THE BROWN AGENDA

MY MISSION TO CLEAN UP THE WORLD'S MOST LIFE-THREATENING POLLUTION

RICHARD FULLER
FOUNDER AND PRESIDENT OF PURE EARTH
WITH DAMON DIMARCO

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By **Richard Fuller**
with **Damon DiMarco**

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Praise for

THE BROWN AGENDA

"Richard Fuller has been the driving force behind two huge environmental agendas: corporate sustainability and pollution in the developing world. He's the Elon Musk of the environment. An extraordinary man, tackling pollution—one of the world's biggest problems—head on."

—Juan Romeo Nereus Olaivar Acosta
Presidential Advisor for the Environment,
Office of the President, Government of the Philippines

"There are few more important stories than how we humans foul the planet and ourselves, often heedlessly. And there are few better placed to tell that tale than Richard Fuller, who has been working for years to show how we can—and, more importantly, should—clean up the earth. *The Brown Agenda* is the story of an important humanitarian cause revealed in clear and concise prose that is at once deeply necessary and deeply satisfying."

—David Biello
Editor, Environment & Energy, *Scientific American*

"*The Brown Agenda* changes the framework—always the way to have the biggest impact. All of us, but especially those living beyond the significantly cleaned-up West, are daily being environmentally poisoned (not too strong a word). This biggest of all the world's health threats, however, can be readily fixed. Rich Fuller has shown how to do so—from abandoned wastes in Ukraine to old battery factories in Indonesia. This is the rare book that gives the reader the power to act."

—Bill Drayton
Former Assistant Administrator, U.S. EPA
CEO, Ashoka: Innovators for the Public

"Turning 'brown' into 'green' has become a necessary journey for all of us as resource pressures are compounded by the ultimate threat intensifier—climate change. This story, a life's work, shows the difference we can make if we all make it our business."

—Rachel Kyte
Vice President, World Bank

"If you're browsing this book wondering why you don't already know about Rich Fuller and Pure Earth, the answer's obvious by a few pages in: he's been too busy saving lives to 'build the brand.' In fact, Fuller appears only yesterday to have accepted that he even needs a freaking brand. In an age when nonprofits exist to raise awareness and pay themselves, Fuller is out there getting it done. And his memoir isn't some kind of moralizing lecture; it's more like a romp. Who knew cleaning up toxic waste could be the stuff of Indiana Jones-style adventure?"

—Bradford Wieners
Executive Editor, *Bloomberg Businessweek*

"Pollution kills three times more people than malaria, HIV/AIDS, and tuberculosis combined. It's the single largest health problem we face. Pure Earth/Blacksmith Institute is leading the way toward a better world for all of us."

—Ben Barber
Journalist, former Senior Writer for USAID

"It takes a particular kind of environmentalist to make his life's mission 'brown' problems in the global south, rather than green ones in the north. Glamorous work it isn't, but the impact of the author, and those whom he has inspired, on some of the world's worst pollution problems has been simply incredible. Ideas, energy, passion, stamina, cheek, and brilliant communication skills—Rich Fuller has them all, and his book is an inspiration to us all. This is a captivating story of just how much difference one person can make."

—Gareth Evans
Foreign Minister of Australia 1988–1996,
President of the International Crisis Group 2000–2009,
Chancellor of the Australian National University

"Rich Fuller has brought evangelical zeal to highlighting the deleterious impacts of environmental pollution and contamination on public health across the world. He has not been satisfied with merely identifying problems but has aggressively sought solutions as well, both through national and international actions. This book is an eloquent testimony to his obsessions for making the world a healthier, safer, and cleaner place, especially for its children. The world needs more Rich Fullers."

—Jairam Ramesh
Minister for Environment, India, 2009–2011

"Starting with a powerful recount of manmade environmental disasters around the world and their consequent grave dangers to humanity, narrated in Richard Fuller's typical no-nonsense style and without pulling punches, the book also forcefully reflects Richard's passion and commitment to make the world a better place to live and breathe in.

What is refreshing about this book is that it is not a doomsday naysayer. On the contrary, it is about hope and optimism. This is the heroic saga of a heroic man who has devoted his life, his boundless energy and commitment, and most of all, his empathy and his humanity to the cause of 'cleaning up.'

His is a message of determination, of conviction that 'creating a pure earth is a problem for realists,' and evidence that indeed it can be done. A heroic tale indeed!"

—Rajat Nag
Managing Director General, Asian Development Bank,
1988–2013

"Rich Fuller's passion and commitment towards educating people on the under-reported issue of environmental pollution, as well as finding innovative solutions to solve the problems, has helped save the lives of thousands of adults and children around the world. He is a truly inspiring human being and I am honored to know him."

—Dev Patel
Award-winning actor for his performance
in *Slumdog Millionaire*

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For both our families:
Sandy, Alice, Max, Milo, Jessica, and Ethan.

And, of course, for Karti!

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"The problems that exist in the world today cannot be solved
by the level of thinking that created them."
—Albert Einstein

FOREWORD

by Bryan Walsh
Foreign Editor and Senior Writer on Energy
and the Environment for *Time* Magazine

In Rudnaya Pristan, I learned a basic fact about environmental science, one that has informed my reporting ever since: nothing goes away. The village of a few thousand people sits on Russia's Pacific coast, over 4,000 miles and several time zones east of Moscow. The summers are hot and muggy, breeding hungry mosquitoes, and the winters are simply brutal. Just about the only reason to live in Rudnaya Pristan was the work provided by the lead smelting plant, which had opened in 1930 and processed the product of the local mines. Many of the bullets used by the Red Army to defeat the Nazis came from the Rudnaya Pristan smelter, which operated for decades.

By the time I had arrived in the village on a reporting trip in the summer of 2007, the smelter had long since closed. But its environmental legacy was still felt. Lead had contaminated the very soil of the village, the crops its people ate, and the fields its children played in. Blood lead levels among children in Rudnaya Pristan and the neighboring town of Dalnegorsk were as much as eight to twenty times above maximum allowable levels in the U.S. Lead is a potent neurotoxin, and in high levels it can damage the brain and the kidneys. It's especially dangerous for young children, whose developing brains can be permanently damaged by lead contamination. The youth of Rudnaya Pristan hadn't even been born when the smelter closed down, but they were paying the price.

Lead contamination isn't the sort of environmental problem

that gets a lot of attention. It's invisible, it's not connected to climate change, and it has nothing to do with endangered animals. But lead contamination, and other examples of legacy industrial pollution, exacts a tremendous cost on human health—especially on the poorest of us. In a 2013 study, researchers looked at nearly 400 toxic sites in India, the Philippines, and Indonesia, and found that elevated levels of dangerous chemicals like lead and chromium have a direct impact on mortality. The number of disability-adjusted life years lost because of toxic wastes in those countries was over 800,000, worse than the morbidity and mortality caused by malaria.

And lead is just the start. Radioactivity from nuclear plants in Chernobyl, toxic chemicals from electronic waste (e-waste) in Ghana, mercury gold mining in Indonesia, crude oil spilled in Nigeria . . . While the developed world has mostly cleaned up the worst of its industrial pollution, much of the developing world is still being poisoned on a massive scale. According to one analysis by the Global Alliance on Health and Pollution, air and water pollution and toxic waste killed 8.4 million people in 2012—nearly three times the number of people killed that year by malaria, HIV, and tuberculosis combined. And these catastrophes are unfolding under the radar, in tiny towns like Rudnaya Pristan, far from the attention of most of the world.

But not from everyone. In 1999, Richard Fuller started the Blacksmith Institute, now called Pure Earth, to address the world's forgotten environmental challenge. I was in Rudnaya Pristan in 2007 to see Pure Earth at work, taking samples of the contaminated soil and working on a remediation program. Because the smelter was no longer operating, the solution was simple: remove the contaminated dirt, starting in the places where children gathered, like parks and school fields.

The good news about industrial pollution is that it doesn't take international treaties or technological miracles to solve. It just requires will and work—two things that Fuller has

exemplified in his career at Pure Earth. And the payback can be enormous. A 2007 study done by Pure Earth found that, for every $1 to $50 spent, pollution cleanup projects gained back a year of human life. Compare that to $250 to $300 for every year of life gained by projects that focus on infectious disease or malaria.

That isn't to argue that we shouldn't be spending money on TB and HIV solutions, or on projects to avert climate change. Far from it. But those challenges already have very high-profile champions who spend billions of dollars a year. Fuller has taken on industrial pollution essentially by himself—and that makes the success that he and his organization have achieved all the more impressive. Add up the numbers, and you'll find that Pure Earth has cleaned up scores of polluted sites in countries around the world, affecting millions of lives for the better. And Fuller has done this with a fraction of the budget enjoyed by larger environmental groups.

But there's so much more to do. This isn't glamorous environmentalism; there are no poster-worthy polar bears or ice caps involved. Fuller's work is carried out in slums and broken villages like Rudnaya Pristan, where he is demonstrating how we can save millions of the world's poorest people from long-term health problems and early death. This isn't about saving the planet; it's about saving ourselves from ourselves. We just have to open our eyes—and pay attention.

NOTE TO THE READER

Some names and locations have been changed
to protect the privacy of the actual individuals.

INTRODUCTION

It started out simply enough: peering into an open-cut mine and watching my feet to make sure I didn't slip on the ice. The pit was several hundred feet deep and about half a mile across. We were at the edge of an old cinnabar mine near the town of Horlivka, in the eastern part of Ukraine.

The Russians had mined the cinnabar for mercury but the pit had lain abandoned for some time. I was there with a dozen other environmentalists in a training workshop to identify polluted sites. This place certainly qualified. High levels of mercury had been found in the soil of a nearby village; we were there to assess the risk. My biggest concern at the moment, however, was keeping myself from slipping on the icy edge of the mine and falling in. One glance was enough to tell me it was a long way down, and dark.

Vladimir was our local coordinator. He tugged at my elbow.

"Uh-oh," he said in a low voice.

I followed his gaze and saw two big black SUVs pull off the road about fifty yards away. A window in the lead vehicle rolled down, and someone within barked a few words in Russian. Vladimir scurried over, listened for a moment, and jogged back. The look on his face was grim.

"They want you to go with them," he said.

"Who?" I asked. "What do you mean? Who are they?"

"I'm not sure, but they are officials. We have to do what they say."

Things unsaid lingered in the air as we both walked over, and Vladimir introduced me.

"This is Richard Fuller, the leader of our investigation team." He said this in Russian, then repeated it for me in English.

"Get in," someone said. In English. A back door to the SUV opened and I caught a glimpse of two heavyset, grim-faced men inside.

"You too, Valodya," I said, hoping my use of Vladimir's colloquial name would break the tension. It did not. Vladimir turned back to our training group, which was struggling toward us en masse, their faces curious and strained. He gave them some instructions, then opened the front door and got in the front seat. We pulled away with the second SUV following close behind. I craned my neck and felt some relief when I noticed the white van our team had rented filling rapidly. A moment later, it was following us.

At least there are witnesses, I thought.

I was distracted by the sound of Vladimir having a detailed and heated discussion with a man I assumed was the boss, the older gentleman sitting next to me. I did not dare interrupt. If my group was doing something illegal—or even if these men had simply decided we were doing something illegal—my safety now depended on Vladimir's gift for talking his way out of difficult places. This was not the first time we'd needed that skill, but it seemed by far the most serious. From everything I could gather, these guys who had picked me up were not drunk soldiers or low-level officials looking for a bribe. They were clearly big-time operators of some sort. In the former Soviet Union, that can be deadly.

The conversation went on for some time, until Vladimir glanced at me. He must have read the look on my face.

"Rich, is okay," he said. "Everything is fine. This is the mayor of the town—Horlivka, over the rise. He has not come because we are in trouble."

"Great," I sighed. "Then what's this about?"

"He says they need our help."

In 2009, the city of Horlivka, Ukraine, was literally a bomb waiting to go off. The ruins of a secret former Soviet weapons factory sat on a 400-acre campus in the middle of town. Within its crumbling concrete halls, stacks of corroding metal barrels leaked deadly mononitrochlorobenzene, or MNCB. The Soviets left this cache behind when their empire collapsed in 1991. It was very bad news for the people of Ukraine. MNCB is so toxic that just half a teaspoon ingested, inhaled, or absorbed through the skin can kill a human being. The barrels at Horlivka held over 8,000 tons of the stuff, enough of the toxin to wipe out every living thing in a radius of many miles. You could often smell the stuff in the air of the town, a faint, sweet almond odor.

Along with the MNCB, a flammable toxic compound called trinitrotoluene—more commonly known as TNT—was left lying around in pipes and underground sarcophagi. TNT was one of the factory's end products. When the Soviets abandoned the factory, they left nearly ten tons of it lying around, much of it in a form that was volatile, ready to explode. Other buildings nearby contained large amounts of various highly corrosive acids.

The mayor and his team drove us up to the entrance of this facility and pointed to the buildings. Night was falling. They made no move to get out of the car, just kept talking to Vladimir in Russian. Curious, I opened my door and got out. The other members of my team had pulled up behind me in our white van. They, too, got out and came over to join me. Once they'd established that no one was being arrested, a few of them drifted over to talk with the mayor and his people. But no one made a move toward the plant. We all just stood there, watching it from a safe distance.

At the time, about 260,000 people lived in Horlivka. Chemicals from the plant had leaked into the air they breathed and the water they drank. Local doctors had pegged the average life

expectancy in Horlivka at under fifty years old. But there was something even more worrisome. Up until very recently, the people of Horlivka lived under the constant threat of the place exploding.

It wouldn't take much—just a stray bolt of lightning, a cigarette butt tossed aside, or a spark borne aloft on a hot dry wind. The slightest incendiary provocation could have set off an explosive chain reaction. The TNT would go up in a flash, tossing toxins throughout the town. According to some estimates, a disaster at Horlivka could have easily dwarfed those experienced at Chernobyl and Bhopal combined. Experts have called Horlivka one of the worst instances of legacy contamination in human history, a deadly threat to both the environment and human health. Yet practically no one has heard of it.

This was the most dangerously polluted place I had ever seen, worse than the mercury mine by a mile. Eventually, my team and I dispersed after promising we would do our best to help the mayor and his people with their toxic legacy.

A month later, we sent in a team that included the top environmental scientist from the U.S. Army (now retired). Ira May took a few steps into the first building at the abandoned weapons plant. He read the names marked on some leaking bags of chemicals just inside the door and his face went white.

"Everyone out. Now." His voice was low. Insistent.

Everyone obeyed him promptly.

Back outside, he told everyone present: "No one goes in there without full protective gear. That's nasty stuff in there. Does everyone understand me? Good. Then let's suit up."

That's how our project to deal with Horlivka and its toxic legacy began. Before I tell the whole story, it's important that you understand how pollution of this sort—what I and a lot of other people have taken to calling "the brown agenda"—isn't confined to one problem in one city of one country. It's a global issue, it's spreading fast, and we have to do something about it

right now.

For instance, a few thousand miles away, in Delhi, India, the air is getting worse. Particulates from low-grade diesel exhaust combine with coal exhaust from a couple of nearby power plants to create a haze that descends over everything, rendering permanent twilight on bright, clear days. The World Health Organization has set the level for safe, breathable air at twenty micrograms per cubic meter. During one of my visits in June and July of 2014, the air in parts of Delhi registered particulates at 600 micrograms per cubic meter on at least five separate occasions. A recent analysis in the *New York Times* found the air in Delhi to be twice as polluted as that in Beijing, the poster child of bad air.

Conditions like these have taken a toll on the citizenry, especially in the poorer districts. Living in Delhi means living with a constant cough and shortness of breath. Incidents of chest infection, pneumonia, and asthma are rampant. Expats I know have cut short their three-year assignments after watching their children suffer, unable to exercise or play outside. Most Indian children will never get to leave, of course. Delhi is their home and their sentence in one.

Travel farther east, to rural parts of Central Kalimantan, Indonesia. Small-scale gold miners rip apart the Kahayan River with sluicing hoses, searching for gold-rich rocks. In the forests all around them, birds and an occasional orangutan watch in dismay as this paradise slowly becomes lost. The miners process the ore by hand, using a primitive technique that involves liberal quantities of toxic liquid mercury. They don't take care to clean up after themselves, so each year, tons of mercury enter the local environment. The element poisons the miners and their children, many of whom become stricken by tremors. (In Victorian England, this was known as Mad Hatter's Disease, since haberdashers used mercury to stiffen the felt of the hats they were shaping.)

But the damage doesn't stop there. Apart from being a toxic heavy metal, mercury is an element, and therefore persistent—it does not break down into harmless, smaller particles. Once it infiltrates the river and local marine life, it sweeps out into the ocean, where it joins the global food supply. Big game fish like tuna can become especially polluted by it. These days, everyone in New York, Los Angeles, Tokyo, and other major cities has heard the warnings. *Caution: Mercury Levels Rising in Fish! Avoid Tuna, Especially When Pregnant!* What most people don't know is where that mercury comes from. A great deal of it leaks from coal-fired power plants around the globe. But the largest amount originates from impoverished miners who make their living panning for gold in the ancient jungles of Borneo and other places.

Not far away, in metro Jakarta, a half-dozen urchins play soccer in a local field using a ball they've fashioned from wadded cloth and duct tape. Filthy hand-me-down clothes hang off their spindly frames. The soil beneath their brown bare feet glints light grey in the sunlight of the tropical afternoon; it smells faintly metallic. The children have no idea this field once played host to an unregulated car-battery recycler. They don't know the recyclers buried their waste and fled when officials threatened to shut them down. Nor can they comprehend that the land they are playing on is poisoned by lead dioxide, a chemical so toxic it causes brain damage and nerve deterioration before it kills.

Readings taken at the soccer field in Jakarta with a handheld laser spectrometer show lead levels measuring 49,239 parts per million of lead, a quantity that massively exceeds the standard of 400 set by the World Health Organization. Arsenic readings are also off the charts at 1,744 parts per million; the common approved standard is less than ten. Meanwhile, the kids dream that football will get them out this slum. They don't know how dangerous it is. They're focused on scoring a goal for their team.

These contaminated sites are everywhere. Unsafe recycling in backyards accounts for one-half of all cases of car battery recycling in the developing world. This industry affords a basic standard of living for a few while poisoning the communities around them irreparably. Lead is responsible for killing five of Seynabou Mbengue's ten children. Like many families in Ngagne Diaw, Senegal, Seynabou used to make her meager living recycling old car batteries. She would break the battery casings by hand and dump the acid out on the ground before extracting the valuable lead components within and melting them over an open fire. She had no idea how dangerous this was until her last five babies suffered convulsions and died, all before the age of two.

"That's when I made the connection," she said. "[While] pregnant or breastfeeding my babies, I never stopped recycling batteries. I am still full of lead."

Seynabou's story illustrates how much more vulnerable babies and children are to pollutants. They die more often and faster than the adults around them, whose larger bodies can withstand the toxic chemical load much longer. Along with Seynabou's five toddlers, twenty-seven more children are known to have died from lead poisoning in Ngagne Diaw. The true toll is likely much higher.

In a modern world so often focused on "going green," these are just a few troubling examples of what we call "brown" issues: pollution gone awry. In 2012, pollution like the types I've just described killed 8.9 million people worldwide. To put this into perspective, WHO statistics showed that fifty-five million people died in 2012 overall—that's every person who passed away on the planet, whether it was from car accidents, suicides, old age, cancer, hospital errors, being struck by lightning, infectious diseases, parachute failures, war, or what have you. In other words, in 2012, brown problems—pollution—killed about one in seven people.

The breakdown of these 8.9 million deaths falls like this: 3.7 million died from contaminated outdoor air; 4.2 million died from exposure to particulates in indoor air from cooking stoves; about one million died from chemicals and contaminated soil and water; and 840,000 died from poor sanitation. All of this data comes directly from WHO's website and databases, except for the soil statistics, which I sourced from more recent numbers generated by the Global Alliance for Health and Pollution, and these numbers are likely understated. (For those of you paying attention to the math, some air pollution deaths overlap in both indoor air and outdoor air. Hence the lower than expected total.)

These deaths, which are additional to the "normal" levels of death, would be avoided if pollution were not present.

In the same year, 625,000 people died from malaria, 1.5 million died from HIV/AIDS, and 930,000 died from tuberculosis. As you might know, this trio of terrible diseases draws over $20 billion per year from international charities and governments. However, HIV, malaria, and TB combined only kill one-third the number of people that pollution does.

Here's another statistic worth pondering: of the 8.9 million people killed by pollution in 2012, 8.4 million resided in low- and middle-income countries. In other words, the brown agenda is not a "rich country" problem. Overwhelmingly, it's a problem confined to the developing world.

And one more thing. It's important to note that pollution rarely kills people directly or quickly. Instead, it causes heart disease, chest infections, cancers, respiratory diseases, or diarrhea. Pollution acts as a catalyst, increasing the rates of these diseases above those by which they would normally occur. Scientists make these estimates from studies that measure disease in places with and without pollution. The studies go through a detailed peer-review process to check their calculations.

Which is why WHO considers pollution a "risk factor"—a

similar threat to human health as obesity, smoking, malnutrition, or poor exercise. But pollution is the king of all risk factors. Worldwide, its fatality numbers dwarf those caused by any other risk factor in any other context whatsoever.

So what's being done to combat it?

Sadly, very little. As I've already mentioned, HIV/AIDS, malaria, and TB attract lots of funding, as does biodiversity, and, to an even greater extent, climate change. Don't get me wrong, these are all important issues and worthy of our contributions. But international aid dollars to combat pollution are almost nonexistent—perhaps $100 million a year at best.

In all fairness, the situation has improved somewhat in the last few years. The governments of countries like China and India have realized that pollution is a threat to their ongoing economic development and have started allocating funds, though only small amounts so far. Meanwhile, millions of people keep dying each year—children foremost among them—with many more likely to come.

So why aren't we in the wealthy countries doing anything to stop this?

Part of the reason is lack of focus. Part of it is lack of awareness.

Backtrack to the 1950s and '60s. In the early days of the United States' environmental movement, pollution and biodiversity were seen as two intertwined focuses. Rachel Carson's harrowing book, *Silent Spring*, brought the problems of pesticides and environmental degradation to our doorsteps. A bit later on, toxic calamities such as the ones found at Love Canal in New York and the Cuyahoga River fire in Ohio galvanized the public to demand laws protecting our soil, air, and water.

The EPA was formed in this era and, without question, our country is better off under this agency's stewardship. Regulations set limits for air, water, and soil pollution while establishing that non-compliance can bring claims for compensation. If

you live in a toxic place, lawyers can help. The big companies have become more responsible, worried not only about their workers, but also about their reputation and stock price. At present, there are dozens of terrific nonprofit groups watchdogging polluters.

For all these reasons and more, real instances of unaddressed, harrowing pollution are few and far between in rich countries. Once in a while, some dramatic event will make the news cycle. A dam has burst somewhere, contaminating local water supplies. Or there's an inexplicable rise in autism, quite likely caused by the enormous number of chemicals we ingest on a daily basis. Lately, we've heard how endocrine disrupters are on the rise and can potentially affect our reproductive capabilities.

But terrible air? Contaminated drinking water? Poisoned soil in our schoolyards? Wealthy countries don't really suffer these things. Conditions like these are someone else's problem. Remember that WHO statistic I mentioned? In 2012, ninety-five percent of deaths caused by pollution took place in low- and middle-income countries. Read: we in the West enjoy clean water and air; it's the rest of the world that's messed up. We enjoy the luxury of focusing on going green, whereas other countries the world over must suffer their way through conditions we can only call brown.

In poor countries, there are thousands of places where man-made toxic pollutants have taken root and spread like cancer. You will find them in all low-to-middle-income countries such as India, China, Russia, Peru, Azerbaijan, Indonesia, Ukraine, Mexico, Zambia, and the Philippines. In almost every instance, the culprits responsible for these contaminated sites are the governments, businesses, and people that race to increase their industrial capacity at the expense of their citizens and environment.

Interestingly, the worst polluters tend to be local companies, rather than multinationals. By most comparisons, big Fortune

500 companies run their operations well. They don't buy into dirty industries because they know they need to uphold Western standards, at very least to appease Western shareholders. The local companies and small backyard industries do the bulk of the damage. Small-time operators running backyard businesses can do immeasurable damage to their local populations and environment. They can ruin whole tracts of land for generations to come, to say nothing of human beings.

It's hard to imagine just how bad it can be, so let me present a scenario.

You wake up each day on the dirt floor of the shack you and your family lashed together with cast-off materials from the nearby construction site for a five-star hotel. Your last baby was stillborn blue, probably from heavy metals poisoning. Your husband works seventy hours a week sorting chemicals in a badly run pesticides factory. Lately, he's come home coughing up blood. He looks thinner and more exhausted each week, and you want to tell him to stop, but how can you? The pennies he earns are the only things feeding your kids.

So you head to the local pond with your plastic bucket. The water you scoop from the pond is brown and stinks of human waste, but there's nothing else you can drink. You tried straining it through cheesecloth, but it doesn't do much good. Meanwhile, the factory next door to your slum, the one the government came and shut down a while back, has started operating again, but only at night. Its chimneys pump out serpents of thick smoke that pulsate in the dark, their tails lit bright by the flames of a forge, and God only knows what's burning. Last week, your eldest child started coughing through the night. The rest of your children are sickly and slow to learn even the most basic concepts. As years have passed, you have watched them grow duller and more enfeebled. And none of your friends or family can help you since, curiously, almost everyone in your neighborhood has the same problems.

You are one of the poisoned poor, without a voice and without any hope. Regulations that might exist to combat the conditions are never enforced. You cannot simply pick up and move to another town. It took you years to establish yourself to this extent, and anyway where exactly would you go? Every village shares the same plight. Like the rest of the world's underprivileged, you have become cannon fodder in the ongoing war of growth.

There are bright points in all this. Take the case of Horlivka. The city faced grave peril, but it could be saved, and save it we did (more on that later). For now, just know that the worst toxins jeopardizing Horlivka have been removed. There are other success stories like this, stories that show we can prevail against brown conditions if only we marshal the will.

In the last decade especially, overall levels of sanitation and clean water have shown dramatic improvement. Millions of people now have safer water supplies, thanks to great programs by governments like that of China and organizations like Charity: Water. That's a huge improvement. Ten years ago, 1.6 million people died each year from improper sanitation. This figure is now down to 840,000. Moreover, some cities, like Mexico City, have worked up a means to control air pollution. Air quality there has really improved, though on some days it is still quite awful.

The bottom line is that what we're doing is clearly not enough. I realize that you might disagree. Perhaps you're one of those people who thinks, "Why should we care? I mean, what you're saying sounds horrible, but it's taking place in some foreign country. That's not our problem, right?"

Wrong. Brown problems affect us both directly and indirectly. Some of the toxins I've mentioned—mercury serves as a prime example—end up in our supermarkets. More subtly, however, pollution kills one in seven people, many of whom are engaged in the mining and manufacture of products we take for

granted, products necessary for our comfort. I would argue that we owe these people a debt of responsibility, though we also need to deal with this problem for own security.

Consider a study conducted by Denmark's Ministry of Foreign Affairs in 2000. It concluded that environmental burdens have actually grown in recent years, at least in part because political and economic bickering has allowed polluted sites to proliferate.

By tackling cases of toxic pollution the world over, we score big wins for both the environment and humanity. And doing so is relatively simple. The technology to remediate even the worst toxic sites exists within the industrialized world, and remarkable cleanups are often achieved with shockingly small sums of money. As I mentioned, in order to succeed, we just have to rally our collective will. We just have to see these hellholes as our common enemy. When we prioritize fixing them, everybody wins.

I want to show you how, by working together, we can score big wins for our planet and our species for generations to come. We can help to create a newer and better world, a pure earth free from the ravages of brown. But before I do this, I want to tell you how my journey began.

—Richard Fuller