealthy levels.

The stubbornness of the problem is largely due to its complexity. Air pollution, like the air itself, is mobile: Certain pollutants can travel for hundreds and even thousands of miles, so pollution from coal-fired power plants in the Ohio River Valley, for example, affects air quality in Pittsburgh, along with Washington, D.C. and other mid-Atlantic cities. Topography is also a factor: cities like Los Angeles and Birmingham, Ala., which sit in basins or valleys, can trap dirty air. It’s equally difficult to determine just how dangerous pollution is. Of the range of pollutants that foul urban air, particulate matter (PM), sulfur dioxide and ground-level ozone pose the most widespread and acute health risks; recent studies indicate that particulate matter is most responsible for the life-shortening effects of air pollution. Last year’s American Lung Association annual “State of the Air” report, citing EPA data, placed Pittsburgh atop Los Angeles for the first time ever in the category of short-term particulate pollution, which represents high spikes in emissions over a short period of a few hours to a few days, and poses a more immediate threat to public health.

The progress in air quality is due to the Clean Air Act, which Congress first passed in 1963 and strengthened significantly in 1970. The Environmental Protection Agency, set up in 1971 to implement the Act’s requirements, oversees state and local environmental departments, which in turn monitor ambient, or outdoor, air quality for six key pollutants, including particulate matter and smog. The act, which set National Ambient Air Quality Standards, has been amended and strengthened over the years in response to new science about health effects and to address certain crises, like acid rain. The most recent update in air standards by the EPA was in 2006, when PM 2.5, or particulate matter that is 2.5 microns or smaller in diameter, was changed to an allowance of 35 micrograms per cubic meter (formerly 65 micrograms per cubic meter in 1997). At 2.5 microns, about one-thirtieth the diameter of a human hair, particles not only can get lodged deep in the lungs, but may also enter the bloodstream, where the body’s natural clearance mechanisms cannot expel them. Particulate matter pollution is a complex assortment of particles with different sources: Larger particles, those ranging from about 2.5 microns to 100 microns in diameter, usually come from industrial processes, construction, agriculture and on-road traffic, and smaller particles, those less than 2.5 microns, generally come from the burning of fossil fuels, including soot from vehicle exhaust. Coal-fired power plants are the largest source of fine particles, but auto and diesel exhaust are also prime contributors.

Advances in monitoring equipment and science, along with pollution control equipment, do make

it possible to pollute less. “Years ago, we couldn’t measure particulate matter as precisely,” explains Janice Nolen, assistant vice president of national policy and advocacy at the American Lung Association. “While these new technologies can help get us closer to the new standard,” she says, “I wouldn’t even suggest they are entirely possible to let us meet the standard. Many [sources of pollution] must be cleaned up, and the political will, technology and resources to do that are not yet clear.” Nolen says many polluters have not cleaned up largely because they believe, erroneously, that the process is extremely expensive.

Enforcing pollution regulations is a dizzying exercise in patience: air moves quickly, while the law can move very slowly. The Clean Air Act is federal, but states and local environmental protection agencies largely handle permit applications and fine companies and others for violating federal standards. Often, the task of air regulation is divided between state and region; in California, for example, the regional South Coast Air Quality Management District regulates industrial and business sources of pollution, and statewide, the California Air Resources Board handles primarily mobile sources of pollution, such as ships and trucks, and toxics in consumer products, like paints.

If a source of emissions, such as a coal plant, is putting out pollutants in excess of what is allowed, air regulators can fine them, or sue when necessary. And under a provision called the “citizen suit provision,” citizens and advocacy groups can assume private attorney general status to “bring an enforcement action when the state and federal government are not acting,” says Jennifer Peterson, a lawyer for the Environmental Integrity Project, a national nonprofit that works with local communities to promote better enforcement of environmental laws.

In three cities — Los Angeles, Pittsburgh and Birmingham — advocacy groups are helping to clean up the air. In each city, the source of the problem is different, but the effect is the same: health problems, especially among the young. Here, a look at the problems — and some possible solutions.

Los Angeles: The Bad Side of Goods

Looking like giant, mechanical praying mantises, a bevy of four-legged steel structures stands along the docks at the twin ports of Los Angeles and Long Beach. Their claws reach down to ships, clasp and neatly stack 40-foot rectangular containers of cargo before they head for destinations throughout the country. Around the clock, ships the length of 100-story skyscrapers arrive. Nearly half the goods imported to North America pass through this mammoth, continuous

port complex, the largest on the continent and the fifth largest in the world. According to the California Air Resources Board, ships account for 73 percent of the ports’ emissions. The culprit of ship emissions is “bunker fuel,” a tar-like petroleum sludge 1000 to 2000 times dirtier than diesel fuel, which is scraped from the bottom of the barrel after the refining process. Making matters worse, the ports are home to diesel-powered cranes, forklifts, freight trains and “yard hustlers,” trucks that move cargo around the ports. Delivery trucks make 16,000 trips to and from the port each day, many idling as they load.

But port emissions are still largely unregulated. “We’ve got to get a handle on that if we want to have any chance of meeting our federally mandated standards,” says Sam Atwood, media office manager of the South Coast Air Quality Management District, which does not directly regulate the ports but has tried to pressure the EPA and California’s Air Resources Board to do so. Atwood calls current emissions standards for ships, set by the International Maritime Organization (IMO), “so lax as to be useless.” In 2007, the Air Quality Management District sued the EPA to get them to put pressure on the IMO to toughen the standards. The IMO adopted stricter regulations last fall, but some won’t take effect for 10 to 15 years.

In 2006, the Air Resources Board adopted a plan to reduce community exposure to pollution and meet federal air standards, but the biggest step has come from the ports themselves: They share the San Pedro Bay Clean Air Action Plan (CAAP), created in 2006 with the goal of reducing emissions by 50 percent over five years. One of the biggest challenges to enforcing the \$2 billion plan is that most of the cargo ships are not owned by American companies and are therefore not subject to federal standards. Five years ago the Port of L. A. began putting voluntary tariffs on ships to slow down speed 20 miles from land, which has helped to reduce emissions. Dr. Ralph Appy, director of environmental management at the port, says about 90 percent of ships are now complying with the speed limit. Once at 20 miles, some ships are also able to switch from bunker fuel to cleaner fuel, for which the port pays the additional cost. Appy says that as ship leases expire and are up for renewal, the port will have a lot more power to get shipping companies to comply with some of the now-voluntary behaviors.

Local advocacy groups have had a tremendous impact on the port’s action plan. In 2004, the California Coalition for Clean Air partnered with the Natural Resources Defense Council and two local homeowner associations and sued the port to enforce the California Environmental Quality Act. As part of an eventual settlement, the port developed a practice called “cold ironing,” a technology that enables ships to plug into

electricity at shore rather than idle on bunker fuel. “There is much to be done to clean up this underregulated industry,” says Candice Kim, senior campaign associate at the Coalition for Clean Air.

The collective action is urgent. Seven years ago, Jesse Marquez and his Coalition for a Safe Environment surveyed Wilmington residents and found that 80 percent had some kind of respiratory problem. Asthma in children was the most serious concern. “We’re surrounded by a cloud of smog 24 hours a day, 7 days a week,” he says. He stresses that residential surveys are just as important as health risk studies in ascertaining the real numbers of health problems in communities like his. “Here we have a government study that has been performed and we’re the residents and didn’t even know the study existed.”

Birmingham, Ala.: Plant Problems

A sleepy southern city with abundant green in nearly every direction, Birmingham doesn’t spring to mind as a place with pollution problems. For years it was known for its fertile steel and iron industry. The city has seen a dramatic drop in industrial production over the last few decades and has made progress in cleaning up its air, but it still ranks fifth nationally in particulate and ozone pollution, and is currently out of compliance with the new PM 2.5 standards. “We’re not failing those standards because we’re falling backward,” says David Wootton, principal air pollution control engineer of the Jefferson County Health Department. “[The EPA] keeps raising the bar.” Wootton also stresses that the city’s valley location plays a role in its struggle to get the air up to par. “We don’t have one black sheep causing problems,” says Wootton, whose agency regulates air quality in Birmingham. He says there are still industrial sources of pollution, such as steel and concrete manufacturing, but much of the city’s pollution can be linked to three interstates that run through it: I-65, I-59 and I-20. Another Birmingham road, U.S. Highway 78, gets a lot of truck traffic, making it a major source of diesel emissions. “It’s not like you got a bunch of outlaws here in Birmingham just [putting out] black smokestacks giving us a hard time,” Wootton says.

Michael Churchman, executive director of the nonprofit Alabama Environmental Council, agrees that transportation pollutes the city, but says the bigger issue is power plants and other industrial sources, like Alabama Power’s Miller Steam Plant in West Jefferson County, which Churchman calls one of the worst coal-fired power plants in the nation. Alabama Power’s Gorgas Steam Plant, just past county line, says

Churchman, also sends a lot of pollutants into Jefferson County. “They’re gonna tell you they’ve spent a billion dollars on adding scrubbers and updating them,” he advises, “but it’s still old technology. They can scrub it all they want, but it’s still going to be producing a lot of air pollution.”

Alabama Power’s Pat Wylie refutes Churchman’s claims, saying the company has spent hundreds of millions installing “state-of-the-art” emissions-lowering equipment at its plants. “The fact is that our power plant emissions are down dramatically while the output and demand for electricity has increased 60 percent companywide since 1990.” Wylie insists that emissions will continue to drop as they add more environmental controls in the years to come. But Janice Nolen, for one, is not convinced that such retrofitting will solve pollution woes. “Some of these old plants need to be retired,” she says.

Churchman notes that less-affluent, ethnically diverse North Birmingham is bearing the brunt of industrial pollutants from the production of concrete, steel and coke (a coal-derived fuel necessary in steel manufacturing). Diesel truck depots are also concentrated in North Birmingham. The Jefferson County health department closely studies North Birmingham’s air, and consistently finds that the area has the county’s highest concentration of toxic chemicals. A 2005 study by the Harvard School of Public Health, using data from a group of cities including Birmingham, found that the risk of hospitalization for ischemic stroke – caused when a blood clot travels to the brain – was one percent higher on days with relatively high particulate levels.

In August 2008, the Alabama Environmental Council lobbied against the Alabama Department of Environmental Management’s (ADEM) move to weaken opacity standards on industrial pollution sources, a move Churchman says was motivated by a fear of discouraging industrial companies from locating in Alabama. He says the reason a lot of industrial polluters are not complying with air regulations is because “it’s easier to pay the fines afterward than to do it the right way in the first place.” To compound the problem, Churchman says, ADEM issues operating permits without looking at the cumulative impact of polluting sites, so, he explains, “there may be three other fuel plants within a half-mile radius.” ADEM spokesman Scott Hughes says that when a new source with large amounts of emissions applies for a construction permit, the applicant must perform a cumulative air quality analysis, and must also find reductions in air emissions from existing sources to negate its own effect on air quality.

Pittsburgh: A Loss for the Steelers

Birmingham has seen a steady decline in industry, as has Pittsburgh, but steel production is still big business in Pittsburgh's Allegheny County. Steel, coal-fired power and coke plants make the air a cocktail of harmful particles and smog. Guillermo Cole, public information officer at the Allegheny County Health Department, which regulates the county's air, says his organization "always takes exception" with the American Lung Association's rankings, which give an "F" letter grade to the county for excessive pollution. Cole asserts that only one "small" area of the county, the Liberty/Clairton area, with less than 25,000 people, has the worst short-term and second worst long-term particulate pollution levels in the country. He says they are concerned about it, but that "the problem is very localized and not a regional issue." The Allegheny County Health Department asked the EPA to do something that has never been approved in any other part of the country: Cut out a "doughnut hole" around the Liberty/Clairton area where stringent regulations can be applied, but make the areas in the county outside the hole less stringent. The EPA granted this request twice. The American Lung Association took issue with the decision; Nolen stresses that air pollution is never a localized issue, precisely because air is mobile.

Liberty and Clairton are the sites of the largest coking plant in the nation, owned and operated by U.S. Steel. The plant signed an agreement in 2007 with the health department to reduce its emissions over the next six years. Another area, Braddock, just east of Pittsburgh, is located right next to a U.S. Steel mill. The childhood asthma rate in Braddock is about 25 percent (compared to the national average of 9.1 percent).

Steel production is a significant source of air emissions, in part because it requires the use of coke. "It sounds odd, but not all, or maybe even not most, of the air impact of coal in Allegheny County is from electricity generation," says Joe Osborne, legal director of the Group Against Smog and Pollution (GASP), a Pittsburgh-based nonprofit. Osborne is referring to the fact that most coal-based pollution in the region comes from coke, rather than from coal-fired power plants. GASP has won several pollution-related cases. In 2005, for example, GASP and PennFuture, an environmental conservation organization, jointly appealed the Pennsylvania Department of Environmental Protection's issuance of a permit to Cambria Coke Company for the construction of a massive coke plant in Cambria, Pa. The company subsequently allowed its permit to lapse. And in 2006 GASP filed a successful lawsuit in the Court of Common Pleas of Allegheny County to prevent the misuse of Clean Air Fund monies.

GASP heads a number of programs to reduce pollution, including a diesel retrofit program in

collaboration with the mayor's office, and the "Smokereaders" program, which trains volunteers to judge smokestack emissions with the naked eye according to EPA standards. (The more opaque the smoke, the dirtier the emissions.) "It's a kind of simple, low-tech way to judge if there is a violation," says Osborne. In a few months GASP will partner with Heritage Health Foundation to train Braddock residents to read smokestacks.

Despite the decline of the industrial era, steel production has long ensanguined Pennsylvania's air. On October 26, 1948, a cloud of sulfur, heavy metal dusts and carbon monoxide descended upon Donora, a small, industrial town in Pennsylvania, causing the sky to go dark for five days. The source of the deadly pollution was, in part, a smelting facility owned by U.S. Steel. Within one week, twenty people had asphyxiated and seven thousand, about half the town's population, became ill; four hundred were hospitalized with breathing difficulties. More would die after the inversion subsided; others would live their lives with severe health problems.

The people of Los Angeles have been grappling with smog for more than a century; one day in 1903 industrial smoke and fumes were so thick that residents thought there was a solar eclipse.

Though the U.S. will likely never see another Donora, it remains to be seen what must happen to address the fact that more than half of the country is still breathing unhealthy levels of pollution. Jesse Marquez says that although air regulators have developed guidelines for keeping polluters from building or expanding next to housing, schools and other facilities, those guidelines are useless when there are not actual laws to enforce them. "Regulatory agencies have never established a date when air pollution and toxic chemical releases must reach zero or near zero," he says. So what can make air regulation more effective and less complex? "We do not see air quality enforcement as being complex," says Marquez. "Either you comply or you don't. The problem is that air regulatory agencies fail to enforce the law." Janice Nolen tends to agree: "The Clean Air Act works when it is followed and enforced. [Air regulators should] require that every community meet the standards everywhere—those things would get us to healthy air. Period."x