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TACKLING OPEN DEFECATION THROUGH BEHAVIORAL CHANGE: THE CLEAN INDIA MISSION IN PUNJAB STATE, 2015–2017

SYNOPSIS

In October 2014, Prime Minister Narendra Modi of India declared a new national campaign to eliminate open defecation within five years. An estimated half of all Indians—mainly those living in rural areas—still defecated in the open, as humankind had done for centuries. Because India's past programs had focused on building toilets, achieving little success, this time the emphasis was on motivating behavioral change. But exactly how to approach the challenge was left to each state. Ajoy Sharma, a veteran Indian Administrative Service officer, took on the task of implementing Modi's plan in northern Punjab state in January 2015. To change long-held public acceptance of open defecation, Sharma developed an innovative pilot program that integrated sensitization and social mobilization at the individual, family, and community levels with financial subsidies to support toilet construction. The success of the program and its acceptance in five districts gave Sharma the evidence he needed to apply a similar template across all districts in his state. By September 2017, the project had successfully certified 11 districts—half of the state—as Open Defecation Free, a total of nearly 6,000 villages. This case study offers lessons for governments interested in altering social norms and expectations on a large scale to bring about long-term societal change.

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INTRODUCTION

"This had to be more a behavior-change project than a construction project," recalled Ajoy Sharma, who in January 2015 took charge of implementing Prime Minister Narendra Modi's Clean India campaign in the northern state of Punjab.

Modi had launched his nationwide sanitation drive the previous October, calling on Indians to join together to curb littering, to properly dispose trash and garbage, and—most challenging of all—to eliminate the common practice of open defecation. An estimated 524 million Indians, just under half the country's population, relieved themselves outdoors in bushes, in fields, and at roadsides, as their ancestors had done for centuries.[1]

Although the practice of defecating in the open was a threat to public health worldwide, the global problem was improving. A joint program of the World Health Organization and UNICEF estimated that from 2000 to 2015, the number of people practicing open defecation fell to 892 million from more than 1.23 billion.[2] Studies linked the practice to a variety of maladies, including chronic malnutrition and impaired

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cognitive development. Open defecation and its public health impacts created what UNICEF called a "vicious cycle of illness, high expenditure on health care, lost work and school hours, and poverty.[3]" For that reason, eradicating the practice was on the list of priorities when preparatory discussions for the United Nations' sustainable development goals took place at the end of 2013.

In India, which accounts for 60% of those who do it, the practice was at the root of a full-blown public health crisis. A 2013 UNICEF report estimated that 117,000 children in India died annually from diarrhea caused by unsafe water and poor sanitation. Related chronic malnutrition and stunted growth affected 39% of Indian children younger than 5 years, or some 46.8 million children, according to government figures.[4]

Modi's campaign, called Swachh Bharat Abhiyan (Clean India Mission), wasn't the first to address India's defecation problem. During the past few decades, the government has subsidized and built nearly 100 million low-cost squat toilets. But many of them went unused, and the problem they were designed to address persisted. The aim of Modi's new initiative was to change behavior instead. But the national policy was short on specifics. (See textbox.)

Although Swachh Bharat was a national program, each of the country's 29 states was responsible for achieving the sanitation goals. Sharma, secretary of Punjab's Rural Water Supply and Sanitation Department, believed people avoided using toilets in part because their communities considered open defecation to be acceptable. Sharma was convinced that any successful approach had to center on shifting people's expectations about what constituted appropriate behavior.

THE CHALLENGE

With his graying temples and soft-spoken presence, Sharma was an unlikely innovator. A native of Jaipur, Rajasthan, he was a veteran public servant with 18 years of service, whose experience spanned the areas of irrigation, power, finance, education, health, and culture. But the current project had caught his imagination like few others had. Sharma had a long-standing interest in education, and he was particularly struck by the connection between poor sanitation, malnutrition, stunted growth, and lowered cognitive function in children. If he could succeed with Swachh Bharat in Punjab, he had a chance to have a real impact on the lives of new generations.

Sharma also had a major source of support: Punjab Chief Minister Parkash Singh Badal, whom he served as special principal secretary. As a federal Indian Administrative Service officer, Sharma was not politically beholden to any elected official; however, Badal's support gave him the political will needed to adopt a nontraditional strategy in Punjab.

India's poor record over three decades in reducing open defecation did not inspire optimism. Since 1986, when it launched the first of its multiple sanitation campaigns, India had struggled—and failed—to solve the problem. The government claimed it had built some 97.3 million latrines. However, a 2012 survey by the Ministry of Drinking Water and Sanitation found that 27.6 million of the latrines were unaccounted for, and another 14.15 million were defunct. In essence, 43% of the toilets built in previous campaigns were missing or not in use. A toilet in India was a typically one-room outhouse—about the size of a big phone booth—with a ceramic squat bowl inside and deep pits underneath. Few of those basic latrines were hooked up to sewer lines, though some had septic tanks. Most pit toilets were built outside houses for religious reasons.

The problem was especially acute in rural areas. India's 2011 census showed that less than a third of rural Indian households had toilets. The situation in Punjab was far better than the national average, with nearly three-quarters (72%) of the state's rural households reporting having toilets. Nonetheless, an estimated 800,000 out of

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3.3 million rural households in the state—or about 1 in 4—had no toilet facilities at that time.

A 2014 World Bank assessment of toilet use in Punjab concluded that about 56% of men used toilets regularly. By contrast, women used toilets 89% of the time. However, the same study essentially confirmed that many people who did have access to toilets were choosing not to use them. In households with toilets, only 71% of household members reported using them "regularly"; 15% reported using toilets "sometimes"; and 14% said they never used toilets. Sharma's own research in Punjab had shown that many of the toilets that had been installed under previous government programs had been converted into storage rooms or shelters for livestock. In other cases, they were turned into bathing rooms that women in the family could use—or even kitchens.

The findings made it apparent that the root of the problem almost surely lay in deep-seated social traditions and cultural norms. Throughout rural India, ingrained notions of purity and household pollution were rooted in Hinduism, the dominant religion, and they factored heavily into people's beliefs. According to Sharma, people cited several reasons for open defecation:

- Having a toilet in or near the house was considered impure, in religious terms.
- Emptying the latrines was a dirty and degrading job.
- It was deemed a healthier practice (i.e., involving a walk outside).
- For women, it served as a type of social gathering.

To address the public health challenge, Sharma had to find a way to change expectations about appropriate behavior—a classic, norm coordination problem. Social norms generally dictate how people behave around others: what a person does depends on what the person believes others will do. And because open defecation carried no stigma and incurred little or no disapproval, change could occur only if community expectations shifted.

Fixing the problem required innovative thinking, but Sharma faced a number of basic implementation challenges as well. The first was a time crunch. Although Modi's national program stipulated a completion deadline of October 2019, Sharma had just 18 months before highly contested regional elections. Sharma knew he had to show impressive results quickly. He wanted to show in particular that his approach, which focused on behavioral change, would be the most effective and most sustainable solution to the open-defecation problem. If the vote produced a change in government, Sharma feared there would be huge uncertainty about continued political support for completion of what he considered a trailblazing project.

Sharma also had to realign attitudes among workers in his own department and recruit and coordinate staff. He faced an enormous capacity challenge because he had only a fairly small team of engineers in the Rural Water Supply and Sanitation Department to take this work forward, and many of them did not believe behavioral change was their responsibility. "Convincing them to take on the public education challenge was a big hurdle," Sharma said. "They kept telling me, 'This is not the public health department; we are an engineering department.' They even threatened strikes. For me, one of the most helpful things was that I had the chief minister's support." Recruiting and coordinating a community mobilization network would be even more difficult. As part of the behavioral approach, Sharma knew it was essential to train effective motivational teams that could travel from village to village to conduct triggering sessions that would result in changes. But it required manpower he didn't have.

Sharma also had to brace for an additional challenge. Although he focused on behavioral change, the Clean India campaign was also about building toilets—a lot of toilets. Under the program, eligible beneficiaries would receive 15,000 rupees (about US$225 at the time) to help

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Box 1. Swachh Bharat Abhiyan

In October 2014, India's prime minster Narendra Modi launched a nationwide sanitation campaign called Swachh Bharat Abhiyan, or Clean India Mission, aimed at promoting cleanliness in the country's streets and eliminating open defecation. The program had three components: (1) the construction of individual and community toilets, (b) a shift in collective behavioral change in order to combat open-defecation, and (c) the establishment and implementation of accountability mechanisms to ensure sustained toilet usage. The national guidelines encouraged adoption of community-led and community saturation approaches focusing heavily on collective behavioral change. However, the program gave India's 29 individual states the flexibility to tailor the program to their local contexts and determine the details of implementation.

The national guidelines envisioned the creation and deployment of an army of sanitation foot soldiers, or motivators, to village front lines. Using information, education, and communication materials, motivators would raise awareness in communities about health concerns, would trigger behavioral change, and would generate public demand for toilet facilities. "Community action and generation of peer pressure on outliers are key," the policy stated. "Behavioral-change communication should focus on triggering entire communities." Chosen from the communities they served, motivators would be trained and given incentives to perform multiple duties—from identifying beneficiaries to conducting behavioral-change activities, to maintaining records and tracking progress. The five-year deadline to make the country open-defecation free was October 2019, which had been selected to coincide with the 150th birthday of Indian spiritual leader Mahatma Gandhi, who had felt greatly troubled during his lifetime by his fellow citizens' inability to clean up their act.

subsidize the construction of basic toilets for their homes. The funds would come in installments, paid out as beneficiaries completed various steps in the construction process. Sharma anticipated that those with vested interests in the profits to be made from a massive toilet construction campaign, such as government contractors, would fight for a piece of the funding. He also faced pushback from his own staff. World Bank advisers had suggested not using the departmental engineers because the engineers didn't have the skills to implement either a construction program or a behavioral-change program. Srinivasa Podipireddy, a senior water and sanitation specialist at the bank, who was the primary Swachh Bharat liaison, recalled that Sharma struggled to persuade the engineers that behavioral change was most important. "They wanted to build more toilets. But Ajoy pushed them to focus on behavioral change," he said.

FRAMING A RESPONSE

For Punjab, Sharma believed the most effective approach would involve shifting community awareness by (1) linking hygiene practices to public health in vivid ways, (2) offering households a choice of toilets to build, which was expected to strengthen their sense of ownership, and then (3) sealing the deal with a construction subsidy. "It is important that once you shift the behavior, you need to sustain the change, or else they can revert to their old habits. That's why you need the construction component, too," he said. "I felt that if you could couple the two things together, it would work well. That was my hunch."

First, there would be a triggering process to raise individual, family, and community awareness about sanitation problems by including a disgust factor to heighten effectiveness. Once everyone recognized the problem, it would be easier to proceed to the second and third steps: generating

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interest in new toilets and installing them, as well as persuading people to continue using them.

The idea for an initial sensitization, or triggering, period came from the Community Led Total Sanitation (CLTS) approach, a technique pioneered in neighboring Bangladesh, where all but about 1% of citizens were using toilets instead of open ground by 2015.[5] The social-triggering process aimed to elicit feelings of disgust and shame about open defecation in order to create the community's demand for change. Key to the idea was the generation of local and collective ownership of improved sanitation.

The government had allocated about US$91 million for the program in Punjab, which was supposed to run from 2015 to 2018. For the subsidy payments, the central government agreed to cover 60%, and the state government would pay 40%. Additional support came from the World Bank, which provided a US$248-million loan and technical support for the rollout of Swachh Bharat in Punjab as well as a water supply program for the state.

With only limited funding—US$15.4 million—available from the central government in the first year, Sharma also made a strategic decision to focus initially on a handful of districts instead of rolling out the entire program all at once throughout the entire state. He picked five—Fatehgarh Sahib, Ludhiana, Moga, Barnala, and SAS Nagar—which were ones that had the most-motivated officials, and he set an ambitious target to turn a thousand villages into open-defecation-free (ODF) zones within months. The ODF designation meant that local communities had declared that their homes and neighborhoods were free of open-defecation practices—a self-assessment double-checked and verified by way of a multilayer process.

Both Sharma and his chief deputy, Mohammad Ishfaq, director of sanitation, knew they had to hit the ground running and show results quickly by creating a focal point that could attract public interest while also generating a sense of urgency among officials. "Both of us decided: instead of doing it slowly, let's use the campaign mode," Ishfaq said. "If you don't make it a campaign, people lose interest. That gave us all energy. Challenging people with bigger targets gets more results from them.

"We had people willing to go the extra mile at the district level," Ishfaq said. "There was a sense of competition among the district officers. We had a chart showing who was ahead all the time. . . . If you have a lean team, everyone is challenged to do some work. We worked like a war room, from 6 a.m. to 11 p.m."

Sharma's team would prepare a team of district employees and master motivators to go out and train village social mobilizers. Those village motivators would go door-to-door within their communities, making people aware of the health problems that open defecation caused. The plan was also to engage community leaders and religious leaders in the campaign so they could provide models others might copy.

Sharma said that identifying and recognizing good leadership at every level was important at every phase. Targeting the right people—department engineers, village heads, ground-level motivators, committed individuals—and highlighting their good work along the way could inspire the rest of their community. And he planned to recognize and reward high performers.

Another key decision Sharma and Ishfaq made at the start involved deciding who would build the toilets. They had three options: (1) allow individual beneficiaries to make the decision, (2) bring in the large construction companies, or (3) work with community leaders to decide on communal options.

Previous sanitation projects had focused on mass construction, usually by government-procured contractors. As a result, the toilets were usually basic latrine pits because contractors typically provided the cheapest version so they could maximize their profits. Sharma and Ishfaq strongly resisted pressure from within their own department to bring on multiple contractors. We "were not in favor of this approach," Ishfaq stressed. "The World Bank had done a survey and found that people didn't like toilets built by

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contractors; they preferred toilets they built themselves. There was opposition to this politically. Some felt the beneficiaries would spend the money on other things. . . . But we stood firm. We wanted to give the power to the beneficiary." Sharma and Ishfaq believed that allowing people to make their own decisions regarding how their toilets would be built would give them a greater sense of ownership, which would in turn would help promote usage.

As a key stakeholder, the World Bank also served as a powerful ally for Sharma by providing strong support for Sharma's decision to focus on changing collective community behavior. "The bank wanted behavioral change at the core," said Podipireddy, the bank's liaison. "If you construct the toilet and people don't use it, then you have failed." Sharma had to walk a tightrope by balancing World Bank expectations and demands against the needs of his Rural Water Supply and Sanitation Department, but he was also able to call on the bank's clout to sway arguments his way—for example, by ensuring that behavioral change remained central to the project against pressure from constituencies who were less convinced or who wanted profits from toilet construction.

Less welcome was the World Bank's insistence on a slower process and longer training, which Sharma felt weren't needed. Podipireddy said the government was too focused on toilet construction: "The government is more interested in achieving targets and numbers. But the bank, we wanted outcomes; we wanted quality. We didn't want them to rush." Despite the disagreements, the World Bank remained an engaged partner that supported Sharma's project because progress was being made.

GETTING DOWN TO WORK

Before the real work could begin, Sharma had to assemble a core team from within his own department to lead the operationally challenging project. He used what he called the 80:20 rule to target the most-enthusiastic staffers for the campaign. He explained: "In every group, there's 20% who won't do anything, and there's 60% who are the floating population; and so your big challenge is to find the top 20% who are good at what they do. Bring them in and give them space to carry out their goals, and the rest will fall in line. 'If *x* can do it, why can't I?'" He pulled together small teams of 25 to 30 committed engineers to coordinate the toilet construction phase, along with key district staffers and community mobilizers to work on the pilot campaign.

Forming motivator teams

Assembling the team of district-level employees and master motivators was a crucial element in the initial stage because the team's members would be responsible for introducing the Community-Led Total Sanitation approach to others and implementing it. Sharma had considered hiring national CLTS facilitators, but his department in Punjab lacked the funds to recruit outside workers. Instead, he decided to develop an in-state community mobilization model. The idea was to prepare an initial group of recruits as "master motivators" who would oversee clusters of 20 to 25 villages and train other village motivators in the CLTS approach.

The first training sessions for master motivators stressed the health risks of open defecation and the dangers of not converting an entire community's behavior, said Shevya Sharma, a state-level community specialist. Sharma—not related to Ajoy Sharma—said she came out of the sessions with a deeper understanding of the dangers of open defecation and disease-carrying insects. "I can't even count the number of bacteria that a fly carries on its legs; there are just too many zeros in the figure," she said. "If we as state officials, who are supposedly educated, were so unaware of the dangers of open defection, how can we possibly expect an uneducated villager to understand it?"

Ajoy Sharma's team then recruited thousands of motivators from a pool of community volunteers from previous education and rural development projects in the Punjab

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region who had received some level of community training but were currently underutilized. Sharma was able to identify 8,200 volunteers who could be redirected to the campaign. He hired them as part-time or full-time contract workers and offered to pay a base sum of roughly US$124 per village, with additional compensation based on performance throughout the project. For example, in addition to working on toilet construction, motivators would receive extra pay for carrying out 13 behavioral-change activities that included door-to-door visits, triggering sessions, defecation mapping, and other activities. Although motivator retention became a recurring issue after the program launched, some motivators became true believers in the CLTS approach and worked long overtime hours to accomplish their tasks. "We never really looked at the job as a part-time opportunity but worked for it with all our hearts," said Ranbir Singh, a master motivator. "There were instances when we worked for 15 hours a days; we left for the field at 5 a.m. and got back at 8 p.m."

To create group cohesion and shared goals, Sharma's office held a series of five-day intensive training sessions that brought together district-level officials, community motivators, junior engineers, and others. Several participants described the training as a "game changer," saying that it helped break down professional hierarchies within the department. Master motivator Kamaldeep Kaur, who had been recruited in April 2015, called it one of the most inspiring and exhausting experiences she had ever had. At the training, participants wrote down their names and official positions on pieces of paper. The CLTS facilitator then took all the pieces and threw them into the dustbin, Kaur recalled. "So strong was the beginning of the session and so strong was his message that no work-based hierarchies existed between us," she said.

The practical instruction was intensely realistic, said motivator Singh, who was responsible for 66 villages in one district. "They used real feces—what we call *tatti* in Punjabi—to train us for the triggering sessions we were supposed to conduct," Singh recalled. "In my opinion, that was very influential for us. They essentially made us realize that what we were eating was not food but basically shit. The practical session really did prove that. We used the same strategy in our sessions [in the villages], and it made all the difference."

Shock therapy for the community

Fresh from their training sessions, motivators like Singh and Kaur headed off in teams of four to six members to visit targeted villages in the initial phase of the project. Motivators Singh and Kaur were assigned to the pilot district of Fatehgarh Sahib, close to the state capital Chandigarh, which had a total of 440 villages. Here they met with the village head to explain the program and set a date to hold a triggering camp. They arrived with banners and blackboards and typically set up their sessions in a local school or other neutral territory.

Standing before an audience of up to 250 people at a time, Kaur poured water from a bottle into a glass, drank it, and then asked others to drink. Later, she took a piece of hair from a brush and touched it against a piece of feces. Then she dipped the hair into a glass and asked if anyone would drink the water. She said that when everyone in the audience refused, "We would ask questions like, 'The color of the water looks the same. Why won't you drink it?' . . . Then we would use the opportunity to inform them about flies and all the bacteria they carry on their legs from landing on feces." The realization would dawn on the audience rather quickly, provoking many strong reactions.

The team then asked for volunteers to join the surveillance, or *nigrani*, committees that were responsible for early-morning site visits to areas where people were defecating in the open. "First, people used to be shocked at how we would show up at 4:30 or 5:30 a.m.," Kaur said. "When we saw people defecating, we would tell them clearly: 'We aren't here to fight with you. Our only intention is to improve the sanitation habits of your village.' We explained to them that the

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amount of money that went to medicines could be used on installing a toilet."

In addition to stressing the medical costs resulting from diarrhea and other hygiene-related diseases, motivators also used chalk to openly mark where people were defecating. Besides the triggering sessions, extensive public-awareness campaigns to educate primary and secondary school students were launched in all of the villages, said Jasbir Singh, district sanitation officer of Fatehgarh Sahib. During public rallies, children would chant slogans throughout the villages like "Stop doing it, stop doing it, it's about time we stop defecating in the open." And public billboards were used to spread the word about the harmful effects of open defecation.

Sharma understood that communities also needed to see alternative models of behavior. To that end, village heads, religious leaders, and community elders who showed interest were drafted into delivering the message against open defecation. Village heads displayed small models of toilets in their offices. Religious leaders preached at their places of worship about using toilets. The majority religion in Punjab was Sikhism, and the team drafted the help of Sikh religious leaders at their local *gurudwaras*, or places of worship, in spreading the message against open defecation. Fatehgarh Sahib was a historic place of religious significance, so the plea resonated particularly well in that district. The idea of "not polluting the pious land of Fatehgarh Sahib by defecating in the open" was drilled into people's heads, said Singh.

Fatehgarh Sahib was the project's first major success story and became the template for action plans in other districts. The strategies worked so well that the 100 villages targeted in the district's first phase were declared ODF within the first three months, Singh said. In successive phases, the 340 other villages became ODF as well, bolstering his department's confidence. The district had proved it could nurture a community-led social movement committed to eliminating open defecation and ensuring behavioral change.

Monitoring construction

Once the motivators had won community interest and support for improving sanitation, the next step was to build toilet facilities if households did not have them already. Motivators would go door-to-door, confirming households' eligibility and signing up those that that needed toilets. The motivators then sent the lists on to the district level for validation, where officials double-checked that the households had not benefited from previous campaigns. State and national offices also had to sign off before funds were released.

The lengthy validation process was a check against corruption. Otherwise, "there was a high risk that ineligible beneficiaries would get the money," said sanitation director Ishfaq. Once approved, a beneficiary's personal information—such as name, photo, and bank account details—was entered into a database that motivators could access through a specially created Swachh Bharat mobile application.

Sharma argued from the start that people should be allowed to construct their toilets the way they wanted instead of relying on government-procured contractors. Initially, his department engineers wanted to use multiple contractors, but his chief minister preferred to use only one or two main companies that could produce prefabricated toilets. Either way, large construction contracts increased the risks of kickbacks and corruption. Giving beneficiaries the decision-making power to design and build what they wanted enhanced their sense of ownership and usage of the toilets. Sharma said he overcame his chief minister's qualms because his boss could ultimately see the bigger political benefits if citizens were happy with their new toilets.

The decision paid off. Villagers expressed their approval of eliminating the contractor system. At first, "we thought it was just another scheme like the other ones," said a leader of Mehdoota village in Fatehgarh Sahib. "When these girls [pointing to the motivators] came to

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tell us that it will be our choice on the kind of toilet to build, we didn't quite believe them."

The cheapest toilet model cost about Re15,000, though motivators initially promoted a septic tank model that cost an additional Re5,000. In the second phase of the project, motivators began promoting a two-room bath-and-toilet model, which cost twice as much, at Re30,000. They created a photo album showcasing these higher-quality models, which, though pricier, had far more utility in the home and would more likely be used. Motivators were given extra money—40 cents per household that adopted that model—to promote that version, and by the end of phase two, most of the toilets being built were the two-room bath-and-toilet model. People were expected to contribute the extra amount from their own pockets—the idea being that they would more likely use the toilet if they had spent some of their own money on it.

Motivators repeatedly referred to a Punjabi sense of pride and competition that characterized communities' willingness to embrace new ideas. Once a handful of families adopted a certain model of toilet, motivators could more easily persuade other families to build something similar or even better. "We created such an atmosphere in the village that people were excited to build toilets," said Krishna Lal, an administrative engineer who was in charge of the CLTS program in Fatehgarh Sahib. "They would see the newly constructed toilets in other people's houses and opt for models for themselves. There was a feeling that 'My toilet should be better than my neighbor's toilet.'" The Re15,000 each beneficiary received to build a basic toilet was in the form of either two installments of Re7,500 each or three installments of Re5,000 each at benchmarks during the construction process. For example, once a beneficiary dug the two 6-foot-deep pits (one for the septic tank, one for the leach pit) and laid the brick or concrete foundation, the motivator helped photograph it and uploaded the evidence to the Swachh Bharat app. District officials would then verify the photos and sign off on the first payment, which was wired to the beneficiary's bank account. A text message alerted the beneficiary when the deposit took place. Each tranche followed that same sequence.

The elaborate process, essentially a reimbursement model, helped guard against money being siphoned improperly, and it also provided an incentive for households to complete construction. There was occasional pressure to add names of politically connected people so they could get the subsidy even though they already had toilets in their homes. Such incidents were few, according to motivators and district officials, but when they happened, district officials intervened directly with the political party involved, reminding them that breaking the rules was a defiance of the government's guidelines and would reflect badly on them if the infraction became public.

Monitoring and motivating with technology

To implement a large-scale, fast-paced project like Swachh Bharat, Sharma and his team knew they needed an extensive monitoring system. With limited funding at his disposal, Sharma again went outside the box to find an alternative solution. The team got help from students at the local engineering college to make a mobile app that could facilitate monitoring on a real-time basis. "They designed an Android-based mobile application within four days. Then we commissioned and got a website in 15 days flat," said Ishfaq.

The technology enabled Sharma to confront a significant problem: How would he know that toilets were actually being built and used? He constructed a monitoring model based on a comprehensive feedback approach to make sure he was getting information from a variety of sources—from district officials to village motivators, to beneficiaries—about what was happening on the ground. Under the system, motivators and beneficiaries took photos of toilets as they were being built and uploaded the photos to the Clean India app, which was monitored by the project team in Sharma's department. One of the app's features enabled

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newly constructed toilets to be geotagged based on their locations on the central mapping system. That capability provided a constant stream of monitoring data that enabled the team to make adaptations and monitor progress. Motivators could be tracked on their individual progress because they had to upload practically every type of activity they were involved with—from trigger meetings to toilet construction—in order to get paid.

Technology also let Sharma's far-flung team stay connected. WhatsApp chat groups let all district officers and department members share information so they could follow up and communicate every morning with those working on the ground. "Each day hundreds of pictures and messages are shared on the [WhatsApp] group by the motivators and department officials regarding their work of the day. It is like a tool for constant monitoring," said Ishfaq.

Sharma's team monitored performance in other ways as well. A village could be declared ODF only if it passed through a number of checks, including cross verification by a team from another district, cross verification by the district office after a month, and verification by the central state team.

Those technical checks were buttressed by an aggressive communications campaign to motivate community support in attaining the ODF goal. Posters asked citizens to report to a call center any instances of open defecation; Sharma's team invited the media to cover ODF verification checks and recruited celebrities and community leaders to attend the meetings in order to help create a splash.

Sharma's team set up a call center so community members could phone in with complaints about sanitation issues in their village. Phone numbers were widely publicized, and reports often involved village holdouts and problems requiring fast responses. In addition, call center operators made regular monitoring calls—more than 8,000 in total—to village leaders to check on progress through the months.

The ability to assess progress in real time made it possible to reward good performance and inspire others to participate. Sharma's team invited people to share their stories publicly and held high-profile appreciation ceremonies to reward those who did well. For example, village heads, or *pradhans*, who had been vocal advocates of the campaign, were invited to deliver speeches to other villages about the effectiveness of the work they had done in their own. Others received personal congratulations and greetings from the district commissioner. And motivated staffers at the state and district levels were singled out for praise on the WhatsApp chat groups. "There were times when we appreciated the work of one particular district in the group, and the next day, workers from other districts would be motivated to perform even better," said Ishfaq.

OVERCOMING OBSTACLES

The key to the CLTS approach lay in ensuring 100% compliance, because sanitation programs could deliver health benefits only if everyone changed their practices. But in Punjab, a state with a population of nearly 28 million, ensuring that everyone cooperated and sustained the use of toilets was a challenge.

Sharma's team struggled with what to do about holdouts. Children and grandchildren were often approached to help persuade older people of the benefits of toilet usage. In one example, a young boy who said his grandfather still defecated in the open told motivators he physically blocked him from going outside. "He said he would stand in front of the door and not let him pass," recalled motivator Kaur. "You won't believe it, but he really did that, and in a few weeks, his grandpa adjusted to the toilet in the house."

Doctors and schoolteachers, highly respected in their communities, were drafted to teach children and convince parents about the importance of good sanitation habits. Female motivators—often younger women—in particular were skillful at persuading resisters—mainly men—to stop open-defecation practices because

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the men, many of whom were older, felt ashamed and embarrassed by requests from motivators who were like their daughters. In addition, motivating small groups of women in villages to form their own watch committees proved helpful. Gender inclusion became an effective approach (i.e., recruiting women in the village as motivators and including women on the watch, or *nigrani*, committees) because women faced special concerns in terms of security. Molestation or even assault was not an uncommon experience among women who defecated in the open.

In some instances, competition among motivators to score victories—high village participation and ODF status—led a few to apply harsher measures to gain cooperation. The official Clean India policy outlined motivators' responsibilities but did not contain explicit instructions on how the responsibilities would be carried out or what measures were prohibited. Motivators said they did not believe the carrot-and-stick approach was unethical. When resistance persisted, some motivators turned to shaming as a tool. For example, they displayed photos of people in the act of defecating or scolded people publicly. Other motivators threatened to withhold various unrelated types of household aid such as electricity subsidies or retirement benefits. In a few cases, they delayed an entire village's subsidy payments if holdouts refused to build toilets.

ASSESSING RESULTS

Within the initial 18-month window of the Swachh Bharat mission, veteran Indian Administrative Service officer Ajoy Sharma and his team succeeded in getting 1,051 villages declared open-defecation free, with all five pilot districts—Fatehgarh Sahib, Ludhiana, SAS Nagar, Moga, and Barnala—achieving ODF status by January 2017, according to Punjab's Rural Water Supply and Sanitation Department. Villagers in those districts added a total of 65,118 toilets. Under the government's 2017 rankings of district performance on Swachh Bharat across India, the five Punjab pilot districts were rated at the top level by a national ranking system that evaluated performance, sustainability, and transparency using data compiled by state officials.

Although it was difficult to quantify the impact of the behavioral-change approach on open defecation, it was clear that Sharma had succeeded in making substantive progress on a long-running and persistent problem. Punjab chief minister Badal lost his post in the 2017 elections, and Sharma had been transferred to another assignment earlier. However, even under a new minister from the opposition party and without Sharma's oversight, the Rural Water Supply and Sanitation Department team continued to roll out and scale up implementation of the approach that Sharma had advocated across the remaining districts. As of September 2017, 11 districts in Punjab, which accounted for half of the state's districts, with a total of 5,879 villages, had become successfully certified ODF, according to the department. Under the team's watch, 397,904 toilets across the 22 districts were built.

REFLECTIONS

Sharma's pilot project was a remarkable achievement for the 18-month time frame, and he credited the success largely to community ownership, transparency, effective community strategy, rigorous monitoring, and innovative technology such as Web and mobile apps. He also praised team members for their capacity for "constant improvisation" in dealing with complex and sensitive situations. "We were in constant touch with these community trainers. We were getting new information all the time, and then we could adapt almost in real time," he said. "When it was top-down, the people had little space for feedback, reaction, and dialogue. But because we were in the community, the people could see us and interact with us right away."

In late 2017, with two years remaining in Prime Minister Narendra Modi's Clean India campaign, questions remained about whether the behavioral changes brought by Sharma's project could be sustained for the long term. In Punjab,

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the Rural Water Supply and Sanitation Department was considering bringing in an outside auditor to help verify the data. Meanwhile, the government of India planned to have independent auditors evaluate Swachh Bharat at the end of the project in 2019. Sharma's chief deputy, Mohammad Ishfaq, director of sanitation, who continued working in the department, said the plan was to continue with vigilant monitoring because backsliding was expected: "We are taking the iterative approach. It's not verifying just one time. We plan to sustain the campaign for the next two years. This is just the beginning; it's not the end."

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Figure 1. Open Defecation Free Status of Districts in Punjab (2017 data)

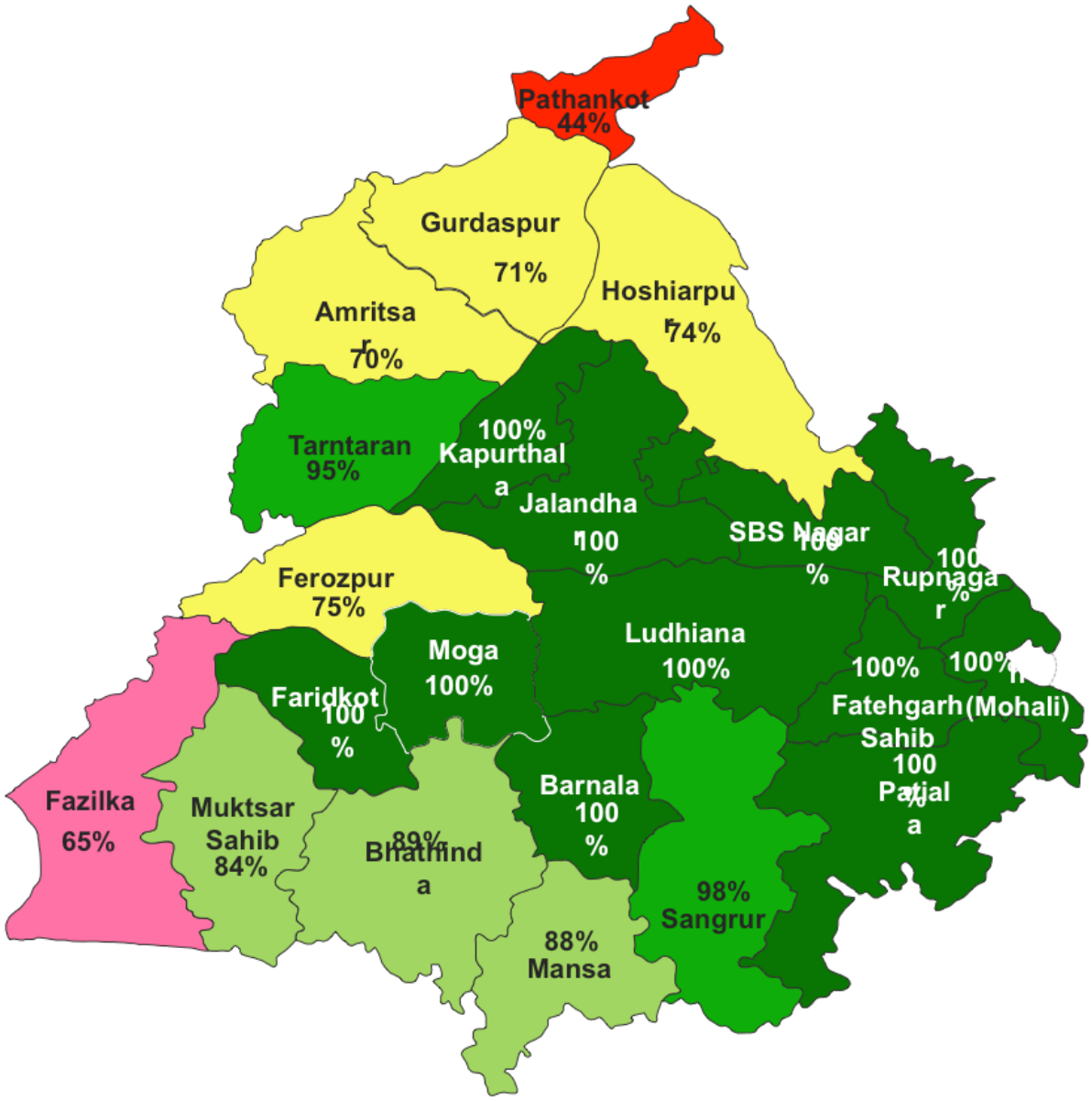

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Figure 2. Open Defecation Free Status of Indian States (2017 data)

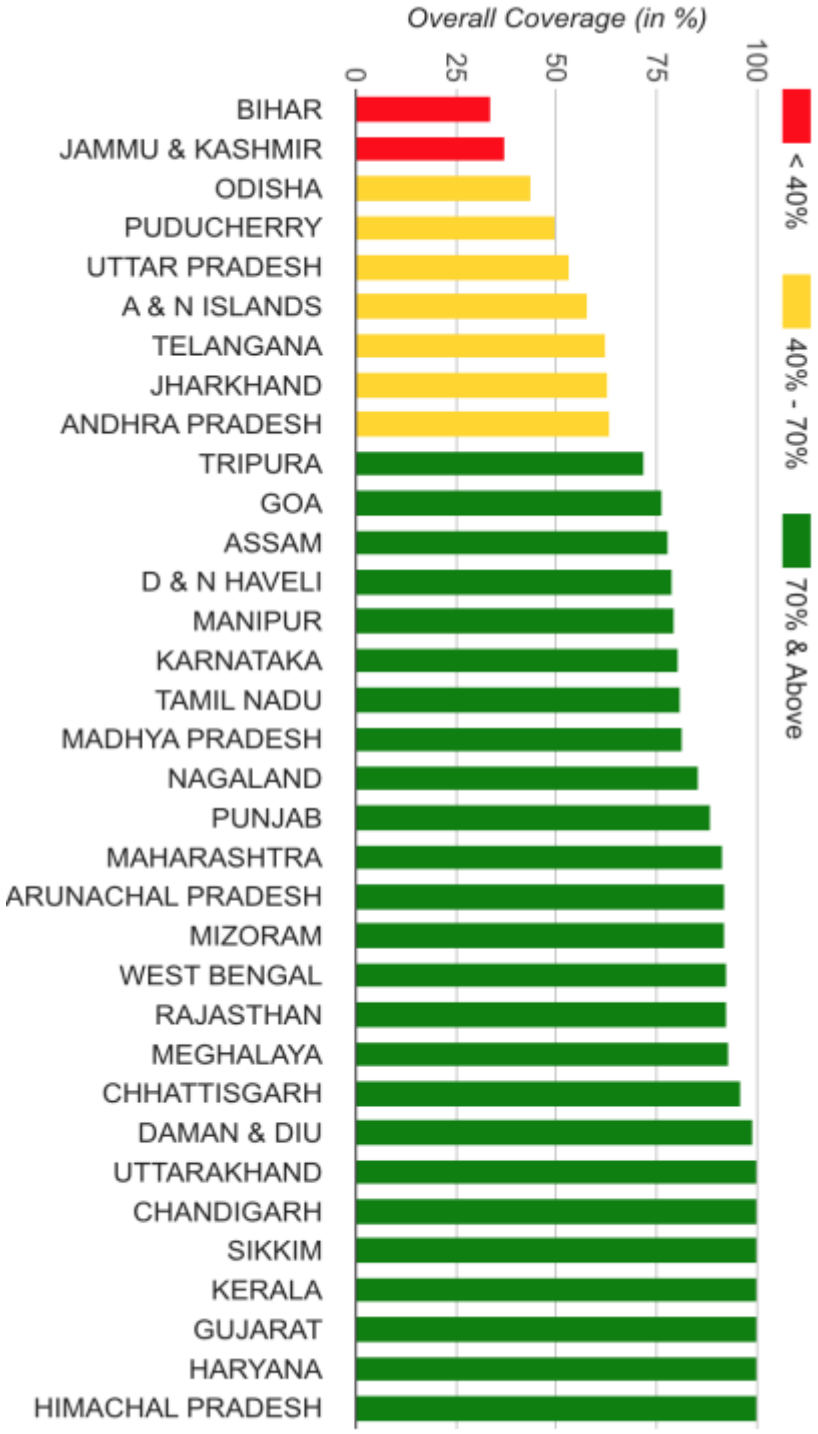

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Figure 3. Example of household toilet in the Fatehgarh Sahib district of Punjab.

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