Scaling Up Rural Sanitation

Impact Evaluation of a Large-Scale Rural Sanitation Project in Indonesia

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BACKGROUND
This research brief provides background on the consequences of poor sanitation in rural communities in Indonesia, the program’s strategy to drive participatory change, and an overview of the results of a recent evaluation of these efforts.

Improving sanitation in rural communities can unleash dramatic health and economic benefits. Of Indonesia’s nearly 250 million citizens, 100 million lack access to proper sanitation, and as many as 66 million practice open defecation. Poor sanitation conditions lead to a high prevalence of fecal-borne illnesses, such as typhoid, and diarrhea, which in any two-week period afflicts 11% of Indonesia’s children. These diseases are linked directly to more than 40,000 deaths among children under five each year in Indonesia. In addition to these dire health consequences, communities in Indonesia without improved sanitation suffer significant economic losses. A World Bank study shows that Indonesia loses 2.4% of its overall GDP, or USD 6.3 billion, annually to inadequate sanitation, poor hygiene, and lack of access to safe water.1 To reverse this course and create significant health and economic benefits, Scaling Up Rural Sanitation, an initiative of the Water and Sanitation Program of The World Bank, has implemented strategies and technical assistance since 2006 in partnership with the Government of Indonesia under their Community-Led Total Sanitation Strategy2 to address the lack of proper sanitation and expand it at scale in rural communities.

KEY IMPACT EVALUATION FINDINGS

An evaluation of Total Sanitation and Sanitation Marketing (TSSM), a rural sanitation program implemented by the Government of Indonesia in rural East Java, reveals several program impacts, including:

- Greater access to improved sanitation and higher rates of toilet construction for households without sanitation at the start of the program, although not among the poorest 20% of households.

- Lower prevalence of open defecation among households who started the program without access to a toilet.

- Positive effects on child health, including a 30% reduction in diarrhea among children.

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2 The Government’s Community-Led Total Sanitation Strategy (STBM in the Indonesian language) was approved in 2008.
PROGRAM STRATEGY
The Total Sanitation and Sanitation Marketing program in Indonesia sought to generate and sustain large-scale demand for sanitation and strengthen the supply of appropriate sanitation products and services. In a departure from previous government approaches that focused on providing infrastructure or subsidies for sanitation projects, TSSM attempted to scale up rural sanitation in East Java, a province of 40 million people, by generating demand and supporting development of sanitation products and services that are responsive to consumers’ needs. In addition, the program sought to strengthen the policy environment to enable sustainable and effective rural sanitation programs. The first component of the program, Community-Led Total Sanitation (CLTS), used a community facilitation process aimed at eliminating open defecation. CLTS facilitators led interactive sessions within rural communities to raise awareness of the links between sanitation and health. Participants used information from neighbors to create a map of places where community members defecate and collect water. The process highlighted how fecal contamination can affect an entire community, and motivated action to become open defecation free. The second component of TSSM used social marketing of sanitation to increase the appeal of improved sanitation.\(^3\) The social marketing consisted of extensive consumer and market research to understand the sanitation solutions people desire, the options available to them in the market, and their attitudes and knowledge of sanitation issues. Using this research, the program created targeted communications campaigns and enhanced supplies of sanitation products to meet consumers’ preferences and economic constraints. The final component of the program promoted an enabling environment to facilitate expanding sanitation sustainably and effectively. This component included developing and supporting effective policies at multiple levels of government as well as providing training and support to other stakeholders such as vendors and suppliers of sanitation materials.

\(^3\) The social marketing component of TSSM could not be evaluated given the later commencement of this part of the program.
IMPACT EVALUATION STUDY DESIGN
The impact evaluation assessed whether the program influenced sanitation perceptions and behaviors, and whether this led to increased access to sanitation facilities and improved child health outcomes. The TSSM program was designed to influence factors along a causal chain leading to improvements in child health. Specific benchmarks of progress evaluated along this intended path of change include: (i) perceptions of the consequences of poor sanitation; (ii) changes in hygiene behavior, including decisions about where to defecate; (iii) physical infrastructure improvements such as toilet construction; and (iv) child health outcomes, such as reduction in diarrhea and worm prevalence, and improved child growth and development.

To measure the program’s impact, a rigorous evaluation was designed to detect shifts in access and use of sanitation facilities, and health outcomes. The evaluation used a randomized controlled trial to identify the causal link between program activities and outcomes of interest. However, the study was unusual in that it evaluated the program as it was implemented at scale across rural East Java, in a way designed to strengthen the enabling environment and lead to sustainability. The evaluation was designed to allow identification of changes resulting from the TSSM program by establishing what would have happened in communities that were similar in every way except their exposure to TSSM. Comparing the difference in key indicators over time between the “treatment” communities (those in the program) and the “control” communities (those outside the program) reveals the impact attributable to TSSM. TSSM was rolled out in three phases. The evaluation took place in the second phase in 160 communities across eight rural districts. Approximately 2,100 households were interviewed before and after the program to track key outcomes. Principal findings of the evaluation as discussed below.

OVERVIEW OF RESULTS
The TSSM program raised caregiver awareness of the environmental links to diarrhea in young children.
Knowledge of the connection between poor sanitation and poor health was high both before and after program activities: over 90% of households strongly agreed that using a toilet can protect one’s family from diseases such as diarrhea. Yet, TSSM had a small but significant impact on the awareness of the environmental impact on health, specifically regarding the link between consumption of unclean food and water and childhood illness. Caregivers of young children who lived in treatment villages were 1.8 percentage points more likely to identify unclean food as a cause of diarrhea and 2.6 percentage points more likely to acknowledge that unclean water is also linked to the disease than caregivers in counterpart villages without the TSSM program.

TSSM spurred greater access to improved sanitation; however, toilet construction did not increase significantly among the poorest 20% of households. Treatment households were nearly 4 percentage points more likely to build a toilet versus counterpart households in the control group, a relative increase of almost 30% (see Figure 1). This increase is driven by households that did not have a toilet at baseline. Additionally, households reported high cost to be the main obstacle to building a toilet, so researchers analyzed toilet construction by household wealth status to detect its influence on gaining access to sanitation. Among households classified as “particularly poor,” TSSM had no significant effect on toilet construction. As seen in Figure 2, only those households in the top 80% of the wealth distribution built toilets at rates significantly higher than the control group. Among these households, toilet construction increased by 4.2 percentage points relative to their control group counterparts.

Rates of open defecation decreased among households without access to sanitation at the start of the TSSM program. At the end of the program, 36.2% of households in the control communities reported defecating in the open, compared with 34% in treatment communities. This difference was not statistically significant. However, among treatment households without access to a sanitation facility at the start of the program (Figure 2), only those households in the top 80% of the wealth distribution saw a significant reduction in rates of open defecation, increasing by 2.2 percentage points relative to their control group counterparts.

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4 Researchers defined a household in the sample as “particularly poor” if they were in the lowest quintile (bottom 20%) of the sample based on the value of their non-land assets (less than Rp. 1,975,000). At baseline, 36% of households in the sample fell below the 2008 Indonesian national poverty line of Rp 161,831 per capita per month.
start of the program, the percentage who reported normally defecating in the open decreased by 5.8 percentage points. In comparison, households exposed to TSSM who already had access to sanitation did not report lower rates of open defecation (see Figure 3). This finding suggests that TSSM helped reduce open defecation mainly by helping households without toilets gain access to them—thereby reducing the tendency to practice open defecation—and not by changing the beliefs and behaviors of households that already have toilets but choose to continue practicing open defecation. Despite this significant improvement, open defecation is still practiced by more than one-third of all households, and approximately one-third of households believe that when others defecate in the open, it has no bearing on their own household’s health.

Caregivers in treatment households reported fewer cases of diarrhea in their children. Additionally, children from some households exposed to the TSSM program had lower rates of parasitic infection as well as improvements in height and weight. The TSSM program communities witnessed large and significant reductions in caregiver-reported cases of diarrhea in children under age five. Caregivers were asked whether their children exhibited symptoms of diarrhea in the seven days prior to the interview. After the TSSM program, seven-day prevalence of diarrhea was 1.3 percentage points lower in treatment households than in control households. Given the overall rates of diarrhea in the study sample, this seemingly small effect represents a relative decrease of 30% (see Figure 4). Additionally, the program reduced the intensity of parasitic infection, though at a statistically significant rate only among households in the top 80% of the wealth distribution without prior access to sanitation. Children in TSSM communities from this same subset of households also experienced improvements in height and weight.
Figure 3a: Percentage of Households Who Report to “Normally Defecate in the Open,” by Treatment Status

- Control: 36.2%
- Treatment: 34.0%

Figure 3b: Reported Change in Open Defecation, by Sanitation Status at Baseline

- No sanitation at baseline: -5.8%
- Sanitation at baseline: 1.5%

*statistically significant

Figure 4: % Children Under Five with Symptoms of Diarrhea in Seven-Day Period Prior to Interview

- Control: 4.6%
- Treatment: 3.2%
LOOKING FORWARD
The evaluation of TSSM in East Java has implications for sanitation behavior change programs and the social change they seek to create. Despite the positive impacts of the program on access to sanitation and child health, households in rural East Java reported high cost as one of the main obstacles to building a toilet. Lowering these costs, either on the supply side by offering more affordable and upgradable toilet options, or on the consumer side through provision of credit or incentives to the poorest group of households—who may be willing to commit resources but cannot afford toilets currently on the market—might improve the ability of future rural sanitation programs under the government’s umbrella strategy to achieve more equitable outcomes.
About the project

Today, 2.5 billion people live without access to improved sanitation. Of these, 75 percent live in rural communities. To address this challenge, WSP is working with governments and local private sectors to build capacity and strengthen performance monitoring, policy, financing, and other components needed to develop and institutionalize large-scale, sustainable rural sanitation programs. With a focus on building a rigorous evidence base to support replication, WSP combines Community-Led Total Sanitation, behavior change communication, and sanitation marketing to generate sanitation demand and strengthen the supply of sanitation products and services, leading to improved health for people in rural areas.

For more information, please visit www.wsp.org/scalingupsanitation.

Contact us

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RELATED READING


ACKNOWLEDGMENTS

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