

Down by the sandy banks of the Yamuna River, the men must work quickly. At a little past 12 a.m. one humid night in May, they pull back the black plastic tarp covering three boreholes sunk deep in the ground along the waterway that traces Delhi's eastern edge. From a shack a few feet away, they then drag thick hoses toward a queue of 20-odd tanker trucks idling quietly with their headlights turned off. The men work in a team: While one man fits a hose's mouth over a borehole, another clambers atop a truck at the front of the line and shoves the tube's opposite end into the empty steel cistern attached to the vehicle's creaky frame.

“On kar!” someone shouts in Hinglish into the darkness; almost instantly, his orders to “switch it on” are obeyed. Diesel generators, housed in nearby sheds, begin to thrum. Submersible pumps, installed in the borehole's shafts, drone as they disgorge thousands of gallons of groundwater from deep in the earth. The liquid gushes through the hoses and into the trucks' tanks.

Within 15 minutes, the 2,642-gallon (10,000-liter) containers on the first three rigs are full. The pumps are switched off briefly as drivers move their now-heavy trucks forward and another trio takes their place. The routine is repeated again and again through the night until every tanker is brimming with water.

The full trucks don't wait around. As the hose team continues its work, drivers nose down a rutted dirt path until they reach a nearby highway. There, they turn on their lights and pick up speed, rushing to sell their bounty. They go to factories and hospitals, malls and hotels, apartments and hutments across this city of 25 million.

Everything about this business is illegal: the boreholes dug without permission, the trucks operating without permits, the water sold without testing or treatment. “Water work is night work,” says a middle-aged neighbor who rents a house near the covert pumping station and requested anonymity. “Bosses arrange buyers, labor fills tankers, the police look the other way, and the muscle makes sure that no one says nothing to nobody.” Tonight, that muscle—burly, bearded, and in tight-fitting T-shirts—has little to do: Sitting near the trucks, the men are absorbed in a game of cards. At dawn, the crew switches off the generators, stows the hoses in the shack from which

they came, and places the tarp back over the boreholes. Few traces of the night's frenetic activity remain.

Teams like this one are ubiquitous in Delhi, where the official water supply falls short of the city's needs by at least 207 million gallons each day, according to a 2013 audit by the office of the Indian comptroller and auditor general. A quarter of Delhi's households live without a piped-water connection; most of the rest receive water for only a few hours each day. So residents have come to rely on private truck owners—the most visible strands of a dispersed web of city councilors, farmers, real estate agents, and fixers who source millions of gallons of water each day from illicit boreholes, as well as the city's leaky pipe network, and sell the liquid for profit..

The entrenched system has a local moniker: the water-tanker mafia. Although the exact number of boreholes created by this network is unknown, in 2001 the figure in Delhi stood at roughly 200,000, according to a government report, while the 2013 audit found that the city loses 60 percent of its water supply to leakages, theft, and a failure to collect revenue. The mafia defends its work as a community service, but there is a much darker picture of Delhi's subversive water industry: one of a thriving black market populated by small-time freelance agents who are exploiting a fast-depleting common resource and in turn threatening India's long-term water security.

Groundwater accounts for 85 percent of India's drinking-water supply, according to a 2010 World Bank report. The country continues to urbanize, however, and a little more than half its territory is now severely water-stressed; more than 100 million Indians live in places with critically polluted water sources, according to India Water Tool 2.0, a local mapping platform. The tanker mafia is only worsening this problem. In 2014, the government reported that nearly three-fourths of Delhi's underground aquifers were "over-exploited." This means that boreholes must go deeper and deeper to find water, making it increasingly likely that hoses are sucking up liquid laced with dangerous contaminants. In 2012, the country's Water Resources Ministry found excess fluoride, iron, and even arsenic in groundwater pockets.

Yet the mafia continues to thrive as the local demand balloons. When

boreholes dry up and more drilling leads to nothing, pumping crews just look farther afield, toward or even past Delhi's borders. This has created a vast extraction zone, where the thirsty metropolis gives way to a parched hinterland. And recognizing a business model that works, the mafia is putting down roots or spawning copycats in other cities and towns.

The government has made some efforts to stop illegal water pumping and sales, but to no avail. Despite what its name suggests, the mafia is not a unified, organized syndicate and thus cannot be eliminated by catching and punishing a few big players. Rather, it is loose, nimble, and adaptable; it routinely outsmarts the authorities whom it isn't already bribing to allow it to do its work.

The real answer to the tanker mafia is better infrastructure: a correction to several decades' worth of inequitable development in which public utilities were built for the benefit of the elite, leaving millions of poor to fend for themselves. But the city's long-neglected and corrupted water system, managed by an agency known as the Delhi Jal Board (DJB), is near the point of collapse. Projections for needed improvements indicate a dauntingly long and expensive process.

It may be too late to cut the mafia off at the knees, much less provide millions of residents with the water they need to survive. Delhi thus offers a painful warning to other countries where water mafias have sprouted up: Bangladesh, Honduras, and Ecuador, to name just a few. "More than anyone else, the DJB and the Delhi government [have been] responsible for the rise of the water mafia," says Dinesh Mohaniya, a member of the Delhi Legislative Assembly who represents Sangam Vihar, one of Delhi's poorest neighborhoods, that is a hub for water tankers. "If they had supplied piped water to everyone, why would anyone pay the mafia?"

It is 113 degrees Fahrenheit in the shade on a recent afternoon in Sangam Vihar. Raj Tilak Sanghwan, one of the community's most established tanker bosses, rests on a cot, his beefy forearms crossed over his bulging stomach. He wears a gray polo shirt, blue sweatpants, and white Adidas sneakers that make him look like an aging nightclub bouncer.

A pump buzzes nearby as it transfers water from a nearly 5,300-gallon tanker to a fleet of smaller containers hitched to farm tractors. A few feet away sits Sanghwan's assistant, a slim man in his late 20s who answers his mobile phone every few minutes. In this heat, desperate residents of the sprawling neighborhood are rushing to place their orders. Along with the words "Sanghwan, Janta Sevak" ("Sanghwan, Servant of the People") emblazoned in white, all the containers bear the assistant's phone number.

"It's always busy on a Sunday," the young man says between rounds of placating customers. "Most people are home and want to fill up for the rest of the week."

The economics of the illegal water business are straightforward: Tanker bosses buy water from the men who steal it—for instance, the crew on the banks of the Yamuna—for \$3 per some 2,600 gallons, according to four borehole operators interviewed for this article. The tanker owners then sell the water directly to locals at an elevated price; on this particular day in Sangam Vihar, a gallon costs about 0.75 rupees (about 1 U.S. cent). Sanghwan, whose tankers have a combined capacity of about 8,400 gallons, will earn around \$90 to empty a full load. That's \$2,700 per month, assuming one complete sale per day—minus the cost of fuel, bribes, drivers' salaries, and tanker maintenance. (The monthly minimum wage in Delhi for a skilled worker is roughly \$165.)

Sanghwan has mandated that the minimum order allowed is 1,050 gallons, the capacity of all his smaller tractor-drawn tankers. Many of Sanghwan's clients are too poor to shell out so much money in one go, so they sometimes pool funds and divide the purchased water among themselves. "Call it a water mafia; call it a business," Sanghwan says. "I call it a lifeline."

The need for a lifeline dates back to the 1960s, when urban planners grossly underestimated growth in Delhi's first master plan. Within 20 years, the city's population had exploded from 2.6 million to 6.2 million, but there was only housing (of varying quality) for 90 percent of that number. Some half a million people wound up in unauthorized colonies—essentially squatter settlements. One of them was Sangam Vihar, where enterprising farmers, including

Sanghwan's parents, divided their personal fields into residential plots and sold them to migrants eager for footholds in the city. Over time, tension arose between the colonies' residents and the city's elite and middle class. Fear grew, in particular, as the illegal settlements became more populous, topping 2 million in the early 1990s. Wealthier Delhi residents became concerned that colonies would suck away resources, including water, in a city already strapped for them, as municipal politicians looked to the booming population centers for votes.

In 1993, Common Cause, an Indian legal advocacy group, filed a petition in the Delhi High Court demanding that the government be restrained from providing public amenities to colonies. The petition criticized "politicians who have been interested in promoting, encouraging and stimulating the development of such unauthorized colonies" and argued that people living in the settlements were "encouraged to act illegally and to gain from such illegal acts; their moral fabric gets undermined."

While the case wound its way through India's overburdened judiciary over the next eight years, flustered colony residents began to take water management into their own hands. They installed hand-operated pumps to draw groundwater for drinking, cooking, and bathing, but this only worked for a little while. Overpumping eventually caused water levels to dip and quality to deteriorate. In turn, residents began pressuring the Delhi government for assistance. The pending court case meant that authorities could not install a permanent water grid, but they launched a program in 1998 that can best be described as institutionalized ad hoc-ism: The DJB drilled a series of boreholes around the city that released water for eight hours at a time, and it hired a fleet of private tankers to deliver drinking water at specified times.

Colony residents were expected to wait in lines to retrieve water and then lug it home themselves. But the boreholes were prone to malfunctioning, and queues sometimes persisted for hours. In Sangam Vihar, some residents devised an ingenious workaround, laying a private pipeline system that connected the nearest borehole to any home willing to pay a monthly fee. Others created their own holes to connect to the pipe system. (Sanghwan did this in 2005, pumping water to his neighbors' houses for a price until his well ran

dry eight years later.)

Meanwhile, the DJB's tanker plan quickly fell apart. Drivers began selling their water, intended to be free, to middle-class Delhi residents who could afford to pay. Other eager individuals saw an opportunity and began investing in their own rigs that could link up with both legal and illegal boreholes.

And so the tanker mafia was born. It quickly grew and morphed, in step with a widening gap in water distribution. The 2013 government audit found that colonies received, on average, 1 gallon of water per person per day, while in central Delhi—home to politicians, judges, and other elites—the number was 116 gallons. Sanghwan, like other soon-to-be tanker bosses, bought two trucks to ferry water from illegal boreholes along the Yamuna to an underground cistern he had put in his land, and smaller vehicles to make deliveries to thirsty residents across Sangam Vihar.

The mafia has gained other, wealthier customers too. Over the past decade, Delhi has become home to a vast number of water-intensive establishments: malls, office towers, and hotels that need floors mopped, lawns watered, and toilets flushed. The government cleared projects based on the assumption that necessary infrastructure would be put in place, but that has rarely happened. Instead, sleek buildings have been erected atop old, dripping pipes that can't possibly supply them with water. "No one, not even the DJB, knows the water network," said a private consultant to the government water agency, who spoke on the condition of anonymity. "There is no master plan, no blueprint."

New facilities have thus gone searching for help. And water bosses, ever eager for new clients and adept at capitalizing on government failures, have always been just a phone call away.

Residents wait in line for water in Delhi's Sangam Vihar neighborhood. Delhi's residents have long hoped that a transformative political force could act for the good of the many by fixing the city's inequitable

water distribution. A possibility arose in late 2013 when the Aam Aadmi Party (AAP), a new political front of former civil society activists, won municipal elections on a platform of protecting the average person's interests. But then it announced it intended to dismantle the water mafia—and things turned sour.

In January 2014, Mohaniya, the party's elected legislator from Sangam Vihar, orchestrated a police raid on the community's water tankers and borehole operators. "A crowd gathered outside my office and demanded that the party either supply water ourselves or let the tankers operate," Mohaniya recounts, describing how an irate resident threw a brick through a glass window, while others tried to burst into his office.

Mohaniya then took a different tack, introducing, as he recalls, the concept of water-user associations: groups of people, recommended by their communities, who would oversee private operators of specific government wells. The associations, Mohaniya announced, would supply water to homes for a flat monthly fee—\$0.75 for rental tenants and \$1.50 for homeowners, who presumably could bear higher costs. The goal was to apply some semblance of regulation to the illicit water industry, while also drastically reducing the going price per gallon.

More than 100 such associations exist in Sangam Vihar today (one for each DJB borehole), according to Mohaniya, but they have no legal basis. They are strictly voluntary, operating without government oversight and with no clear procedures for electing members or collecting money. At this point, almost anyone can form one. According to S.C.L. Gupta, a former legislator from the opposition Bharatiya Janata Party, the groups have basically maintained the status quo: "Many of the water-user associations are headed by the same people who were running the wells in the first place," Gupta says. What was a private mafia, he says, became one that was legitimized by the government. "The same people continued their same business," he says, "except that the government now paid the electricity bill for each pump."

Sanghwan, in particular, didn't waste any time jumping on the association bandwagon: He became the head of one in 2014. (His

assistant notes that it wasn't hard for his boss to take the helm. "Sanghwan has always supplied water to the area," the young man explains, "so it was natural.") Sanghwan says his group, which professes to oversee one DJB borehole, its pump, and its privately laid connections to nearby homes, collects about \$800 a month, on top of the money earned by his tanker outfit. This money is ostensibly used for maintenance and a \$78 monthly salary for a single employee hired to oversee the pumping and pipes—calling into question whether the operation can really be called an association at all. However, Sanghwan's group gives no receipts to customers nor keeps any books of accounts, so it's hard to say where the funds really go.

Even with his continued success, Sanghwan admits that it's getting harder to be in Delhi's water business. The DJB borehole he operates is supposed to supply 500 homes, but with groundwater levels dipping deep below the earth's surface, he says, "even the most powerful pump can't supply more than one or two houses at a time." On average, each home receives water for a few hours every fortnight.

Customers are feeling the strain. "You can fill as much water as you can each time the water comes from the DJB borewell," says Sangam Vihar resident Sunita, a domestic worker who goes by only one name. "So everyone tries to buy as much storage as possible, because you never know when your turn will come again." For her family of six, Sunita has 660 gallons' worth of storage capacity that lasts her about a week to 10 days at a time. If her turn to have running water does not come before her tanks run dry, she is forced to buy from a private tanker at a higher cost. Sunita estimates that she spends almost one-fifth of her salary on water. Her husband, whose income was crucial to balancing the monthly budget, has been sick for well over a year with chronic diarrhea, a water-borne disease.

The AAP is still going after the mafia. The DJB, for instance, has begun putting GPS sensors onto its tankers in an effort to stop bosses from diverting its water. Yet these efforts haven't even put a dent in the illegal market, which is only expanding its reach.

Sangam Vihar's 30-year transformation from an agrarian community on Delhi's periphery into a densely populated urban slum has become something of a model for rural locales increasingly shaped by their proximity to Delhi. Farmers in the neighboring state of Haryana, for example, have begun carving up their fields into housing colonies packed with multistory homes made of exposed brick and with unruly sprawls of shops and cafes. And just like their cousins in the city, these communities are boring down in search of water as a source of both sustenance and income. According to a 2011 report by the Central Ground Water Board, a Delhi-based government regulatory body, there are more than 13 million boreholes across the country.

One evening in May, a young man named Krishna and some friends in Tilpat, a small village about 14.5 miles from the heart of Delhi, sit around a table piled with beer bottles, spent cigarettes, chewing tobacco, and bottles of molasses whiskey. "There are no jobs in Tilpat," Krishna explains, even for someone like him, with an undergraduate degree in history from the University of Delhi's distance-learning program. "So young men in these parts either sell land, as property agents, or they sell water."

Krishna says he has drilled into his family's fields and can now pump some 2,600 gallons and sell it to tankers for about \$3, the same going rate as in Delhi. (Sanghwan's team of trucks from Sangam Vihar has begun going as far as Tilpat to purchase water.) The tankers then sell to garment-export businesses, based in Delhi and Haryana, that need lots of liquid to process clothes before shipping them to the United States and Europe. Of late, however, Krishna notes that business is suffering, as farmers closer to the national highway connecting Delhi and Haryana have begun to dig their own boreholes and peddle water.

Other enterprising men in places like Tilpat are well on their way to becoming new tanker bosses. After retiring in 2012 from a low position at a Delhi-based multinational bank, Devraj Choudhury, along with his brothers, dug a 250-foot-deep borehole beside the Delhi-Haryana highway, invested in a heavy-duty pump, and got to work: "Everyone was doing it, so we thought, 'Why not?'" Choudhury says. At first, they only sold water from their borehole to passing tankers; now the brothers own eight trucks of their own,

bought partly with Choudhury's retirement bonus and partly with money earned from the borehole. They supply water to nearby textile factories for as much as \$24 for roughly 2,600 gallons. "The rates are higher in the winter," Choudhury says, when the facilities are upping production for the spring and summer fashion collections in the West.

As Choudhury sits next to his borehole, trucks turn off the highway, use the well to fill up, and then drive away. "I don't know where they go," he says. "We just sell the water and mind our own business."

Politicians and planners in Delhi, like their peers in many other parts of India, are eager to solve the city's water-supply problems with megaprojects. When they see a shortage, they begin discussing dams, miles-long pipelines, and massive pumping stations, often built with the help of private corporations. Already, some of the DJB's water supply comes from as far away as the Himalayas; the Tehri Dam, about 200 miles northeast of Delhi in Uttarakhand state, came online in 2006 for close to \$1 billion. More recently, Delhi authorities have offered to pay 90 percent of the costs of a new dam in the country's mountainous northeast that supposedly would supply the city with 275 million gallons of water per day.

The rush to sanction such projects is due in no small part to the potential scope of corruption: The more expensive and complex a scheme, the more opportunities there are to skim money. Unsurprisingly, graft is already well documented in India's water sector. In 2012, for instance, a government whistle-blower revealed irregularities to the tune of \$5.5 billion in a decade's worth of irrigation projects in Maharashtra, the western state that is home to bustling Mumbai (and that metropolis's own water mafia).

Corruption is a big reason that major projects routinely flop, or at least fall well short of expectations, and these failures, in turn, are only giving water bosses more power. But counterintuitively, some water activists say, the mafia may offer lessons for a way out of India's multifaceted water crisis, including an end to the black market.

Most notable among these lessons is the idea of keeping solutions local. Water doesn't need to be found in far-flung places; megaprojects have human costs—some 9,500 families were displaced by the Tehri Dam, according to government estimates—and they don't inspire a much-needed focus on water conservation. With smart planning and investment, water could be drawn from beneath Delhi and other cities and could be distributed over small, well-kept grids or, if necessary, by regulated tankers. “Policymakers need to accept that groundwater is being used and the issue is the unsustainability of its use,” says Sunita Narain, director-general of the Centre for Science and Environment, a public-interest research organization.

It's a sentiment echoed by Rajendra Singh, a conservationist and winner of the 2015 Stockholm Water Prize, often called the Nobel of the water world. “Urban India's water problems cannot be solved if governments focus on transporting water from the countryside to the city,” he says. To Singh and Narain, an enlightened mafia model, so to speak, doesn't just require better governance; it must involve finding a way to replenish the water being pumped from the earth.

Singh already has experience doing exactly this. Over 30 years, he has helped revive underground aquifers by building rainwater-harvesting structures in the arid state of Rajasthan. The program, by most accounts, has been a spectacular success: The water table has risen sharply, local rivers and streams have revived, and villagers report having enough water for their daily needs. But urban centers, including Delhi, he says, haven't tried anything similar. “I am yet to see one town or city in India that harvests its rainwater and replenishes its aquifers,” Singh says, adding that his attempts to share his experiences with state officials have been rebuffed. “Governments are not interested because they think they will build another pipeline and find more water.”

Political will, in other words, is critical to achieving the public water system Delhi needs, but it is also nearly impossible to harness. The AAP's Mohaniya has proposed connecting Sangam Vihar to Delhi's existing grid, and his party recently pledged to provide nearly 5,300 gallons of free water a month to Delhi homes with formal, metered connections—a promise that excludes about one-fourth of the city, which, according to the 2013 government audit, remains without

meters. But these are merely plans, and they don't address the question of where all the water will ultimately come from or how those sources would be refreshed.

Singh guesses that public resolve may finally arise "when urban communities experience water scarcity the way the villagers in the deserts of Rajasthan do." For Delhi, that time could be nigh. Until then, the water mafia will continue to rule.

Some evenings, when the summer heat is more unbearable than usual, Sanghwan diverts a few thousand gallons of his bounty into a watering hole in the Delhi Ridge, a sparse forest patch behind Sangam Vihar. "It's for the animals," he says, referring to the small population of nilgai antelopes that are still occasionally spotted in the area. "They need to drink too."

In conversations, Sanghwan is annoyed by concerns about the sustainability of his small empire, about the short-term nature of his profits compared with his work's potentially devastating long-term implications. Such questions, he says, demonize the poor and water providers like him, while letting the rich and the government off the hook. He claims he would welcome efforts to lay a proper pipe network in his neighborhood, but given the government's track record, he isn't holding his breath.

Sitting in his courtyard and listening to the rumble of passing trucks, the sound of water gushing into tankers, and the voices of drivers as they yell to one another, he makes a point of mentioning a broken bathtub he fills each evening for the stray cattle that wander the streets of Sangam Vihar. He also shows off his muddy courtyard, which, he says, he intentionally didn't pave over so that rainwater can trickle into the earth. It seems to be Sanghwan's way of saying that he, more than any policymaker, knows water's true value and is seeking to protect it.

"Ultimately, what is money?" he eventually asks, standing up to indicate that the interview is over. "It is the dirt of our hands that is washed clean in death."