Improving Sanitation at Scale: Lessons from TSSM Implementation in East Java, Indonesia

Final Report

June 30, 2011

Samia Amin
Anu Rangarajan
Evan Borkum

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Policy Research, Inc.

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Contract Number:
4993/18136 (11)

Mathematica Reference Number:
06781.500

Submitted to:
Bill & Melinda Gates Foundation
P.O. Box 23350
Seattle, WA 98102
Project Officer: Alix Peterson Zwane

Submitted by:
Mathematica Policy Research
P.O. Box 2393
Princeton, NJ 08543–2393
Telephone: (609) 799–3535
Facsimile: (609) 799–0005
Project Director: Samia Amin

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ACKNOWLEDGMENTS

Many people contributed in significant ways to the preparation of this report.

We are extremely grateful to the staff at the Water and Sanitation Programme-East Asia and Pacific office, and the Total Sanitation and Sanitation Marketing (TSSM) team in Indonesia for all the support they provided for this study. In Jakarta, the core TSSM team led by Almud Weitz and Djoko Wartono, and including Wano Irwantoro, Ari Kemasan, Amin Robiarto, and Effentrif spent endless hours describing their experiences in implementing TSSM and providing us with relevant documents, data, and materials. Nilanjana Mukherjee provided insights on early implementation. At the provincial level, valuable information on local program implementation was provided by Pak Saputra, the TSSM regional coordinator, and the staff from TSSM partner organizations: Mitrya Samya, Surya Abadi, and ITS Surabaya. In particular, we would like to thank Pak Djoko and Pak Saputra for providing us with introductions to various key stakeholders. We would also like to thank Sasya Arifin, Pengky Priyono, and Eveline Turang for their assistance in organizing travel and meeting logistics.

At the Water and Sanitation Program's global head quarters at the World Bank in Washington, D.C., we wish to thank Eduardo Perez, the global task team leader for his description of program inception and implementation. Bertha Briceño from the World Bank, who is the global impact evaluation leader, and Manisha Shah, the principal investigator for the TSSM impact evaluation in Indonesia, kindly shared their knowledge and insights on evaluation design and implementation, as well as shared impact evaluation data and survey instruments. Jack Molyneaux led the impact evaluation in its initial years.

We are especially grateful for the support of our project officers at the Bill & Melinda Gates Foundation, Alix Zwane and Louis Boorstin. Their support, input, and guidance at all stages of this study have been invaluable.

We owe a deep debt of gratitude to the numerous government officials, sectoral staff, and other stakeholders at the national, provincial, district, subdistrict, village, and hamlet levels who allowed us to interview them and who looked up documents, data, and other information at our request. We are especially grateful to the many households that participated in the survey and focus groups generously and shared their experiences with us.

In particular, we would like to thank our local data collection partners. Risang Rimbatmaja, Yunita Wahyuningrum, Abigael Ati, TriHastuti Nur, Maulana Hasan, and Ngatman tirelessly and meticulously conducted the qualitative data collection. Their excellent research skills and local and technical knowledge allowed us to conduct high-quality data collection. Translation assistance by Ivonne, Nora, and Ratih were invaluable in enabling us to participate in the numerous interviews and focus groups conducted as part of the qualitative effort. Bondan Sikoki and Wayan N. W. Suriastini from Survey Meter led the quantitative data collection. We are extremely grateful for Survey Meter collecting such high-quality data under the project time constraints.

Other Mathematica staff played an important role in the completion of this report. Alexander Persaud provided excellent programming, project management, and research support throughout the project. Nancy Murray and Robert Wood provided thoughtful feedback on the content of the report. John Kennedy carefully edited the report and Jennifer Baskwell provided exemplary production support.

We gratefully acknowledge these many contributions and accept sole responsibility for any errors or omissions in this report.

Samia Amin
Anu Rangarajan
Evan Borkum

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CONTENTS

CONTENTS *(continued)*

CONTENTS *(continued)*

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TABLES

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FIGURES

BOXES

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ACRONYMS AND INDONESIAN TERMS

Bappeda	Provincial Planning Office
Bappenas	National Development Planning Agency
BCC	Behavior Change Communications
BPS	*Badan Pusat Statistik* (Central Board of Statistics)
Bupati	District head
Cadre	Volunteer health worker
Camat	Politically appointed subdistrict leader
CLTS	Community-Led Total Sanitation
Desa	Village
Dinkes	*Dinas Kesehatan Provinsi* (provincial or district health center)
Dusun	Hamlet
IE	Impact Evaluation
ITS Surabaya	*Institut Teknologi Sepulum Nopember*
JMP	Joint Monitoring Programme
Kabupaten	District
Kecamatan	Sub-district
MDG	Millenium Development Goals
MoH	Ministry of Health
NGO	Non-governmental organization
OD	Open Defecation
ODF	Open Defecation Free
PKK	*Pembinaan Kesejahteraan Keluarga* (Family Welfare Movement)
PODES	*Potensi Desa* (Village Potential Survey)
Polindes	*Pondok Bersalin Desa* (village midwife clinic)
Posyandu	*Pos Pelayanan terpadu* (village integrated health post)
Propinsi	Province
Puskesmas	*Pusat Kesehatan Masyarakat tingkat Kecamatan* (subdistrict health center)
Pustu	*Puskesmas Pembantu* (village subhealth center)
Rukun Tetanggas (RTs)	Subdivision of hamlet
Rukun Wargahs (RWs)	Subdivision of hamlet
SToPS	*Sanitasi Total dan Pemasaran Sanitasi* (Indonesian translation of program)
Tim Penggerak PKK	Family Welfare Association
TSSM	Total Sanitation and Sanitation Marketing
UNICEF	United Nations Children's Fund
VIP	Ventilated Improved Pit
WHO	World Health Organization
WSLIC-2	Second Water and Sanitation for Low Income Communities program
WSP	Water and Sanitation Program
WSSLIC	Water Supply and Sanitation for Low Income Communities

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EXECUTIVE SUMMARY

Poor sanitation is an urgent health and development challenge for low-income countries. Globally, 1.2 billion people do not have access to any sanitation facilities and resort to open defecation (World Health Organization [WHO]/UNICEF 2010). Poor sanitation is a key cause of diarrheal disease, which inflicts high morbidity and health care costs. Because poor sanitation disproportionately affects poor countries, and the poorest populations within those countries, these costs are borne by those who are least equipped to shoulder them (United Nations 2010).

The Water and Sanitation Program (WSP), a multidonor partnership administered by the World Bank, launched the Global Scaling Up Rural Sanitation project in 2006 to improve access to basic sanitation and eliminate open defecation among the rural poor. The Bill & Melinda Gates Foundation (the Foundation) funded the project, which combined two innovative approaches: (1) Community-Led Total Sanitation (CLTS), which had increased demand for sanitation in Bangladesh and India; and (2) Sanitation Marketing, which had strengthened supply of and demand for sanitation services in Vietnam and several African countries. The Total Sanitation and Sanitation Marketing (TSSM) program combined these two interventions and complemented them with efforts to strengthen the enabling environment in order to create a holistic, sustainable, and scalable program. WSP decided to test the program at scale in East Java, Indonesia; in Himachal Pradesh and Madhya Pradesh, India; and in 10 districts in Tanzania between 2007 and 2010.

The Foundation contracted with Mathematica Policy Research to conduct a retrospective implementation study to understand how the TSSM program was implemented in Indonesia, to learn more about how program monitoring data were collected, and to reconcile some apparent discrepancies between program monitoring data and impact evaluation data involving program progress. This report describes the findings from this study. In particular, it answers the following questions:

1. ***How were key elements of the TSSM approach implemented and what factors affected attainment of open defecation free (ODF) outcomes?***

   Program implementation approaches varied significantly across and within districts and subdistricts. The thoroughness with which program activities were completed was affected by local conditions, existing capacity, and motivation of local officials, as well as by differences in the degree to which the TSSM program helped local governments prepare for program delivery. In each district, we observed pockets of great success where the program was well implemented and ODF status was attained but also many instances where this did not occur. The scale of success varied significantly from small isolated clusters of ODF hamlets (sub-villages) in some districts to entire subdistricts in others. ODF gains were driven primarily by the CLTS component, because implementation of the sanitation marketing was delayed and weakly delivered. TSSM expansion, where it occurred, resulted from concerted district and subdistrict efforts rather than the viral spread of the program driven by hamlet demand that was anticipated in TSSM's theory of change. Critical determinants of program success included the degree of early buy-in and commitment for the program, availability of sufficient resources, strategic decision making, and degree of multisectoral coordination at all administrative levels.

2. ***How effective are the monitoring system and the impact evaluation framework in helping assess program progress and can their data be reconciled to provide an accurate picture of program progress?***

   Monitoring data collection was conducted through a bottom-up process mostly using reports from hamlet health volunteers, but there was little systematic monitoring or data verification by subdistrict or district officials. Despite this lack of oversight, systematic over-reporting of sanitation outcomes did not seem to occur. TSSM monitoring waned after the program ended. In order to create sustainable monitoring systems, it will be important to build capacity for data use at the district level and for data collection among frontline staff and volunteers. Monitoring data and impact evaluation data show similar findings after taking impact evaluation locations into account.

3. ***What are sanitation practices, knowledge, and attitudes among rural households? How do they differ in ODF and non-ODF hamlets?***

   Most households own a latrine or have access to a shared latrine and are usually aware of the health risks of open defecation. However, latrine access is significantly higher in households in ODF hamlets compared with non-ODF hamlets. Exclusive latrine use is highly correlated with latrine access and is almost universal in hamlets declared ODF, but almost 40 percent of those in non-ODF hamlets openly defecate. Most of this open defecation takes place in rivers. For those without latrines, cost is the most common reason cited for not having a latrine. In ODF hamlets, increased access is driven by higher levels of pit latrine usage compared with non-ODF communities, which suggests that TSSM might have encouraged access of simple solutions.

The study used a mixed-methods approach to answer these questions. Our approach drew on both qualitative and quantitative data. We relied heavily on qualitative data gathered in the fall of 2010 from a large cross-section of stakeholders at the national, provincial, district, subdistrict, and village levels. We met with members of the implementing team and their partners, as well as sectoral stakeholders at the national and provincial levels, to frame the context of TSSM. To understand program implementation and outcomes in the field, we selected six districts where we conducted site visits to meet with officials, health staff and other stakeholders at the district, subdistrict, village, and hamlet levels. We also held focus groups among households from hamlets that received the program and those that did not to learn about determinants of their sanitation behavior. We selected the districts from across the three phases of program implementation, ensuring that they were geographically dispersed. The selected districts, subdistricts, villages, and hamlets captured a range of levels of progress toward ODF outcomes.

We selected 36 hamlets in the six districts to conduct surveys with households to learn about their sanitation practices. Most of these hamlets were ones we visited as part of the qualitative data collection. About half of the hamlets were ODF and half were not. We collected the quantitative data in January 2011, conducting surveys with 20 randomly selected households in each of the 36 hamlets for a total sample of 720 households. In addition to analyzing this data, we also analyzed existing monitoring data provided by WSP. Our report draws on and triangulates information from all these sources to provide an assessment of program implementation.

A. The TSSM Program

The TSSM program in Indonesia was launched in 2007 with a goal of implementing the program at scale in the province of East Java. Among its more than 37 million people, East Java has

a rural population of 32.8 million. The province includes 29 districts that vary in geography, resources, wealth, culture, capacity, size, and population. Rural sanitation coverage in East Java is fairly poor, with slightly more than half the rural population having sanitation access.

Previous government and donor sanitation policies and programs in Indonesia had attempted to tackle the problem by providing material or financial assistance for building latrines. Those policies had yielded limited results, partly due to households' reluctance to change behavior. Latrines provided to households often fell into disuse and disrepair. Despite substantial investment in sanitation, improvements in sanitation were negligible and open defecation persisted as a problem in many Indonesian provinces. Thus, TSSM took an approach based on the provision of so-called software support in the form of training and technical assistance, rather than hardware support in the form of products and subsidies. It promoted collective action for improved sanitation behavior, targeted collective outcomes, and recommended an incremental approach to improvement in sanitation behavior to ensure that all households, irrespective of their wealth, could take some action to eliminate open defecation.

The TSSM program consisted of three elements:

1. ***Stimulating sanitation demand among households and communities*** by (1) conducting triggering events and follow-up activities for households using CLTS techniques (such as making households aware of the dangers of open defecation and invoking shame) to generate collective commitment for ODF attainment; and (2) using behavior change communication (BCC), developed as part of sanitation marketing, to raise awareness of affordable latrine options and the dangers of open defecation.
2. ***Increasing the supply of sanitation products and services*** by (1) working with manufacturers and providers of sanitation products and services to create and provide affordable, context-appropriate sanitation options and train suppliers in their provision; and (2) using promotion materials to market these low-cost options to households.
3. ***Creating a strong enabling environment*** by collaborating closely with and supporting national-, district-, and local-level political leaders to create policy, institutional, and financial frameworks to facilitate implementation at scale.

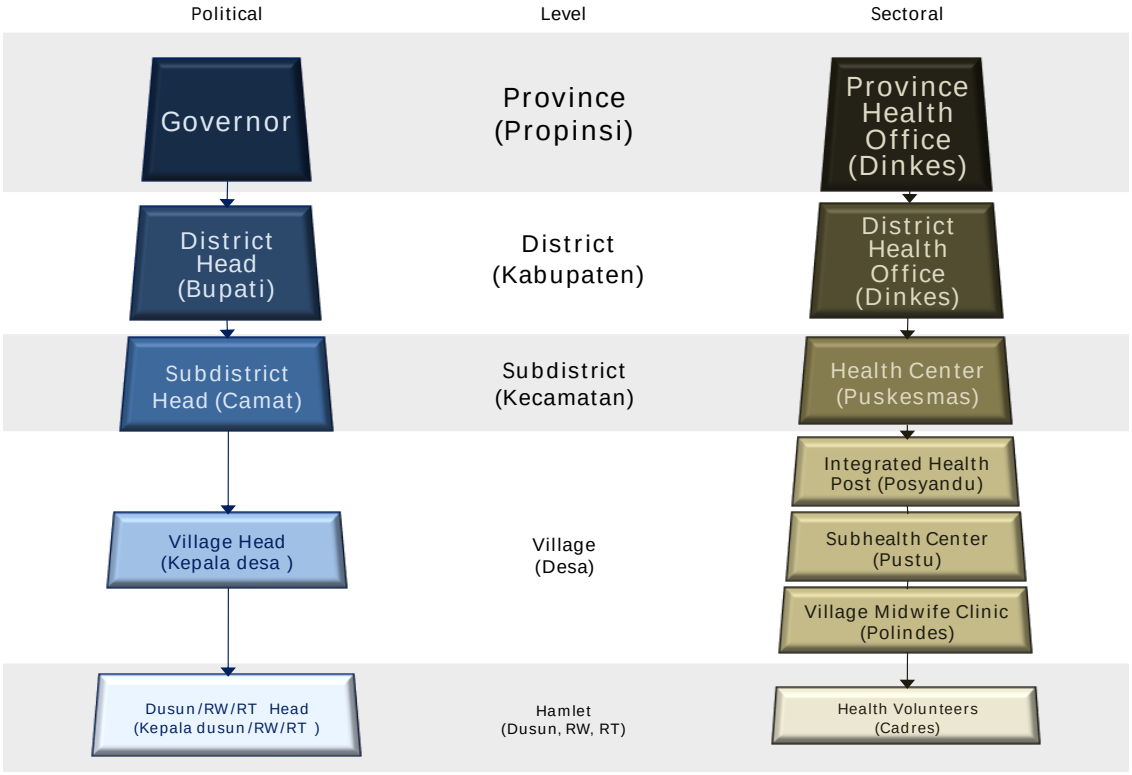
To foster sustainability, WSP delivered the program through local governments. The TSSM team requested districts to participate in the program and commit funds for TSSM implementation and scale-up. It also provided technical assistance to local government officials for a certain period. The TSSM team implemented the program in 30 communities in each district, providing districts with a "limited window of opportunity to learn" how to implement this integrated approach to sanitation promotion (WSP 2009).

This was a challenging task given the complex political and administrative contexts in which the program was implemented. In Indonesia, responsibility for sanitation programs is fragmented. Depending on the nature of the sanitation program being implemented, a range of sectoral administrative institutions and stakeholders can be involved. These included the Ministry of Health (MoH) and the Ministry of Public Works as well the National Development Planning Agency. TSSM worked closely with the MoH and National Development Planning Agency, making the former its primary implementing partner.

Moreover, decentralization reforms had devolved implementing authority from national levels to district levels, multiplying the partners with which TSSM had to coordinate. Several levels of

government and sectoral administration were relevant to and involved in TSSM implementation. These levels, in descending administrative order, are national, provincial (*propinsi*), district (*kabupaten*), subdistrict (*kecamatan*), village (*desa/kelurahan*), and hamlet (*dusun*). A number of political and sectoral stakeholders at each level can affect the implementation of sanitation programs. Figure 1 shows the cascading pillars of influence at the provincial and district levels. The first cascading pillar consists of political authority within districts that affects the implementation of programs such as TSSM. Even though Indonesia is highly decentralized, a top-down culture characterizes the government, especially at and below the district level. The elected leaders, from the district head (*bupati*) down to the heads of villages, hamlets, *Rukun Wargahs* (RWs, or administrative neighborhoods) and *Rukun Tetanggas* (RTs, or neighborhood clusters) comprise a chain of command. The second pillar of authority is the program implementation sector, which in the case of TSSM was the health office.

Figure 1. Cascading Structure of Political and Sectoral Administration



B. Implementation of TSSM

In this section we summarize our findings on the key steps taken to implement the TSSM program. We examine (1) the approach TSSM took to prepare for program implementation and delivery, (2) how TSSM delivered the CLTS component to strengthen sanitation demand in tandem with districts, and (3) how TSSM developed and implemented the sanitation marketing component.

1. Setting Up the TSSM Program and Preparing for Program Implementation

- ***TSSM created a tiered project team to engage with stakeholders at various levels.***

At the national level, a central team secured high-level buy-in from MoH and the National Development Planning Agency and designed the technical assistance that the program would provide. At the provincial level, a regional coordinator conducted oversight of district activities. At

local levels, TSSM hired nongovernmental organizations (NGOs) called resource agencies with local knowledge to provide on-site technical assistance to district governments specifically to implement CLTS. To provide adequate levels of support to all districts, TSSM assigned districts to one of three phases, largely based in order of district interest in participating. The resource agencies worked with districts in each phase for approximately nine months providing training and field support to district and subdistrict staff for the implementation of TSSM.

- ***Greater alignment was needed between the goals of resource agencies and TSSM.***

In most of our field visits, stakeholders appreciated the assistance resource agencies had provided with triggering and follow-up. However, the resource agencies might have required greater supervision to ensure that resource agencies focused on TSSM's longer-term goals of building capacity and not only on reaching triggering and ODF attainment targets. In a few instances, resource agencies' district consultants appeared to have switched efforts from hamlets resistant to behavior change to other hamlets that were closer to being ODF or opted to collect monitoring data directly instead of building district capacity. Increased oversight, greater emphasis on longer-term objectives, and a clearer delineation of responsibilities could improve resource agency performance.

- ***Demand-responsive targeting to create local buy-in did not materialize as planned.***

The TSSM program had anticipated that road shows or socialization events would generate strong community interest in participating in the program. TSSM's assumption was that securing voluntary and informed participation in the program would engender high levels of commitment to implementation. However, district or subdistrict officials usually selected hamlets in a top-down process. The road shows were sometimes replaced with socialization events at which village and hamlet officials learned of the broad parameters of the TSSM approach that would be implemented in their area. Multiple factors constrained the initial demand for TSSM at the lower levels, including its nonsubsidy approach and the high level of work it required from local stakeholders with little financial support. Thus, implementing a demand-responsive approach from the outset was challenging; after gains in some hamlets had been achieved and publicized, securing buy-in of other villages or subdistricts was easier.

- ***TSSM envisaged multisectoral coordination as a key tenet of implementation, but there was inadequate clarity on individual roles and responsibilities.***

The TSSM program required close coordination of stakeholders across sectors, as well as at different levels, including the district, subdistrict, village, and hamlet levels. A detailed manual describing TSSM's implementation approach discussed the many steps needed for program success, including the formation of committees at various levels to ensure coordination. However, there was less clarity about who would undertake particular steps and the specific responsibilities of different stakeholders. Subsequent implementation reflected weaknesses in the execution of some of these activities, such as the creation of coordination committees.

- ***District expenditures on TSSM were typically low, burdening frontline staff.***

Among the districts we visited, the TSSM program resulted in an increase in the amount of money districts dedicated to sanitation. However, there was substantial variation in the extent of district contributions, as well as the degree to which districts maintained them over time. These expenditures were concentrated among a few districts. Five of the 29 districts targeted by WSP accounted for 45 percent of district expenditures on TSSM as of February 2010 (WSP 2010b).

Insufficient resources placed extra burden on frontline staff. In several places, subdistrict officials complained of the numerous ways in which resource and staffing constraints impeded their ability to implement the program effectively. The examples they cited included insufficient funds for providing food at triggering events or hosting ODF celebration events, lack of transportation to conduct follow-up and monitoring, and inability to provide token gifts or compensation to health volunteers who assisted with key tasks. In some cases, facilitators or village or hamlet officials had to cover program costs themselves. For more systematic and thorough implementation of TSSM, districts might have to increase resource allocations to cover some of these costs, and assume some of the software costs that WSP had shouldered.

2. Implementing CLTS at Scale

- ***The CLTS training was well developed and executed. Most stakeholders viewed the content and format of the training positively and it seemed to generate support for the nonsubsidy approach.***

Training content covered the fundamental CLTS principles for triggering household demand and exposed participants to newer elements developed by TSSM, including sanitation marketing and templates for monitoring progress. Training incorporated adult education approaches that made use of participatory methods, including questions and answers, group discussions, games, and brainstorming. The interactive nature of the trainings and the practical components made a strong impression on most stakeholders we interviewed and helped convince participants about the viability of TSSM.

- ***We saw pockets of success in each district but also many instances in which triggering did not lead to the intended outcomes.***

In some exceptional subdistricts, such as Perak in Jombang and Wringinanom in Gresik, these areas of success were substantial, encompassing the entire subdistrict or all the villages under a Health Center *(Puskemsas)*. More frequently they consisted of large clusters or significant numbers of villages, as we observed in Dampit in Malang. In other subdistricts, the islands of success were fewer and more limited in nature, as observed in Bondowoso and Bangkalan. Successful areas shared some common characteristics: (1) a high degree of coordination and collaboration across various stakeholders at the different levels; and (2) a more purposeful and strategic use of resources in targeting, follow-up, and monitoring. Less successful areas were characterized by limited resources that were not spent strategically, lower levels of commitment, and closer proximity to a river.

- ***The viral spread of CLTS did not occur, leading some districts to revise their targeting strategies.***

TSSM initially recommended targeting high-risk hamlets, such as those with limited access to sanitation and a high percentage of households exhibiting poor sanitation behavior, so maximum impacts could be observed. Many districts learned that triggering only one hamlet per village was not adequate for having a strong demonstration effect. ODF attainment at subvillage levels was not a sufficiently remarkable achievement for neighboring places to take note and aspire to replicate. In some instances, districts became discouraged and stopped focusing on program implementation. In other, more successful places, we saw districts shift to alternate strategies that proved more effective. These included (1) *clustered rather than diffused targeting,* in which some districts targeted geographically clustered subdistricts and hamlets rather than widely dispersed hamlets; and (2) *village rather than hamlet triggering,* in which some districts found it more effective to switch to triggering all hamlets in a village instead of just one hamlet per village.

- ***Triggering itself did not appear to be the pivotal event it was meant to be. Most households in focus groups, even those that had attended the event, recalled it only upon repeated probing.***

Triggering events were often small, usually attended by 20 to 30 people, and did not appear to be a memorable events in the minds of many households in these hamlets (even ones that had become ODF). The attendees at the events were typically women, often because the events occurred during the day when most men would have been at work. Facilitators were informed of the importance of scheduling the triggering events at times that most of the community could attend. However, facilitators were faced with multiple responsibilities and limited resources and incentives and found it difficult to trigger after work hours, especially if they had to travel far to reach the hamlets.

- ***Follow-up monitoring was an important program component that was not prioritized or funded adequately.***

TSSM recommended a host of follow-up activities after triggering to encourage ODF attainment. Where post-triggering follow-up occurred, it consisted primarily of two types of follow-up activities. These follow-up activities included (1) repeat socialization and messaging and (2) targeted monitoring through household visits. We observed better results in hamlets that adopted both types of post-triggering follow-up activities through multisectoral coordination and that emphasized health benefits of ODF status during follow-up. Post-triggering follow-up was not adequately prioritized at all levels for several reasons: lack of resources for post-triggering and competing priorities for implementing stakeholders' time, with subdistrict and village/hamlet staff, officials, and volunteers having a wide range of responsibilities. In some cases a lack of motivation and insufficient prioritization of the program at higher levels was the reason. Similar factors affected post-ODF follow-up rates.

- ***Strategies encouraging leveraging of group/community resources also facilitated acceleration of ODF outcomes.***

In a number of places, we saw that villages effectively leveraged group resources to help poor households gain access to latrines. In some districts, officials described the use of community labor in hamlets to assist households, particularly those of the poor or elderly, to build pit latrines, known as *gotong royong*. In some communities, groups of five families worked together to construct cheap latrines that those households could use; in other communities volunteers reached out to help households dig pit latrines or make lids for existing latrines. Another mechanism was the establishment of sanitation revolving funds (known as *arisan* funding), whereby households made monthly contributions to a common savings scheme that would enable one member per month to build a latrine. We most often observed these mechanisms for leveraging joint resources in hamlets or villages with a tradition of community cohesion; such mechanisms therefore depended greatly on the specific culture of the hamlet.

3. Implementation of Sanitation Marketing

- ***Developing sanitation marketing took longer than anticipated, affecting the program's ability to sequence sanitation marketing appropriately with CLTS.***

Conducting extensive market research and developing the interventions and tools for sanitation marketing took a long time. CLTS implementation had begun by 2007, but background research was not completed until the middle of 2008. This meant that the component was not ready for adoption

for Phase 1, which began in November 2007, and the full bundle of interventions was not ready until into the implementation of Phase 2. As a result, TSSM was not delivered as a holistic intervention in many of the districts, as had originally been anticipated.

- ***TSSM tried to improve sanitation supply by training masons; however, this effort yielded limited success due to poor targeting.***

TSSM started the effort to improve sanitation supply by focusing on improving the skills of masons through mason training. Although masons do not typically sell latrines directly, they can inform households about latrine types and recommend, promote, and install low-cost hygienic latrines using guidance from WSP's market research. However, with a few exceptions, masons did not actively engage in activities to promote low-cost options. Mason training yielded limited results in part because participants for mason training appeared to have been poorly selected. Village heads were requested to select masons on short notice, with little information on the intent of the training or the criteria to use to select appropriate candidates. Village officials sometimes selected nonmasons because they had to indentify someone to send to the training quickly; in other cases, selected masons refused to go because they did not want to lose their daily wages. As a result, many attendees were not well selected and often not only lacked a masonry background but also had little education and limited capacity to absorb the training.

- ***TSSM then focused on training small numbers of sanitarians and potential entrepreneurs in developing a social franchising model of sanitation solutions.***

The TSSM team adapted the mason training and focused it on sanitarians and other potential suppliers or providers hoping to create entrepreneurs who could effectively promote low-cost sanitation options. In particular, the TSSM program wanted to replicate the social franchising model of a one-stop sanitation shop created by Pak Sumadi, a former mason who had successfully devised several upgradeable models of latrines and improved sanitation options using local products. To that end, the program conducted intensive training on a considerably smaller scale. People who attended the training seemed to find it useful, and we heard that a handful of active entrepreneurs emerged. However, it is not clear that this approach alone will be able to strengthen the supply market at scale given the limited numbers of people trained and continued limitations in targeting.

- ***TSSM produced many promotional materials focused on behavior change, but insufficient budgets and weak dissemination networks constrained adoption.***

The TSSM team spent substantial time and effort in developing and market testing attractive materials, such as a ready-to-print poster tool kit. However use of these materials was limited. District officials indicated they had received posters and stickers from TSSM, but we saw limited evidence that these posters were disseminated widely at lower levels. Although we occasionally saw sanitation posters in the *Puskesmas*, for the most part sanitarians and staff at lower administrative levels were not aware of or familiar with these posters. The main reasons noted for limited use of these materials were (1) insufficient budget to print and disseminate these posters on a large scale; (2) weak dissemination networks, which often resulted due to poor coordination between the heath promotion division and the environmental health office, and shortages of health promotion staff; and (3) districts often preferred to use their own materials, citing their unique local knowledge.

- ***TSSM developed an informed-choice catalog for upgrading latrines. Those who had seen it considered it very useful, but many had not seen it.***

TSSM developed an informed choice catalog that would enable households to understand the features of healthy latrines, learn about options for adopting progressive approaches to latrine upgrades, and increase their awareness of low-cost options. These catalogs illustrated different combinations of latrine options, ranging from the lowest- to the highest-cost options for each of three latrine components: below-ground, ground-level, and above-ground structures. The training of masons and entrepreneurs used the informed choice catalog. The TSSM program's intent was to use the manual after a community had become ODF and reached the first step of the sanitation ladder, so households would not be distracted from using more basic options to reach ODF status quickly. However, some stakeholders who had seen the catalog (or to whom we showed it during our field visits) thought it would have been useful to use during or soon after triggering and follow-up, when interest in exploring latrine options is highest. Earlier use of this catalog might be particularly valuable in hamlets near a river, where changing behavior using basic options (pit latrines) might not work.

C. TSSM Program Monitoring System

WSP established a monitoring system for tracking TSSM progress that drew on the participation of stakeholders at various levels of the program. The monitoring system was distinctive in that it placed monitoring responsibility on local officials, rather than opting for independent monitoring mechanisms. WSP's objective in adopting this system was to create a culture of data tracking and data use at these administrative levels. It was hoped that demonstrating the feasibility of collecting sanitation data and its utility for policy and program decisions would result in districts being willing to continue data collection after TSSM ended.

TSSM's intent was that subdistrict officials and health center staff were to record progress from all triggered hamlets on a monthly basis. They were to verify the accuracy of the information collected by conducting monitoring visits to households with updated statuses and sending the verified data to the district. Subdistrict-level officials, mainly the sanitarians, received a specific form that recorded the types of sanitation access among households in the hamlet, disaggregated by latrine type and by household wealth.

- ***Sanitation data was collected through a bottom-up process mostly using reports from hamlet health volunteers, but there was little systematic monitoring by subdistrict or district officials.***

Generally, the flow of information about progress toward ODF outcomes involved health volunteers/facilitators gathering information and updating subdistrict health center staff, either directly or through the village head or midwife. The subdistrict official transferred this information to the district. Although data collection of sanitation indicators occurred in all places, we observed little systematic monitoring by subdistrict and district staffs, and the periodicity of reporting was not regular. Usually the village health volunteer would report to the midwife or sanitarian when she heard of the construction of some new latrine. The health volunteer might then visit the household to confirm reports of latrine construction; however, verification by the sanitarian was far less frequent.

- ***TSSM had mixed success introducing a short message system (SMS) to encourage more regular reporting.***

TSSM designed a new SMS system, using mobile phone text updates, aimed to encourage more regular reporting. It simplified the process of submitting and aggregating data and eliminated the travel and time costs required for submission of paper updates. We observed a range of attitudes toward this system. Some liked this reporting system and thought it saved them time. Others had heard about it and waited for training. Still others had either not heard about it or had difficulty using it. We heard a number of reports of duplicative efforts. Facilitators provided updates using the SMS system but still had to submit paper reports. Among the districts we visited, there was limited evidence of district-level ownership of this system, so it is unclear how useful this system will be.

- ***Sanitation access indicators evolved over time, which created some confusion and might have affected data quality.***

More than two-and-a-half years into program implementation, the TSSM team changed the classifications to try to make the sanitation access measures align more closely with the Joint Monitoring Programme classification system and to better capture households' progress up the sanitation ladder. Definitions changed from improved latrine, unimproved latrine, sharing, and open defecation to the following: permanent latrine, semipermanent latrine, and open defecation. Officials in several districts and subdistricts reported that they found the new latrine categories confusing. As a result, data collectors often used the old indicators at the hamlet levels and officials at subdistrict or district levels subsequently reclassified the data to fit the new template. They did not always do this with sufficient accuracy or discretion, and they sometimes lacked the data to confirm the shared nature of the latrines.

- ***Despite little independent verification by district or subdistrict officials, we did not observe systematic misreporting of latrine construction or ODF status.***

We saw no evidence that the hamlet-level volunteers or facilitators had incentives to provide false reports of latrine construction. Reports were more likely to be made when latrines were built than when they broke down, simply because the latter might have been less noteworthy events in the hamlet. However, given that those with latrines would eventually repair them or build new ones, we do not expect these differences to be large in magnitude. Districts generally stopped reporting to WSP when they perceived the TSSM program was over, and we observed instances in which more communities had become ODF than the TSSM program monitoring data reported.

- ***The impetus for tracking outcomes waned when hamlets achieved ODF status.***

We found that even routine monitoring in the hamlet became a less urgent priority after achievement of ODF status. The exceptions were hamlets in groups of villages or when an entire subdistrict had achieved ODF status. There was great community pride in the achievement of ODF status, often leading to some type of more frequent monitoring. This lack of tracking outcomes after hamlets attain ODF status will make it difficult to track any continued progress up the sanitation ladder or regressions back to open defecation among some community members.

D. Survey Findings on Household Sanitation Practices and Behaviors

To understand in a more systematic manner the extent to which households in these rural communities have access to latrines and practice hygienic defecation, and to understand the factors related to latrine access and defecation behavior, we collected and analyzed data from

720 households in 36 communities, including ODF and non-ODF communities. We examined the overall sanitation situation in the surveyed hamlets and looked at differences in access to latrines and defecation practices based on a hamlet's ODF status.

We are careful not to attribute all observed differences in practices between these two groups directly to the TSSM program, because these communities were not randomly selected and hamlets that became ODF could be different from the non-ODF hamlets. In fact, one of our primary goals in examining the practices of the two types of hamlets is to ascertain if indeed there was any difference in observed practices. If we observe no differences in practices across these two sets of hamlets, it calls into question the standards used to designate hamlets as ODF or the duration for which program effects persist. However, we find that the two sets of communities are very similar in observed characteristics, and large differences in outcomes for these two communities suggest that the TSSM program might have influenced these behaviors.

Below, we focus on some of the main findings from this descriptive analysis.

- ***Most households own a latrine or have access to a shared latrine. Among those with latrines, two-thirds have a flush latrine and one in three have a pit latrine.***

More than 80 percent of the households own a latrine or have access to a shared latrine. Nearly two-thirds of the surveyed households own a latrine; another 13 percent have access to a latrine owned by another household. Use of a communal latrine is relatively uncommon (about 5 percent of households); 18 percent of the households do not have any latrine access at all.

- ***Latrine access is significantly higher in ODF hamlets compared with non-ODF hamlets.***

We observe clear differences in rates of latrine access by hamlets' ODF status: fewer than 4 percent of households in ODF hamlets have no access to a latrine, whereas slightly more than 30 percent have no access in non-ODF hamlets. The almost-universal access to latrines in ODF hamlets is consistent with the TSSM program's intent to improve latrine access as an essential step to eliminating open defecation.

- ***Households in ODF hamlets were more likely to have pit latrines.***

The difference in latrine access across the two sets of communities comes from the ODF hamlets having more access to nonflush latrines. This is consistent with the intent of the TSSM program, which encouraged households to build any type of latrine as a first step to improving sanitation practice, even if these latrines were of a fairly basic variety, rather than wait until they could afford to build more expensive flush latrines. Latrines in ODF hamlets also were of a more basic variety.

- ***Exclusive latrine use is almost universal in hamlets declared ODF, but almost 40 percent of those in non-ODF hamlets openly defecate, mostly in rivers.***

Overall, more than three-quarters of the respondents report having exclusively used a latrine in the previous week, whereas about one in five did not use one at all. Very few respondents had access to a latrine and still openly defecated. Almost all of those with access to latrines therefore tend to use them, despite the fact that many of the latrines are in poor or dirty condition. There are large differences in latrine use by hamlet ODF status: 94 percent of individuals in ODF hamlets exclusively used latrines in the previous week, whereas only 61 percent in non-ODF hamlets did so.

- ***Cost is reported as the most common reason for not having a latrine.***

Among those with no access, almost 90 percent reported high cost as the main reasons they did not have a latrine. In addition, in non-ODF hamlets, in which more than 30 percent have no access to latrines, about 60 percent of those without access were dissatisfied with open defecation, suggesting that many of them would like to change behavior if the cost issue is addressed, perhaps through low-cost options.

- ***Latrine construction is funded mainly out of household savings and income.***

Personal savings or income account for the vast majority of funding for latrine construction (86 percent), rather than other sources, such as loans. This suggests that, in practice, families invest in latrines only after accumulating sufficient savings. This could clearly represent a barrier to latrine construction for households that do not have such savings.

- ***Respondents generally have a high degree of knowledge about sanitation, except regarding the health hazards of openly defecating in a river and openly defecating far from where people live.***

The average respondent has a relatively high degree of knowledge about sanitation, the spread of disease through touching feces, and the transmission of disease. Nearly 45 percent did not know that defecating in a river was a problem and nearly 30 percent thought defecating openly was not a problem so long as it was far from where people lived. This suggests that an important gap in knowledge exists regarding the transmission of contamination and diseases from open defecation when feces do not visibly contaminate the immediate environment. Because we saw earlier that the vast majority of open defecation takes place in rivers, this implies that a lack of information regarding the health hazards of defecating in rivers might still be a particularly important barrier to eliminating open defecation.

- ***Knowledge about sanitation was higher in ODF communities than in non-ODF communities.***

Sanitation knowledge is significantly better in ODF hamlets, consistent with the idea that the program successfully disseminated information about good sanitation practices to a greater extent in these communities. Specifically, there is less of a knowledge gap about the dangers of defecating in a river and openly defecating far from where people reside in ODF hamlets.

- ***Latrine ownership is significantly lower in households with younger heads and lower socioeconomic status, for those who perceive low latrine use in their hamlets, and for those with lower levels of knowledge about sanitation.***

These findings are consistent with the previous evidence that latrine construction in these settings typically requires an expensive payment out of household savings: younger families might not have accumulated sufficient resources. There are strong differences in the probability of latrine ownership by household socioeconomic status. Compared with the wealthiest quartile, in which the probability of ownership is nearly 90 percent, ownership in the other quartiles is significantly less likely (67 to 47 percent among the poorest).

E. Lessons Looking Forward

Our findings suggest that TSSM is a promising approach the implementation of which can be further refined in order to achieve its targets for large-scale ODF gains and increased access to improved latrines. Next, we describe some lessons for the implementation of TSSM going forward.

- ***Conduct program advocacy to create high levels of buy-in among multiple stakeholders, especially the bupati.***

Because TSSM requires substantial investment from a wide range of stakeholders at all levels, it is important to generate broad-based support for the program. Strong and ongoing program advocacy to the *bupatis* is especially necessary because their support can motivate stakeholders at every level of government to devote the substantial time, effort, and resources required to make the program a success.

- ***Create strong coordination mechanisms.***

TSSM implementation is strongest when there are high levels of multisectoral coordination at all administrative levels. Specific steps and responsibilities should be identified in determining how program implementation will facilitate this coordination.

- ***Ensure adequate commitment of resources for implementation at all levels.***

TSSM requires significant resources at different levels for various aspects of implementation and follow-up. Districts might need technical assistance to anticipate the required levels and types of resources needed for implementation of various components at district, subdistrict, village, and hamlet levels. They might also need assistance in budgeting adequately to meet these needs and in identifying existing resources to leverage.

- ***Build capacity to conduct strategic selection of triggering locations.***

Areas that saw strong results were strategic about how they chose and sequenced subdistricts, villages, and hamlets for program implementation. In particular, choosing geographically clustered places, conducting concentrated triggering in those places (that is, triggering all hamlets in target villages), and conducting joint triggering (that is, facilitators from multiple villages trigger each village together) appear to result in greater success in securing ODF attainment outcomes. These strategies generate greater program momentum and competition among villages, allow better leveraging of resources, and facilitate sharing of program knowledge.

- ***Introduce targeting of specific groups.***

The program could consider developing targeted approaches tailored to specific households and people who have a high probability of open defecation. Based on our analysis, this includes youth, the less educated, households outside the wealthiest quartile, and those living near a river. For example, the program could develop youth education programs at schools.

- ***Conduct and devote resources for post-triggering follow-up.***

Triggering on its own was rarely sufficient for changing household sanitation behavior. Both attainment and maintenance of ODF outcomes depend on the degree to which there is post-triggering follow-up (that is, repeat socialization of TSSM messages and targeted follow-up with households through monitoring visits). These extra steps can entail substantial time and travel costs and require the allocation of explicit resources for them to occur consistently in target areas.

- ***Stress health benefits to improve hamlet and household demand for sanitation.***

Publicizing the health benefits of improved sanitation (for example, showing data on declining diarrhea rates) might have to occur on a wider scale. In the few places that did so, we observed that it strengthened commitment to implementing TSSM among district, subdistrict, and hamlet officials and increased household willingness to access improved sanitation. Paying special attention to illustrating the links between river defecation and disease will be especially important.

- ***Adopt a phased approach to training large numbers of carefully selected suppliers/providers concentrated in a few locations.***

For the supply-strengthening component of TSSM, more careful planning is necessary about what it would take to improve delivery at scale. It seems unlikely that triggering a few entrepreneurs in each district would result in improvements at scale, even if they were well selected. Similar to the phased approach adopted in CLTS, TSSM might be well advised to target a few districts and subdistricts at a time and concentrate its training efforts on these administrative units. This would allow dedication of resources for more careful selection of trainees, because this seems to be a critical determinant of training efficacy. It would also enable the program to conduct a greater degree of follow-up and monitoring of trainees, which seems important for gauging whether training improves the supply of low-cost options at scale. In the meantime, TSSM could build district capacity by creating district master trainers who can phase in training to other areas in the future.

- ***Improve the distribution mechanisms of sanitation marketing materials.***

The demand-strengthening component of TSSM requires more and better strategies and mechanisms for disseminating sanitation promotion materials and informed choice catalogs. We recommend dedicating greater effort to distributing the informed choice catalog, because local stakeholders found that useful but seemed to prefer developing their own posters and other promotion materials.

- ***Deliver training and sanitation promotion more intensively for poorer hamlets and soon after triggering for households near a river.***

Both components of sanitation marketing should focus more intensively on poorer households and hamlets. For these households cost can be a prohibitive constraint on upgrading to improved latrines, so additional strategies to provide financing might be necessary. Low-cost options should be introduced earlier and promoted more vigorously (soon after triggering) for households near a river that are usually averse to pit latrines and want to transition directly from open defecation to improved latrines.

- ***Improve district capacity for data collection and use.***

Data collection at lower levels, even when conducted, is usually reported upward only when there is consistent demand at higher levels. District and national officials are likely to request data from lower levels regularly and exercise data quality control if they derive some benefit from the data. This suggests that in future iterations of the program, districts might need strong technical assistance in using data and establishing mechanisms for more regular collection of data.

- ***Simplify monitoring indicators for more effective use of scarce district resources.***

In the interim, while districts are still strengthening capacity for data collection, it might be worthwhile to reduce and simplify the indicators on which monitoring data are collected. This would

facilitate more frequent and systematic data collection by reducing the burden on frontline stakeholders (such as village health staff or hamlet health volunteers) who are responsible for data collection.

- ***Provide greater support for volunteers who form the front line of data collection.***

Provide training to frontline data collectors and find ways to provide token compensation or recognition for volunteers to motivate regular data collection or leverage other programs that might already provide such compensation.

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I. INTRODUCTION

Poor sanitation is an urgent health and development challenge for low-income countries. Globally, 1.2 billion people do not have access to any sanitation facilities and resort to open defecation (World Health Organization [WHO]/UNICEF 2010). Poor sanitation is a key cause of diarrheal disease, which inflicts high morbidity and health care costs. Because poor sanitation disproportionately affects poor countries, and the poorest populations within those countries, these costs are borne by those who are least equipped to shoulder them (United Nations 2010). According to the WHO, diarrheal disease was the third-leading cause of death in low-income countries and second-leading cause of death for children younger than 5 in 2004 (WHO 2011a). The Millennium Development Goals (MDGs), which all member countries of the United Nations have adopted, aim to reduce the under-5 mortality rate by two-thirds and reduce the proportion of people without access to basic sanitation by half between 1990 and 2015 (United Nations 2011).

The Water and Sanitation Program (WSP), a multidonor partnership administered by the World Bank, focuses on helping poor people obtain affordable, safe, and sustainable access to sanitation and water services. In 2006, the WSP launched the Global Scaling Up Rural Sanitation project, funded by the Bill & Melinda Gates Foundation (the Foundation), to improve access to basic sanitation and eliminate open defecation among the rural poor. The project sought to create a "large-scale demand responsive sanitation program that focus[ed] on behavior change and market development to ensure the provision and use of sustainable and affordable sanitation services" (World Bank 2006). It hoped to reduce diarrhea and to improve health outcomes by making large segments of the rural population in target countries open defecation free (ODF). The project combined two innovative approaches to stimulating sanitation demand and supply: (1) Community-Led Total Sanitation (CLTS), which had proven effective in triggering demand for sanitation in Bangladesh and India; and (2) Sanitation Marketing, which had shown promise in Vietnam and several African countries for strengthening supply of and demand for sanitation services. The Total Sanitation and Sanitation Marketing (TSSM) program combined these two interventions and complemented them with efforts to strengthen the enabling environment with the objective of creating a holistic, sustainable, and scalable program.

Cognizant that limited piloting was not always effective at identifying whether the program would work when applied more broadly, WSP decided to test the program at scale from the beginning. TSSM is being piloted at scale in East Java, Indonesia; in Himachal Pradesh and Madhya Pradesh, India; and in 10 districts in Tanzania. The three countries were selected because they were representative of "areas of the world where sanitation coverage is the lowest" (WSP 2006). To examine the effectiveness of this at-scale application, TSSM was designed as a learning program. It incorporated a cross-country impact evaluation and learning efforts to identify effective tools and strategies for program implementation and replication. A grant from the Foundation funded program implementation, which occurred mostly between 2007 and 2010.

The Foundation contracted with Mathematica Policy Research to examine the implementation of the TSSM program in Indonesia, where it is known as *Sanitasi Total dan Pemasaran Sanitasi* (SToPs), and to reconcile some apparent discrepancies in program progress data from two different sources. Designed as a learning program, TSSM incorporated several internal studies on different aspects of the program, an independent impact evaluation of program effects, and an assessment of changes to the enabling environment. However, the learning strategy had not incorporated an external implementation analysis to provide details on program execution. As apparent discrepancies surfaced between interim findings of the impact evaluation and monitoring reports from TSSM

administrative data collection in Indonesia, the Foundation felt it was important to reconcile these differences. The Foundation was also interested in a retrospective implementation study to understand how the program was implemented in practice and how monitoring data were collected. Our study focuses primarily on the implementation of the demand- and supply-strengthening components of TSSM in East Java. We did not focus much on the enabling environment because a separate study on the topic is currently underway (Robinson 2008).

The report has three main objectives. First, we explain how key elements of the TSSM model were implemented in East Java and identify factors that facilitated success or posed barriers to implementation based on visits to six districts in that province. Second, we focus on the data monitoring and reporting processes in an attempt to reconcile the differences in findings between the two sources. In doing so, we also describe some implications of our observations for interpreting the impact findings and lessons for strengthening the data monitoring system. Third, we use quantitative data collected from 36 subvillages (known as hamlets) in the six districts to describe the sanitation practices of communities in East Java and to compare the sanitation behaviors and attitudes of households in communities that have been declared ODF compared with those from non-ODF communities.

In this chapter, we introduce WSP's approach to improving sanitation access through TSSM in Section A. Next, in Section B, we describe the study design, including the research questions we examined, the data sources we used, and our approach to the analysis. In Section C, we conclude by summarizing our key findings and providing a road map to the remainder of the report.

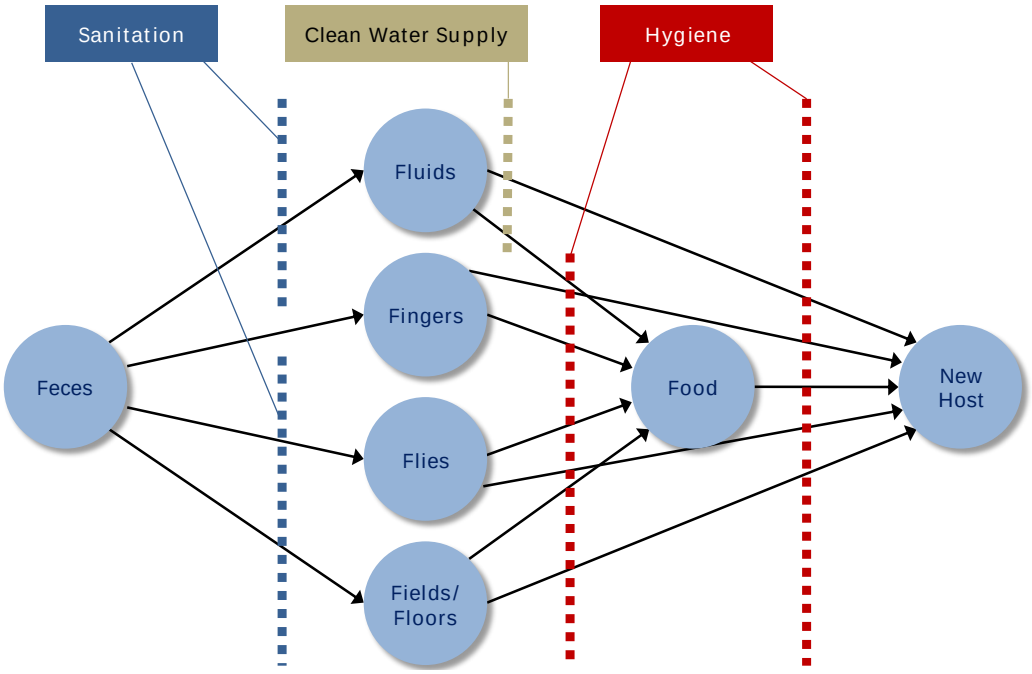
A. The TSSM Program

WSP sought to create and demonstrate a viable sanitation approach that could be implemented at scale. Such an approach had to have the following features: (1) it had to be effective in eliminating open defecation and increasing sanitation access and (2) it had to be sustainable and implemented in a way that fostered its replication at scale even after the TSSM program ended.

To create an effective approach, WSP began by considering optimal strategies for reducing diarrhea. Diarrhea is the second-leading cause of death among children younger than 5 globally; nearly one in five child deaths, about 1.5 million each year globally, is due to diarrhea (WHO/UNICEF 2009). Diarrhea is caused in large part through the spread of pathogens found in human excreta of infected individuals. These pathogens can be transmitted to others through the fecal-oral transmission route that describes the principal pathways for the spread of infectious diarrheal diseases shown in Figure I.1 (Hunt 2006). This cycle is fuelled by the "five Fs": fluids (drinking contaminated water); fingers (unwashed hands preparing food or going into the mouth); flies (spreading disease from feces to food and water or directly to people, particularly problematic where open defecation is the norm); fields (the contamination of soil and crops with human fecal matter); and food (eating contaminated food). WSP designed TSSM to block these pathways, focusing initially on increasing access to safe sanitation facilities for households, thereby preventing the spread of disease through flies, contamination of drinking water, and contamination of soil as represented by the first set of barriers in blue in Figure I.1 (WSP 2006).

WSP recognized that individual household progress would not be sufficient for reducing diarrheal diseases and adopted a collective approach. It was important for an entire community to be ODF for individuals to avoid contact with fecal matter. Otherwise, households not defecating in the open would still be exposed to contamination from other households in the community that did

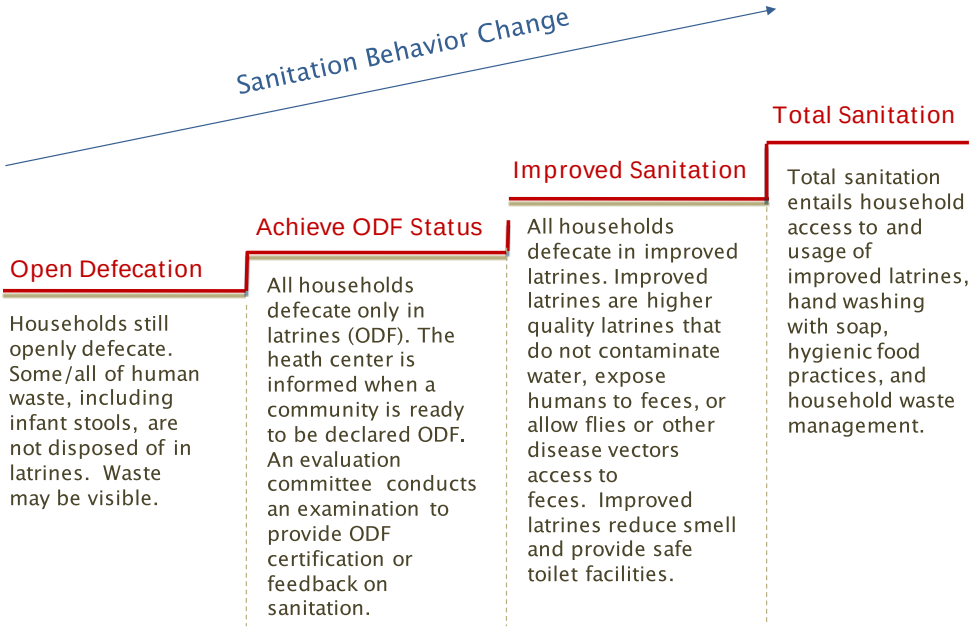
Figure I.1. The F-Diagram and the Fecal-Oral Transmission Route



Sources: Hunt (2006) and WSP (2006).

defecate in the open and through contamination of public places and water sources. To ensure that entire communities could make progress toward becoming ODF, the TSSM program design incorporated two elements: (1) it promoted collective action for improved sanitation behavior and set collective outcomes as its target; and (2) it recommended an incremental approach to improvement in sanitation behavior to ensure that all households, irrespective of their wealth, could take some action to eliminate open defecation, thereby sustaining broad-based engagement in the program. The sanitation ladder shown in Figure I.2 indicates the stages of household sanitation behavior change.

Figure I.2. Sanitation Ladder



Sources: TSSM-Jakarta presentation 2010; TSSM Manual, pp. 16-19.

Rather than prescribing a particular type of latrine, the program encouraged local innovation and choice to ensure that communities found ways of getting on the sanitation ladder. The TSSM program to promote collective progress up the sanitation ladder consisted of three elements:

4. ***Stimulating sanitation demand among households and communities*** by working closely with local government and community stakeholders to raise sanitation awareness and promote hygiene. The program did this in two ways: (1) by holding "triggering" events and related follow-up activities for households in target areas using CLTS techniques (such as making households aware of the dangers of open defecation and invoking shame) to generate collective commitment for ODF attainment;[1] and (2) by using behavior change communication (BCC), developed as part of sanitation marketing, to raise awareness of affordable latrines options and the dangers of open defecation.
5. ***Increasing the supply of sanitation products and services*** by (1) working with and supporting manufacturers and providers of sanitation products and services to create and provide affordable, context-appropriate sanitation options and train suppliers in their provision; and (2) using sanitation marketing promotion materials to market these low-cost options to households.
6. ***Creating a strong enabling environment*** by collaborating closely with and supporting national-, district-, and local-level political leaders to create policy, institutional, and financial frameworks to facilitate implementation at scale.

WSP planned on implementing this three-pronged TSSM program at scale. In Indonesia, it created a TSSM implementation team with which it worked closely to implement the program in all districts of East Java.[2] Within each district, the TSSM team would demonstrate implementation of the program in 30 hamlets. Districts would then be responsible for scaling up the program.

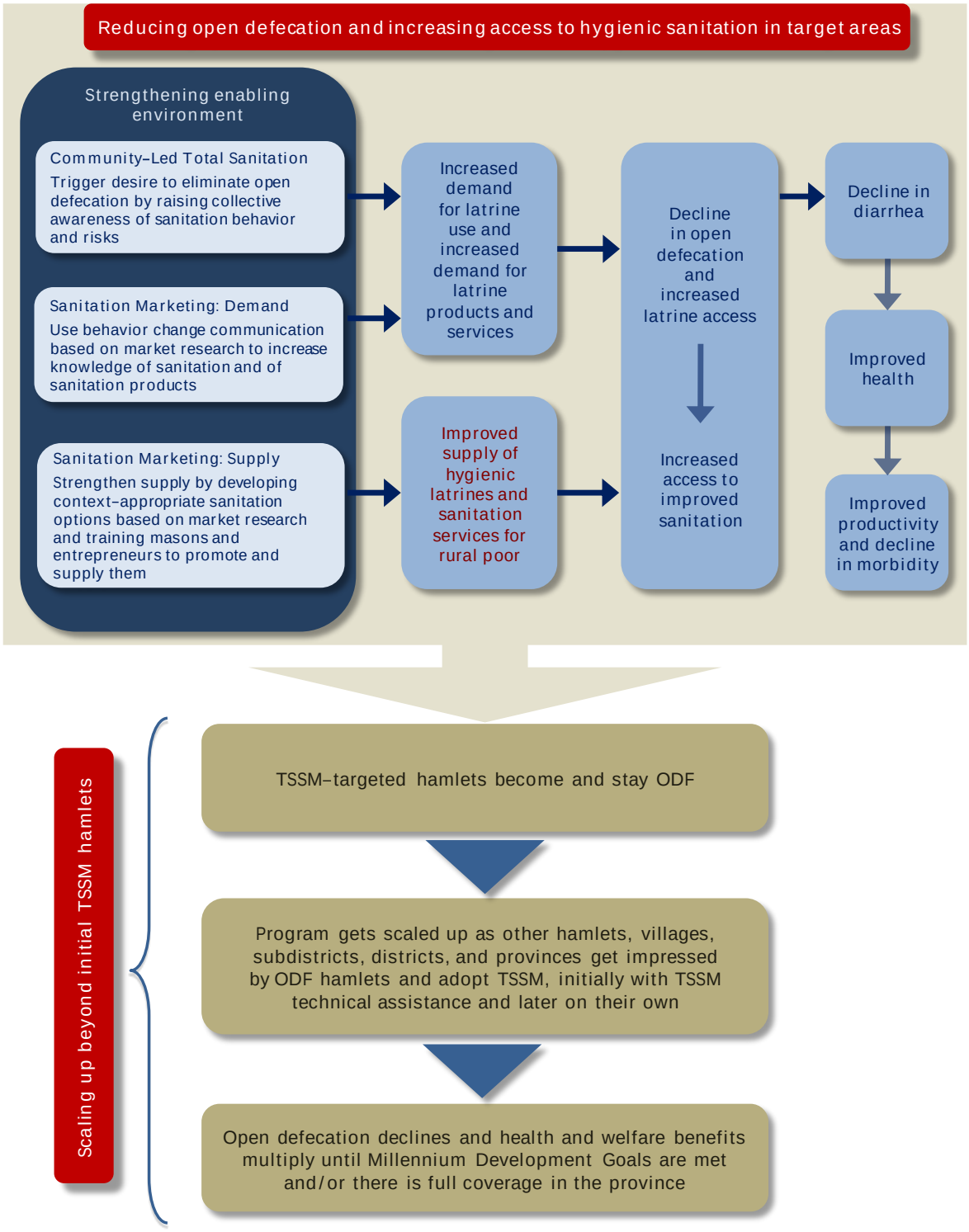
To foster sustainability and scalability, WSP decided to implement the program directly in collaboration with districts. The TSSM team would solicit district demand for participation and require districts to provide funds to co-invest in program delivery. It would assign districts to one of three phases based on the order in which districts expressed interest to participate and demonstrated availability of funds to implement the program. The TSSM team would implement the program in 30 communities in each district, providing districts with a "limited window of opportunity to learn" how to implement this integrated approach to sanitation promotion (WSP 2009).

The TSSM team assumed that the three elements of the TSSM program—strengthening demand, increasing supply, and improving the enabling environment—would work in conjunction to eliminate open defecation. In Figure I.3, we map TSSM assumptions on how the program would result in scaled-up improvements in access to sanitation, ultimately leading to

[1] Triggering is a process that was pioneered by Dr. Kamal Kar of India, and first implemented in Bangladesh, to mobilize communities to eliminate open defecation completely. The approach entails using a facilitated process to trigger self-realization of community members that they need to change their own behavior. The triggering process is described in greater detail in Chapter IV.

[2] For simplicity, we often use the term "TSSM team" or "TSSM" in this report when referring to actions taken by either the core TSSM team or jointly with WSP staff.

Figure I.3. TSSM Program Logic



reduced incidence of diarrhea and health improvements.[3] The program logic underlying the TSSM approach is shown in the top half of Figure I.3. The assumption was that CLTS and sanitation marketing, conducted in a strengthened enabling environment, would decrease open defecation and increase sanitation access, and in the longer term lead to ownership of improved latrines. Making households aware of the nature and consequences of open defecation through CLTS techniques would result in collective action to improve sanitation behavior. BCC from the sanitation marketing component would increase progress toward ODF attainment and encourage maintenance of ODF status when it was achieved. As communities became ODF, sanitation marketing would increase demand for better sanitation products and training of sanitation marketing suppliers would increase supply. This would result in increased access and use of improved sanitation products, enabling households to move up the sanitation ladder.

The lower half of Figure I.3 shows how scale-up would occur. The first step would be to demonstrate effectiveness by successfully implementing the program in a target set of hamlets. Scale-up would occur as this success created demand for replication of the approach in other areas. TSSM's efforts to strengthen capacity for program implementation among local government officials would facilitate expansion to these areas.

The TSSM team requested districts at the outset of the program to commit funds for TSSM implementation and scale-up. They also provided technical assistance to local government officials for a certain period. TSSM based its program targets for scale-up on the assumption that TSSM-targeted hamlets would become ODF and that districts would scale up the program, making additional hamlets ODF. In East Java, the target was that 1.4 million people would become ODF in the course of program implementation (WSP 2006). Successful outcomes in target areas coupled with efforts to build capacity and strengthen the enabling environment would result in the approach being scaled up even after the TSSM program ceased to operate until full coverage was achieved.

B. Research Questions and Study Approach

The purpose of this report is threefold: (1) it examines program implementation to assess what worked and what did not; (2) it assesses the extent of divergence between program monitoring and impact evaluation data, reconciles data from the two sources, and identifies ways of strengthening monitoring and evaluation processes; and (3) it uses survey data to understand household sanitation practices in East Java and compare sanitation behaviors and attitudes of households in ODF and non-ODF communities.

The key research questions that are the focus of this study are as follows:

- ***How were key elements of the TSSM approach implemented?*** What steps were taken to prepare local stakeholders for program implementation? How were

[3] WSP based its approach and assumptions on certain diagnosis of the factors constraining improved sanitation at scale. It assessed that failure to achieve the first step of the sanitation ladder (eliminating open defecation) was a result of insufficient household awareness and education regarding the dangers of open defecation. A focus on latrine construction and provision of subsidies had failed to empower communities to devise and adopt solutions. It had also weakened the private sector's incentives and capacity for generating cost-effective and attractive solutions. The rural sanitation sector was insufficiently developed to provide attractive, low-cost solutions that would enable newly ODF households to ascend the sanitation ladder. Moreover, national and local governments had not developed sufficient capacity and strategies to enable "islands of success" to be scaled up and replicated quickly in other areas (WSP 2006).

CLTS and sanitation marketing components implemented? To what degree was there fidelity to intended designs? What were the key issues faced in implementing various aspects of the program? Did these differ based on the characteristics of the places where the program was implemented?

- ***What were some of the key factors affecting attainment and persistence of ODF outcomes?*** What factors constrained or facilitated maintenance of ODF status? What strategies did the program and local governments adopt to encourage attainment of ODF outcomes? What steps did the program take to maintain ODF results? Are elements not factored into program designs critical prerequisites for achievement and maintenance of desired outcomes?
- ***How effective is the monitoring system and the impact evaluation framework in helping assess program progress?*** Why do these two sources appear to show different progress, and how can they be reconciled? What are the lessons learned from examining these two sources of data?
- ***What are sanitation practices among rural households in the districts we visited?*** What are the knowledge and attitudes toward sanitation in these districts? How do household sanitation behaviors and attitudes differ in ODF and non-ODF hamlets?

- ***What lessons can we identify to strengthen program implementation and results measurement?*** What are some lessons learned about program implementation? What are some enhancements that might be needed to facilitate continued sustainability and scale-up?

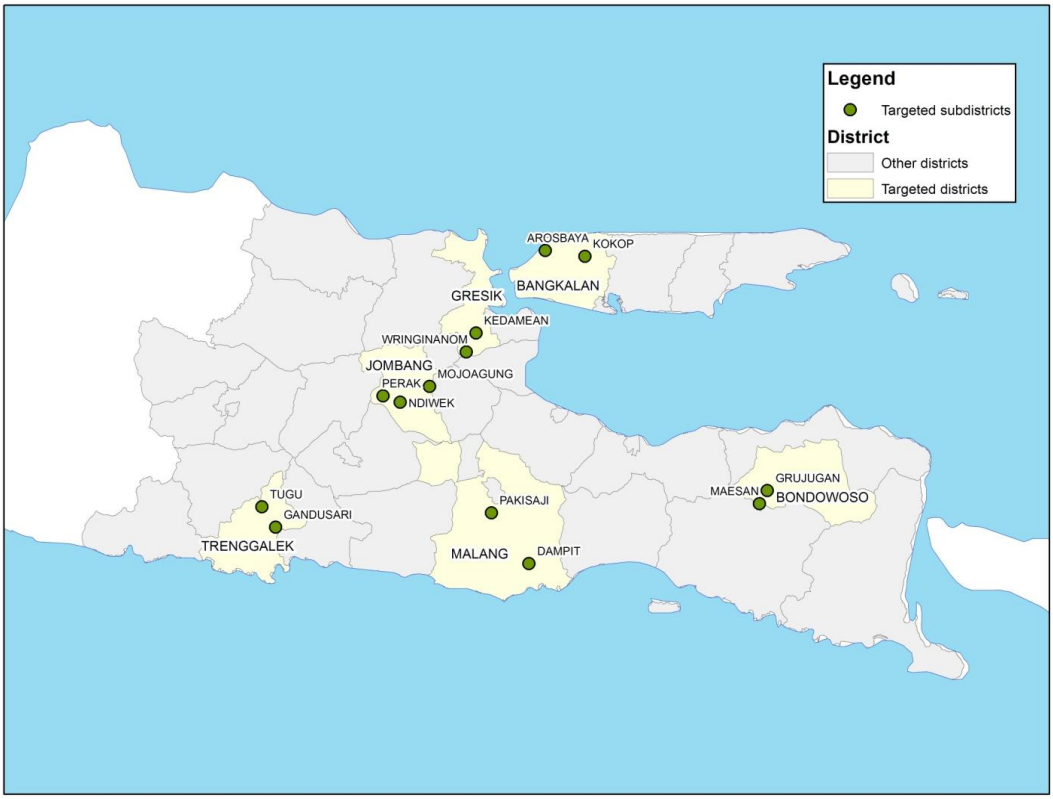
To answer these questions, we used a mixed-method approach. We relied on qualitative data gathered through field visits to six districts. We also used quantitative data that encompassed both program monitoring data and survey data that we collected for this study.

Qualitative data. We relied heavily on qualitative data gathered from a large cross-section of stakeholders at the national, provincial, district, subdistrict, and village levels. Appendix A provides a list of the types of stakeholders we interviewed at the various levels of government. We met with the WSP headquarters team in Washington, D.C., and conducted extensive discussions with the WSP staff and TSSM team in Jakarta. We interviewed sectoral stakeholders and other sanitation nongovernmental organization (NGO) staff at the national and provincial levels. At the provincial level, we spoke with staff from the two resource agencies and the *Institut Teknologi Sepuluh Nopember (ITS),* known locally as ITS Surabaya, which conducted the training for masons.

To understand program implementation and outcomes in the field, we selected six districts where we conducted site visits to meet with district officials, and also visited and interviewed stakeholders in subdistricts, villages, and hamlets. We selected two districts from each phase of program implementation. We also sought to ensure some geographic representation and included districts in the center, north, west, east, and south of East Java. The districts we visited included Bangkalan, Bondowoso, Gresik, Jombang, Malang, and Trenggalek, which are represented in the map shown in Figure I.4.

We selected two subdistricts in each district, one or two villages in each subdistrict, and one or two hamlets per village that we visited (Appendix B includes a full list of the hamlets we visited). In order to understand how program implementation worked, and which aspects worked well and which did not, we attempted to select subdistricts and hamlets with some variation in performance.

Figure I.4. Districts and Subdistricts Where Data Collection Was Conducted



We usually selected one subdistrict with strong performance and one that might not have performed as well, using information from the latest monitoring data provided by WSP, dated May 2010. In each subdistrict, we selected one or two villages. Within these villages we sought to visit three types of hamlets: (1) hamlets that received the program and became ODF, (2) hamlets that received the program but did not become ODF, and (3) hamlets that did not receive the program.

We met with governmental, political, and sectoral authorities at the district, subdistrict, village, and hamlet levels, especially those from the divisions implementing the program. We also interviewed a range of other stakeholders, including health volunteers, masons, and households (Appendix A). During our visits to hamlets, we conducted focus groups with households to understand determinants of sanitation choices and learn about household experiences with TSSM program implementation. In the hamlets we visited, we conducted transect walks through the hamlet and along the river (if there was one) and conducted direct observations of toilet facilities of various types in a few households.

We used a systematic approach to gathering information from a variety of stakeholders. We identified key areas or domains in which we wanted to obtain information and the types of information we wanted for each domain. We developed a source grid, which identified the sources that could reliably provide information on each domain of interest. We then developed a set of semistructured protocols to ensure that we covered all key items and collected data in a standardized fashion so we could obtain consistent information across all six districts. The protocols also included open-ended questions to collect information about unanticipated challenges or successes.

We conducted our first site visit to Jombang in July 2010. Based on the input from that visit, we further refined our protocols and conducted the remaining five site visits in October 2010. We

worked closely with a team of local researchers that arranged the visits with relevant stakeholders or program implementers at the provincial, district, subdistrict, village, and hamlet levels, with introductions to provincial and district officials provided by the WSP team in Jakarta. Guided by our protocols, the local researchers conducted most of the interviews and all of the focus groups. We attended and participated in most of the interviews and focus groups (using local translators who translated on a real-time basis) enabling us to ask follow-up questions as appropriate.

Quantitative data. We examined information from the program monitoring data gathered and maintained by TSSM staff and used information from the baseline survey and longitudinal monitoring data provided by the impact evaluation team.[4] We also selected 36 hamlets in which we conducted surveys among randomly selected households to learn about the sanitation practices of households. We had included most of these hamlets in our field visits. They consisted of approximately half that were ODF and half that were not ODF (some might have been triggered but had not become ODF, whereas others were not triggered). We developed a survey instrument to address key dimensions of sanitation in the rural Indonesian context, using as inputs previous surveys on sanitation and context-specific knowledge and information gained through our field visits and focus groups. Two international sanitation consultants reviewed the instrument and provided valuable input. Survey Meter, our local data collection partner, piloted the instrument and refined it in light of the findings to arrive at the final version. Data collection was conducted in January 2011 and included surveys with 20 randomly selected households in each of the 36 hamlets for a total sample of 720 households.

Review of relevant literature. In addition to reading the more general relevant literature on sanitation in Indonesia, we also conducted an extensive review of TSSM materials. These materials consisted of learning products and other reports produced by WSP; program materials and documents, including the TSSM manual produced for Indonesia; and other materials provided by the WSP team in Jakarta or obtained from the districts.

Analysis approach. We based our approach to analyzing the qualitative data on the conceptual framework underlying the TSSM model as well as the planned implementation of the program. We examined the extent to which the program was able to deliver the intervention as planned for the various components and explored reasons for deviations when they occurred. We also focused on learning about program successes and challenges, and the potential reasons underlying these. Key elements of our analysis of the qualitative data were as follows: (1) we used more than one perspective on key domains; (2) we examined the consistency (or lack thereof) of types of information across the districts we visited, as well as across the levels of respondents we interviewed; and (3) we triangulated the information we received from various qualitative sources, assessing the extent to which multiple respondents provided similar inputs and insights. This helped provide us with a fuller understanding of program implementation.

Our analysis of the quantitative data included both descriptive tabulations and multivariate modeling; we describe such modeling in greater detail in Chapters VI and VII, where we describe the findings from these analyses.

[4] We also had several conversations with the TSSM impact evaluation lead at WSP in Washington, D.C., as well as one of the lead researchers conducting the impact evaluation in Indonesia, to learn more about the impact evaluation design and the randomization process.

Limitations of our study. Because the study was commissioned in the final year of the program, largely after implementation had ended, some limitations exist:

- Asking about program implementation three years after the program began meant we were entirely dependent on respondents' recall. We did not have the opportunity to observe implementation activities or to assess knowledge and attitudes about a program currently under implementation.
- Turnover in staff positions within the WSP and TSSM teams and among political and administrative officials at various levels of government made it difficult at times to learn about specific details related to program adoption and implementation.

C. Overview of Findings and Road Map of the Report

This report focuses on our findings about TSSM program implementation. Overall, we observed pockets of great success in TSSM implementation among districts and subdistricts, but also instances of weak implementation and limited results. ODF gains were driven primarily by the CLTS component, because implementation of the sanitation marketing was delayed and weakly delivered. District and subdistrict variation in performance and success was bound to occur given differences in local conditions, existing capacity, and motivation of local officials. In addition, how well the TSSM program helped local governments prepare for and implement the program influenced district performance. Critical determinants of program success included the degree of early buy-in and commitment for the program, availability of sufficient resources, strategic decision making, and the extent of multisectoral coordination and commitment at all administrative levels. In this report we intend to examine the nature and determinants of variances in implementation and results to identify lessons for future program improvement and scale-up.

In Chapter II we describe the policy, political, and administrative contexts for TSSM implementation to facilitate an understanding of program execution. The next three chapters explain how different components of the program were implemented, based on information from our field visits in East Java. In Chapter III, we describe how the TSSM team worked with the national, provincial, and local governments to prepare them for program execution, and how the team identified strategies for implementation. In Chapter IV, we examine how the TSSM team designed and delivered CLTS with the goal of creating sustainable and scalable mechanisms for triggering demand for sanitation among households and communities. In Chapter V, we assess how sanitation marketing—which included BCC, product development, and training of suppliers and providers—was implemented to strengthen supply of and demand for sanitation products and services.

In Chapter VI, we describe our use of monitoring data and information from our field visits to explore reasons for apparent divergences between the program monitoring and impact evaluation data. We also assess the process used for obtaining program monitoring data, and draw some lessons for enhancing the process of obtaining monitoring data in a more sustainable manner as the program scales up, as well as lessons for future impact evaluation studies of programs at scale. In Chapter VII, we use survey data to understand sanitation behaviors among households in the six districts that are the focus of our study, and we compare sanitation practices of households in ODF and non-ODF communities. In Chapter VIII, we conclude by distilling lessons learned for program implementation, scale-up, and monitoring.

II. CONTEXTS OF TSSM IMPLEMENTATION

The implementation of any large-scale initiative must be understood in the context in which it operates. TSSM was a new and ambitious program that was implemented in complex policy, political, and administrative contexts. The program devised a three-pronged approach to tackling the task of ending open defecation: (1) it sought to trigger community consciousness of the dangers of open defecation to encourage improved sanitation behavior (*Community-Led Total Sanitation [CLTS]*); (2) it used BCC to try to strengthen demand for sanitation products and conducted product development and training to enhance supply (*sanitation marketing*); and (3) it attempted to strengthen the enabling environment by developing institutional, financing, and policy frameworks. TSSM combined these three components in East Java in an effort to achieve rapid gains in eliminating open defecation.

In this chapter, we provide contextual information to help shed light on the program design and execution, as well as the implementation successes and challenges we describe in subsequent chapters. In Section A we provide background on the sanitation policy context that might have influenced how TSSM was received. In Section B, we describe the political and administrative contexts in which the program was executed, which affected TSSM implementation. In Section C, we highlight some features that made TSSM different from earlier approaches to sanitation that had been adopted in Indonesia. Finally, in Section D, we delineate the broad categories of tasks the TSSM team had to execute to implement the program successfully.

A. Sanitation Policy Context

Inadequate access to sanitation has been a longstanding problem in Indonesia and is particularly acute in rural areas. In 2005, 38 percent of the rural population in Indonesia defecated in the open, compared to 16 percent of the urban population (WHO/UNICEF JMP 2010). Open defecation in rural areas has decreased over time (a 10 percentage point decrease compared to rates in the 1990s). However, Indonesia needed to accelerate progress in this area to meet the MDG target of halving the proportion of people without access to basic sanitation by 2015 (WHO/UNICEF JMP 2010).

Improving sanitation is a priority because of the high economic and health costs of poor sanitation and hygiene in Indonesia. A WSP study estimated the economic costs to be as high as Indonesian Rupiah Rp56 trillion (US$6.3 billion) in 2006. The same study estimated that poor sanitation and poor hygiene contributed to 120 million disease incidents and 50,000 premature deaths annually (Napitupulu and Hutton 2008). All these factors underscored the urgent need to find a replicable and scalable solution to increase rural access to sanitation.

In the past, sanitation policies and programs had attempted to tackle the problem by providing material or financial assistance. Starting in the 1960s, the Government of Indonesia and donors experimented with a variety of interventions to improve water and sanitation standards and outcomes. They focused on free latrine construction or infrastructure development for villages or households, or on the distribution of subsidized building materials and loans. The central government started adopting subsidy-oriented programs in the 1970s (Mukherjee and Shatifan 2009). Similarly, the World Bank's first Water Supply and Sanitation for Low Income Communities (WSSLIC) loan and grant project to Indonesia, which was administered between 1993 and 1999, built communal toilets to encourage improved sanitation outcomes. The second Water and Sanitation for Low Income Communities (WSLIC-2) project in Indonesia, administered between 2000 and 2008, focused on sustainable water and sanitation systems, including community

participation to promote sustainable systems. It also experimented with providing revolving funds to help finance latrine construction for poor families.

These programs yielded limited results for several reasons. Despite substantial investment in sanitation, open defecation persisted as a problem in many Indonesian provinces. A rapid assessment of the WSLIC-2 project found that, despite a US $2.1 million investment by the project in revolving funds, less than 1 percent had been repaid and access to sanitation was negligible among the poor households of target communities (Willets et al. 2009). WSP attributed the failures of previous latrine construction and revolving funds projects to the following reasons. First, "elite capture" of subsidized latrines and loans occurred, whereby wealthier and better-connected households—rather than the poorer households that were the intended beneficiaries—received program benefits. Second, constraints on the government's ability to finance these expensive approaches at scale limited the reach of these programs. Third, even if these programs succeeded in reaching the rural poor, they could not change households' attitudes toward sanitation. The government and donors noted that latrines provided to households often fell into disuse or disrepair (Mukherjee and Shatifan 2009; Frias 2008; Robinson 2005).[5] Many households simply did not appear to consider access to and use of latrines a priority. Nor did they consider open defecation, particularly in moving water such as rivers, to be a health risk. The fact that water washes away the feces led many households to believe open defecation was a hygienic practice. Since open defecation was by and large a culturally acceptable practice, households faced little social pressure to adopt or use latrines (Nielsen Indonesia 2009).

National-level stakeholders recognized that an alternative approach focused on behavior change might be necessary. Since previous efforts had not been successful, these officials were open to moving national policy away from subsidy- and infrastructure-driven approaches and toward behavior change interventions, such as CLTS. They began by piloting CLTS in a few WSLIC-2 districts and subsequently became willing to adopt TSSM at scale. (The process for introducing CLTS is described in greater detail in Chapter III). The key element of the TSSM program was the provision of "software" support in the form of training and technical assistance, as opposed to "hardware" support in the form of products and subsidies. WSP chose not to use subsidies because it felt that provision of subsidized or free materials, in the absence of household awareness, would not result in genuine and lasting behavior change to eliminate open defecation.

However, local officials and stakeholders were less convinced. Despite these national-level changes in the policy environment, district and village stakeholders and households reportedly remained habituated to subsidy-driven sanitation programs. Expectations of similar assistance posed challenges to a program that was not subsidy-driven and did not offer material or financial support. WSP recognized that TSSM implementation entailed convincing these stakeholders of the importance of behavior change and the related health benefits; to meet that need, it incorporated "road shows" or socialization workshops and meetings at all levels of government to advocate and build support for a non-subsidy approach.

[5] These findings were confirmed by several stakeholders we interviewed at the national, provincial, and district levels, who noted that, even when eligible households received latrines, they often allowed the latrines to fall into disrepair or used them for alternate purposes such as storage.

B. Political and Administrative Contexts

The political and administrative contexts in which a program operates play an important role in the implementation of most large-scale interventions. These contexts are particularly important in the case of TSSM because, in a decentralized environment, local governments were primarily responsible for administering and delivering the program.

After the fall of President Suharto in 1998, widespread opposition to the highly centralized nature of government resulted in decentralization reforms that devolved power primarily to districts, bypassing provincial governments. Local district governments led by elected heads known as *bupatis* became very powerful. These administrative reforms had a major effect on the implementation of health sector programs. Before decentralization, national governments selected, funded, and implemented sanitation programs. The provincial governments executed them with assistance from the districts and subdistricts. After decentralization, the role of the central government shifted to setting national priorities and strategies that districts would implement. Provincial authorities provided guidance, oversight, and limited funds to the districts, while districts wielded the majority of the decision-making, budgetary, and implementation authority over programs.

WSP, therefore, worked with national and provincial governments to strengthen the enabling environment for TSSM, but primarily partnered with district governments to implement the program.

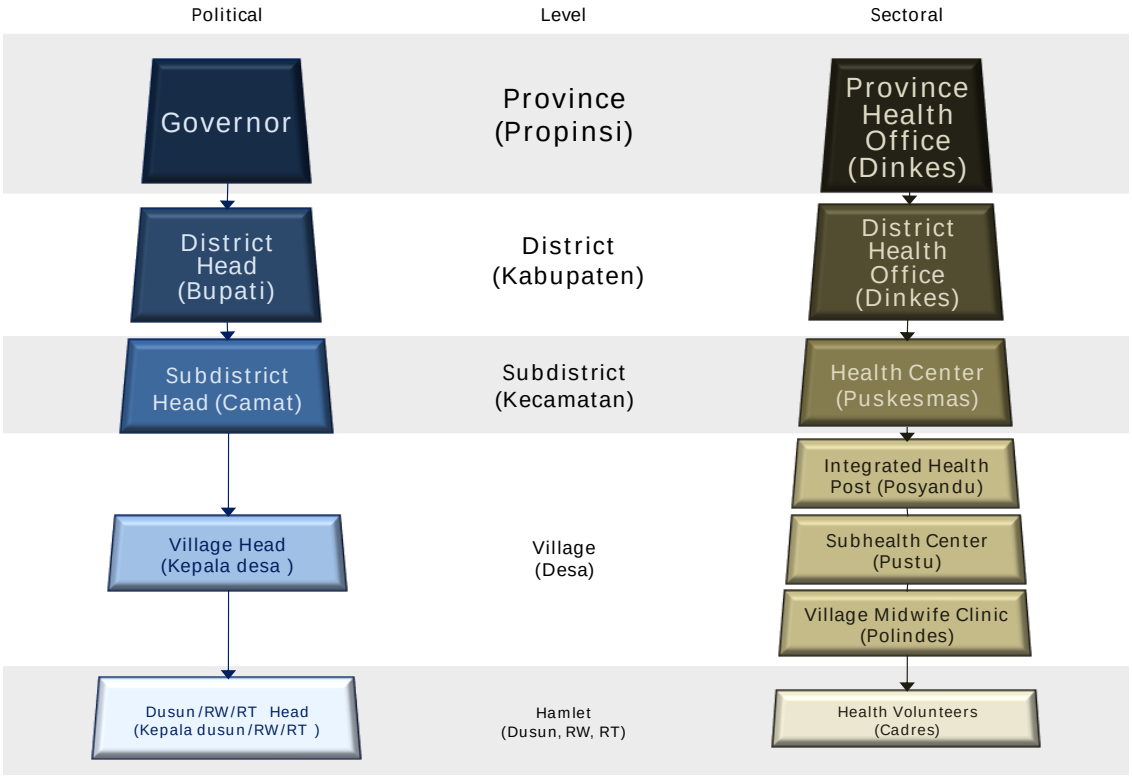
Several sectors are involved in setting national sanitation policy. Depending on the nature of the sanitation program being implemented, a range of sectoral administrative institutions and stakeholders can be involved. At higher levels of government, the Ministry of Health (MoH) and the Ministry of Public Works are usually responsible for the adoption and implementation of sanitation programs. (These are known as the Health Office and Public Works Office at subnational levels.) The division of responsibility for sanitation between the Health and the Public Works ministries is not always clear and can vary based on the nature of the program. Historically, the MoH runs behavior change and rural sanitation programs in Indonesia, whereas infrastructure-oriented programs, such as those that focus on latrine construction or urban sanitation programs including waste management and drainage, fall in the domain of the Ministry of Public Works. The relative distribution of budgets, which can differ from year to year, can also affect the roles of the two departments. The National Development Planning Agency (*Bappenas*) has significant responsibilities—it allocates budgets, coordinates multisectoral programs, and assists with national policy and strategy development (The agency is known as *Bappeda* at subnational levels). In principle, these three entities should coordinate closely when implementing sanitation programs. Other ministries—such as Home Affairs, Environment, Education and Culture, and Finance—can also play a role depending on the nature of the intervention.

Several levels of government and sectoral administration are relevant to TSSM. These levels, in descending order of administrative levels, are national, provincial (*propinsi*), district (*kabupaten*), subdistrict (*kecamatan*), village (*desa/kelurahan*), and hamlet (*dusun*). East Java, where TSSM was implemented, consists of 29 rural districts (or regencies) and nine cities; it has a population of more than 37 million people, with a rural population of 32.8 million (Badan Pusat

Statistik 2009).[6] Districts vary in geography, resources, wealth, culture, capacity, size, and population. In East Java, a district can consist of between 12 and 25 subdistricts. Subdistricts in turn typically contain seven to nine villages.[7] The village is the lowest organizational level of government with elected officials. Villages, however, are further divided into hamlets (usually four to five per village), which have hamlet heads who are responsible for local administration. Some hamlets, especially larger ones, are subdivided into smaller administrative neighborhoods known as *Rukun Wargahs* (RWs), which may in turn be divided into even smaller administrative household clusters known as *Rukun Tetanggas* (RTs). In the interest of simplicity, we group the *dusuns*, RW, and RT levels into one category, and typically refer to them as hamlets.

A number of political and sectoral stakeholders at each level can affect the implementation of sanitation programs. To varying degrees, political leaders can influence the adoption and implementation of programs such as TSSM. Their influence can affect the resources dedicated to a program and can prioritize and mobilize support for implementation. As implementation partners, sectoral stakeholders can more directly influence program execution. Figure II.1 shows the cascading pillars of influence at the provincial and district levels.

Figure II.1. Cascading Structure of Politicial and Sectoral Adminstration



[6] Provinces are divided into regencies/districts (*kabupaten*) and cities (*kota*). Because TSSM is focused on rural sanitation, *kotas* are not relevant to our discussion.

[7] There are two types of villages: (1) the *desa,* which is a rural subdivision, and (2) the *kelurahan,* which is generally an urban subdivision and therefore not relevant to our discussion.

The first cascading pillar consists of political authority within districts that affects the implementation of programs such as TSSM. Even though Indonesia is highly decentralized, a top-down culture characterizes the government, especially at and below the district level. The elected leaders, from the district head (*bupati*) down to the heads of villages, hamlets, RWs, and RTs (*kepala desa, kepala dusun, kepala RW/RT*), comprise a chain of command.[8] In general, the *bupati* sets the agenda and priorities for district government, which the political and administrative authorities below him must support, promote, and implement. These elected officials can influence program implementation with their legal powers (that is, the ability to issue decrees and directives) and their moral authority as elected and appointed officials. Even the subdistrict head (*camat*), who is an appointed civil servant, can draw on his authority as a representative of the district head to issue directives relevant to sanitation and ensure disbursements of funds for sanitation.

The second pillar of authority is the program implementation sector, which in the case of TSSM was the provincial health office *(Dinas Kesehatan [Dinkes]) Provinsi)* and the district health offices *(Dinas Kesehatan Tingkat Kabupaten)*. Within the Dinas Kesehatan departments at each level, two divisions are particularly relevant to implementation of the TSSM program: (1) the Environmental Health division *(Dinas Kesehatan Lingkungan [Kesling]),* the primary implementing unit for sanitation programs, and (2) the Health Promotion division *(Promosi Kesehatan [Promkes])*, which focuses on raising awareness about health issues.

Each subdistrict has a Health Center (*Pusat Kesehatan Masyarakat [Puskesmas] Tingkat Kecamatan*) that reports to the district health office. *Puskesmas* are instrumental in the implementation of health and sanitation programs, as well as for frontline health service delivery. In addition to the head of the *Puskesmas*, other relevant stakeholders include the sanitarian, the midwife, and the health promotion officers. *Puskesmas* oversee a range of village-level offices, including the Integrated Health Post (*Pos Pelayanan Terpadu [Posyandu]*), the Subhealth Center (*Puskesmas Pembantu—[Pustu]*), and the village midwife clinic (*Pondok Bersalin Desa (Polindes)*. In addition to the official staff at these village-level institutions, the *Puskesmas* can traditionally draw on the services of a wide network of village- and hamlet-level volunteers, known as *cadres* (WHO 2011b).

Administrative personnel in each sector report to their institutional superiors and to the relevant political authority at their level. For example, the district planning, health, and public works offices follow the agenda of the district head. However, the guidelines, regulations, and codes issued by their relevant national ministries and the standards devised by the higher-ranking provincial departments also influence them. Because the district heads (*bupati*) wield executive power and control the largest share of the district's budget, they tend to have the greatest direct influence on policies and programs.

This hierarchical set of political and administrative stakeholders illustrates the extent of coordination and degree of planning and sequencing necessary for program implementation.

[8] Except for the subdistrict level, where district heads appoint the subdistrict heads (*camats*), other government levels down to the village have formally elected political representatives as their leaders. The formal reporting structure encompasses elected officials of the lowest administrative levels (that is, village heads) reporting directly to the elected district head (*bupati*). In practice, the official representative at each level influences his or her counterparts at the lower levels. Thus RW and RT heads take their cue from the head of hamlet, who in turn follows the instructions of the head of village. The head of village in turn is influenced by the subdistrict head (*camat*), who executes the priorities of the *bupati*.

C. Key Features of the TSSM Approach

TSSM consisted of several features that were novel in the context of Indonesian sanitation programs. Implementation within a decentralized administrative context and a sanitation policy context with a long history of subsidy interventions compounded the program design's complexity.

TSSM was an ambitious, new approach that tested and implemented multiple components in a short time frame. The TSSM program sought to strengthen multiple dimensions of the sanitation sector simultaneously, making it a complex intervention to implement. CLTS, a key element of TSSM, had been tested with some success in a few subdistricts in Indonesia but had not been implemented at scale (Mukherjee and Shatifan 2009). Sanitation marketing had been successfully adopted in other countries, such as Vietnam, but it was a new approach that had never been combined with CLTS in Indonesia. The program also sought to strengthen the enabling environment and to establish local ownership of the interventions. To execute TSSM successfully, the team had to develop, test, improve, and implement multiple program components within three years.

This approach had an ambitious target of province-wide scale-up. The TSSM program differed from the previous implementation of the CLTS approach in Indonesia in that, rather than implementing the program in certain target communities on a small scale, its goal was province-wide implementation in ways that would lead local governments to fund, adopt, and replicate the program in the future. In doing so, the program had to strike a balance between competing objectives. It had to provide enough support and specific technical assistance to ensure a robust implementation with a strong demonstration effect. At the same time, it had to allow local governments to take the lead in program decision making and implementation authority to ensure that they developed capacity and took ownership so they could implement at scale.

To foster sustainability, WSP delivered the program through local governments, a challenging task. To make the program sustainable, WSP had to focus not simply on delivering the intervention but also on building district capacity and buy-in so that districts could implement and sustain the intervention. WSP's approach was to provide technical assistance to local governments for implementation. In doing so, it had to contend with low levels of district capacity compared with some other countries that had implemented TSSM (Rosensweig and Kopitopoulos 2010). WSP had to plan for great diversity among district partners in terms of capacity, engagement, resources, and culture. It had to devise a program design that was structured enough to provide meaningful support to all districts, but flexible enough to accommodate the many differences among the districts and their component subdistricts.

D. Key Steps for Implementing TSSM

To implement the program in a sustainable and scalable way, TSSM had to strategize its key activities carefully. Given the features of the TSSM program—and the sanitation and political and administrative context in which it was implemented—WSP had to accomplish the following broad tasks for successful implementation.

Develop the program approach and help national, provincial, and local governments prepare for program implementation. In order to implement the program, WSP had to introduce the approach in Indonesia effectively and secure national and provincial buy-in for its adoption. Then WSP had to assemble a TSSM implementation team with the requisite expertise and work with it to determine an organizational model that would allow effective collaboration with various levels

of local stakeholders. Then, the TSSM implementation team had to find ways to help local governments develop program delivery mechanisms and secure the buy-in of key stakeholders for successful implementation. The team had to plan and execute these tasks in a manner that would establish the framework and conditions for sustainable and scalable TSSM delivery.

Determine how to deliver CLTS with a view to ensuring sustainability. CLTS had been previously implemented in Indonesia and several of its key features had been tested. TSSM now had to adapt the approach for delivery of CLTS at scale through local governments. The first step was to prepare districts, subdistricts, and villages for "triggering"— helping hamlet members recognize the need to change sanitation behaviors. This included helping districts develop strategies for identifying locations for triggering, and building capacity at all levels for conducting the CLTS triggering and monitoring activities. The next step was to conduct triggering in a set of hamlets and perform follow-up activities to achieve ODF outcomes, which local authorities would then replicate in more hamlets. The final step consisted of developing strategies to promote ODF attainment in communities, verifying community reports of ODF achievement and providing awards, and conducting follow-up to encourage maintenance of ODF gains.

Determine how to develop and deliver sanitation marketing. Unlike CLTS, sanitation marketing was an entirely new approach in Indonesia that the TSSM team had to design from the beginning. TSSM first had to invest time and resources to learn about market conditions, prepare sanitation marketing content and strategy, and build support for its adoption. Actual implementation of sanitation marketing consisted of developing and disseminating sanitation marketing materials for behavior change to strengthen demand. At the same time, TSSM developed and implemented supplier training to enhance the supply of hygienic and affordable latrine options.

The next three chapters describe how TSSM approached each of these activities, and identify strategies that worked well and those that need improvement.

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III. SETTING UP THE TSSM PROGRAM AND PREPARING FOR PROGRAM IMPLEMENTATION

When complex programs are introduced at scale in a country, the early stages of development and planning are important in setting the course for program performance. The initial set-up activities were particularly important in the case of TSSM because the intervention consisted of multiple components and implementation required the participation and support of many types of stakeholders at different government and administrative levels.

This chapter examines the initial set of activities that WSP undertook in collaboration with local stakeholders to develop the program and prepare for implementation.[9] In Section A, we discuss the team that WSP assembled to implement TSSM and the organizational model it devised to ensure adequate engagement of relevant stakeholders. In Section B, we describe the TSSM team's strategies for securing local government buy-in and establishing coordination mechanisms. Finally, in Section C we assess district resource allocations for effective and sustainable implementation.

We base our descriptions of implementation in this and subsequent chapters on observations during field visits to six districts in the summer and fall of 2010. As noted earlier, we conducted those visits more than three years after the program started, during a period when program activities were nearing completion. We relied on discussions with the TSSM team and stakeholders at the national, provincial, district, subdistrict, village, and hamlet levels, trying to draw on as many relevant stakeholders as possible who were familiar with the program. However, given the timing of the

Key Findings

- TSSM adopted a tiered approach to program implementation. A central team secured high-level buy-in from the Ministry of Health (MoH) and the National Development Planning Agency. At local levels, TSSM hired resource agencies with local knowledge to provide on-site technical assistance to district governments.
- Resource agencies were a suitable mechanism for providing hand-on support. Greater alignment was needed between agencies' short-term goals of program execution and TSSM's longer-term capacity-building and scale-up objectives.
- TSSM initially anticipated that adopting a demand-responsive targeting approach would automatically generate local buy-in, a prerequisite for program success. Instead, selection of hamlets occurred as a top-down process.
- Sustained engagement *of* the *bupati* and district political leadership proved to be a more effective lever for influencing buy-in and ultimately program success. Over time, TSSM developed ways to stimulate district/*bupati* commitment, by fostering competition among districts, such as collaborating with *JawaPos* to include a sanitation metric of performance.
- The TSSM manual indicated the creation of coordination committees as a key step and described the structure of needed committees. Its lack of clarity on the responsibilities of the TSSM team, resource agencies, and districts in establishing and guiding these committees may have resulted in such coordination committees being rare.
- Local district allocations for TSSM implementation, though critical for program success, were fairly low. This placed excessive burden on front-line staff.
- District allocation of funds may need to increase significantly once external TSSM supports ends or the program expands to poorer and more challenging areas.

[9] In this chapter, we focus largely on the preparations for implementation of the CLTS component of the program. Preparations for the sanitation marketing component are described in Chapter V.

study and the fact that there was some turnover in key staff, we also relied on a detailed implementation manual developed by TSSM to guide program execution, particularly to provide insights on the program's intent (WSP n.d.).

A. Adopting a Tiered Program Approach

A key step for WSP involved assembling a team with requisite expertise to engage with the various stakeholders of relevance for TSSM implementation. The TSSM team had to mobilize, engage, and build the capacity of multiple stakeholders in order to set in motion a replicable and scalable program to eliminate open defecation.

Creating a tiered TSSM project team was a key step. TSSM project implementation team involved a network of staff and consultants responsible for engaging with governmental and sectoral partners at national, provincial, and local (subprovincial) levels. At the national level, WSP assembled a central TSSM team in Jakarta to generate national support for TSSM and design the technical assistance that the program would provide. This team was led by a task leader and consisted of a range of technical experts, including a training specialist (who received training from Dr. Kamal Kar, pioneer of the CLTS approach), a marketing specialist, and data collection specialists. The central team was responsible for securing high-level buy-in, designing TSSM activities, developing materials, and supervising and facilitating various program activities, including training and monitoring. WSP and the TSSM team leveraged previous efforts to pilot CLTS to build support and momentum for introducing and institutionalizing TSSM. (See Box III.1 for a history of CLTS piloting and TSSM adoption.) WSP identified MoH and the National Development Planning Agency as key partners given their roles in the adoption of sanitation and multisectoral programs. TSSM chose MoH as its primary implementing partner and worked closely with the Environmental Health division that headed the technical CLTS working group established in 2006.

Box III.1. Introducing Community-Led Total Sanitation in Indonesia and Adopting TSSM

The groundwork for TSSM was laid when WSP first introduced CLTS in a pilot as part of the second Water and Sanitation for Low-Income Communities (WSLIC-2) program. WSP staff had been impressed by Bangladesh's successful adoption of CLTS during a visit there. They organized a study tour to Bangladesh and India in 2004 to demonstrate CLTS's effectiveness to high-level Indonesian officials from the Planning Agency and the Ministries of Health, Public Works, and Home Affairs. Health office staff from two districts also joined the tour. As a result of the visit, officials from Planning and MoH became eager to test the approach in WSLIC-2 villages in East Java starting in 2005. Rapid progress toward ODF attainment in several of these pilot locations built momentum for adopting the approach more widely in other villages and districts. It also started to convince initially skeptical stakeholders that a nonsubsidy approach could work. By late 2006, a technical working group on CLTS was established at MoH's Environmental Health division with the express purpose of developing an operational strategy for scaling up CLTS nationwide. A similar study visit in 2005 to Vietnam to observe private sector development for improving sanitation supply built support for experimenting with the introduction of a sanitation marketing component (Mukherjee and Shatifan 2009).

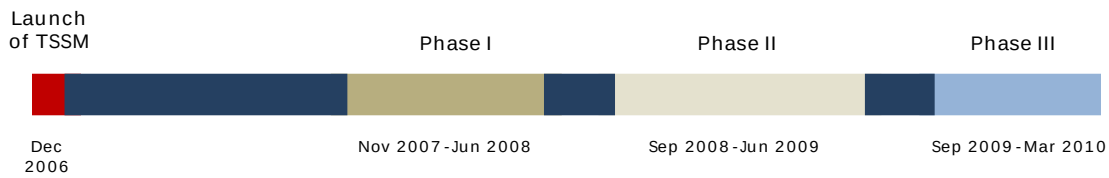
After TSSM began, WSP expanded its efforts to create support for TSSM and generate a strong enabling environment. It worked closely with MoH, as well as with a range of stakeholders, including MoH's Central Working Group on CLTS and national and district sanitation working groups to stimulate policy dialogues on sanitation. MoH led these discussions and focused them on developing and finalizing a strategy document. This strategy drew on the previous sanitation policy (National Policy for Development of Community-Based Water Supply and Environmental Sanitation, adopted in 2003), past experience with sanitation programs, and learning from CLTS implementation. WSP incorporated lessons learned from challenges faced during CLTS replication in pilot districts in WSLIC-2 to make the case for adding additional strategies to strengthen the enabling environment and sanitation supply networks. This generated support for the holistic TSSM program among working group participants. It ultimately culminated in the issuance of the Ministerial Decree and Strategy for Community-Based Total Sanitation in 2008. This strategy made CLTS a central pillar for generating community demand for improved sanitation, and included a focus on improving supply and generating institutionalization (Mukherjee and Shatifan 2009).

WSP seems to have experienced some success in generating strong national-level support for TSSM. Although our study focused more on district implementation than the national or provincial enabling environment, our discussions with national stakeholders suggest that WSP successfully generated buy-in among a wide range of stakeholders for the program and was instrumental in forging a supportive policy environment. Most stakeholders we interviewed at the national level showed a strong degree of consensus for adopting a participatory, zero-subsidy approach for sanitation and an eagerness to adopt supply-strengthening mechanisms. In particular, we met several strong advocates within the Planning Agency and MoH. Nonetheless, some exceptions existed. For example, the Ministry of Public Works reportedly continued to have some reservations that TSSM would result in adoption of low-quality latrines and therefore maintained its preference for hardware-focused interventions, such as building latrines.

At the provincial level, the team hired a regional coordinator who was responsible for providing technical assistance to the provincial health office and working closely with other relevant departments. The regional coordinator also provided oversight to the various district activities and monitored progress. The regional coordinator seemed to have established a strong working relationship with the Environmental Health division (*Kesling*) and seemed to be a point person in program implementation.

At subprovincial levels, WSP relied on local organizations for program implementation. At district, subdistrict, and hamlet levels, TSSM delivered the program with the assistance of two regional NGOs hired by the TSSM team (also known as resource agencies): (1) Mitra Samya, responsible for program implementation in the western half of East Java; and (2) Surya Abadi, responsible for program implementation in the eastern half of the province. Staffing of the resource agencies included district consultants (one per district), two training specialists, a community development specialist, a marketing specialist, and sometimes a technical officer, if required. The staff received intensive initial CLTS training and periodic refresher training from the TSSM team. The regional coordinator supervised the staff. The role of the resource agencies was to provide technical assistance to district implementers. To ensure that resources agencies were able to provide adequate levels of support to all districts, TSSM assigned districts to one of three phases, largely based in order of district interest in participating. Phase 1 included 10 districts, Phase 2 included 11 districts, and Phase 3 included 8 districts. The resource agencies planned to work with districts in each phase for approximately nine months (Figure III.1). As part of the technical assistance, the resource agencies helped districts prepare for implementation and scale-up, build capacity, and conduct implementation. For the sanitation marketing component, the TSSM team relied on assistance from ITS Surabaya for mason training. It later drew on resource agency staff for training of entrepreneurs.

Figure III.1. Timeline of Implementation



The use of resource agencies with their knowledge of the local context was a strategic move on the part of the TSSM team to leverage existing resources. Resource agencies were critical for both their local knowledge and their ability to provide on-site, hands-on assistance. The district consultants hired by the resource agencies were from the local regions and based in the districts. They were, therefore, quickly able to establish relationships with the district and subdistrict officials. In most of our field visits, stakeholders repeatedly mentioned district consultants by name and appreciated the support they had provided with triggering and follow-up.

However, there might have been insufficient alignment between agencies' short-term goals of program execution and TSSM's longer-term capacity-building and scale-up objectives. TSSM's goals were to build capacity at the district level for sustainable scale-up. There was a risk, however, that the resource agencies might interpret their mandate more narrowly and consider their responsibility to be primarily about triggering and achieving ODF status in the 30 hamlets for which they were responsible. The resource agencies might focus on program performance for the duration of their contracts rather than on TSSM's longer-term goals. Our field visits revealed that the resource agency staff sometimes focused mainly on reaching triggering and ODF attainment targets, and perhaps not as much on sustained follow-up. We heard of a few instances in which resource agencies' district consultants appeared to have switched efforts from triggered hamlets that proved resistant to behavior change to other hamlets that were closer to being ODF in order to show results. They might have done this because they felt pressure to ensure that at least some hamlets attained ODF status.

Monitoring data collection is another area in which the resource agencies might not have adequately focused on capacity building. In some instances, for example in Malang and Bondowoso, we heard that resource agencies collected data directly from village volunteers or facilitators and passed the data on to district officials and WSP staff. Thus, after the period of technical assistance ended, data on progress toward ODF goals were no longer regularly collected and collated at the district level because no local mechanism for collecting and transferring data had been set up. A more appropriate strategy might have focused on training district and subdistrict officials more intensively to develop data monitoring systems and helping them build capacity to use the data to increase ownership over the data collection process.

More oversight for resource agencies might be necessary in the future to ensure close alignment of TSSM and resource agency goals. If future program expansion will depend on technical assistance provided by resource agencies, additional oversight might be necessary. Resource agencies might need explicit training and emphasis on the need to build capacity at various levels of local government partners. Similarly, setting explicit targets related to capacity building on various dimensions of program focus could be important so that resource agencies focus equally on these goals. It would also be beneficial to have regular oversight on the activities of the resource agencies by including spot checks to find out from beneficiaries and local partners how the resource agencies are implementing the program. Such close oversight can provide valuable and timely information for course corrections and help to make the resource agencies more accountable for sustained improvements.

A greater clarification of the responsibilities and relationships among the TSSM team, resource agencies, and local government partners might also be necessary. The TSSM program required action by stakeholders at various levels of administration. WSP developed a detailed and lengthy implementation manual to indicate the key steps of TSSM execution and the roles and responsibilities of different stakeholders (WSP n.d.). Our review of this manual suggests that many steps needed for program success received a great deal of thought; the scope of issues

addressed was fairly comprehensive. However, the manual did not always clearly describe who would undertake particular steps; the specific responsibilities of the TSSM team, the resource agencies, and the district officials were unclear. As a result, subsequent implementation reflected weaknesses in execution of some of these activities. We are also not sure when the manual was developed and how it was distributed to district-level stakeholders. Although the manual is very detailed and might be a good guide for resource agencies or other implementing staff, it could also be useful to develop a shorter implementation and program organization guide with clear delineation of responsibilities that implementing partners could share and use to inform discussions of progress over time.

B. Securing Local Commitment and Creating Coordination Mechanisms

The district was the main unit of implementation at scale. Preparing local district governments for implementation of TSSM and creating conditions for success among partner districts was critical. The most important steps were (1) securing local government commitment and buy-in; and (2) establishing effective coordination mechanisms for cross-sectoral implementation.

1. Securing Local Government Commitment

From the beginning, the TSSM team recognized that program success depended on high levels of local stakeholder commitment within districts. Because TSSM was designed to be implemented using primarily local government resources, generating early buy-in was necessary to mobilize both the monetary and human resources necessary for implementing the TSSM program.

TSSM's key strategy was to adopt a demand-responsive approach to targeting. TSSM's assumption was that securing voluntary and informed participation in the program would engender high levels of commitment to implementation. The TSSM manual described the process for generating demand-responsive approaches through road shows at various levels. These road shows consisted of workshops or socialization events to which relevant stakeholders were invited to learn about the key features of the TSSM program and express their interest. To that end, the TSSM team held a provincial workshop to which it invited districts' political and administrative authorities, such as the heads of the district and health offices, to explain the TSSM approach and solicit participation. This workshop sought to inform districts of the advantages of the TSSM approach and to defuse any expectations of subsidies. TSSM also provided technical assistance to districts to conduct similar road shows or socialization events at subdistrict and village levels to inform them about the program (WSP n.d.). Ideally, these road shows would result in spontaneous expressions of demand by subdistricts and hamlets for participation in TSSM.

A demand-responsive approach did not materialize. In the districts we visited, district officials reported holding road shows for subdistricts to inform them of the program. In a few districts, all subdistricts were invited to these road shows, whereas in others fewer subdistricts were invited, based on district officials' assessment of locations with adequate resources or their perception of a greater likelihood of success. For example, Gresik limited road shows to the three subdistricts in which district officials thought there was the greatest likelihood of program success. Road shows were less likely to be held at village levels and district or subdistrict officials usually selected hamlets. The road shows were sometimes replaced with socialization events at which village and hamlets officials learned of the broad parameters of the TSSM approach that would be implemented in their area.

Our field visits indicate that a demand-responsive approach, particularly at the village or hamlet level, was challenging to implement for a number of reasons. Multiple factors constrained the initial demand for TSSM at the lower levels. Primarily, this was a nonsubsidy program that included only technical assistance. In the sanitation sector, households and local governments were habituated to subsidy- and material-intensive interventions. Thus, there was little reason for subdistricts or villages to volunteer, as the program entailed substantial additional work for subdistricts' *Puskesmas* staff with little financial support. For elected village officials, again, there was little incentive to participate in the program because it did not bring any subsidy or hardware investments that could be used to leverage votes for reelection. Thus, implementing a demand-responsive approach from the outset was challenging; after some gains had been achieved and publicized, securing buy-in was easier.

TSSM shifted to using alternate strategies, such as fostering competition and generating district competition and pride, to generate buy-in. Over time, TSSM began to explore ways to spur competition among districts and experimented with additional methods of generating sustained buy-in. One particularly innovative example was TSSM's collaboration with a respected regional newspaper, *JawaPos,* which gave prestigious annual "autonomy awards" for district performance. At TSSM's request, *JawaPos* included sanitation indicators as one of the metrics of district performance. In most of the districts we visited, stakeholders mentioned the *JawaPos* award's inclusion of sanitation indicators as having helped raise the profile of sanitation. In Gresik, stakeholders even used it to lobby successfully for more funds for the sanitation sector. Other mechanisms included showcasing particularly successful performances of districts, subdistricts, or villages. Additional, more sporadically adopted methods included securing buy-in from prominent stakeholders by inviting them to high-profile sanitation events in Jakarta or abroad to raise the profile of sanitation.

These attempts should be supplemented with sustained efforts to engage political leadership and greater outreach to key agencies. In most places in which we observed success, there was excellent coordination and support across departments and high levels of political buy-in from political authorities, such as the district head (*bupati).* Engaging the *bupati* on an ongoing basis might be a particularly effective lever for more widespread engagement, akin to a domino effect. When the *bupati* makes a program a key priority, all the administrative departments at the district and lower levels typically follow suit. The planning office allocates funding to the program and the various divisions of the district health office focus on using these funds for effective implementation. In addition, political and administrative stakeholders at lower levels—including the heads of subdistricts, villages, and hamlets—become more motivated to find and devote resources to making the program a success when they know it is a priority of the *bupati*. In Trenggalek, the strategic engagement of the *bupati* had remarkable dividends (see Box III.2). Further, in many of the districts we visited, stakeholders—particularly in the health office—noted that issuance of a sanitation-related decree by the bupati would have been instrumental in giving them the political and administrative authority to push for progress on sanitation outcomes. The subdistrict head can use a bupati-issued decree as a basis for issuing a similar decree, in turn empowering village heads to issue village regulations.

Box III.2. Strategically Engaging District Heads (Bupatis)

Receiving an ODF certificate during the Ramadhan Safari
Source: Trenggalek District Health Office.

In Trenggalek, the TSSM team collaborated closely with the health office to convert the *bupati* into a strong advocate. Key members of the TSSM team devoted considerable effort to convincing the district head of the value of adopting TSSM and the health benefits and savings that could be realized from preventative approaches to sanitation. An invitation to the *bupati* to participate in sanitation workshops in Jakarta and Washington, D.C., proved especially critical for transforming the sanitation sector into a priority for him. On his return, he expanded the budget substantially and became engaged in monitoring the program's progress and participating in ODF award ceremonies. As a result of the district head's keen attention, the various departments at the regional level began to conduct more vigorous implementation. One measure that seems to have been particularly effective was the *bupati's* "Ramadhan Safari" for promoting sanitation. In this effort, the *bupati* visited all subdistricts and a large number of villages during the Muslim holy month of Ramadhan to promote ODF attainment and TSSM implementation. It appears to have been extraordinarily effective at raising awareness about TSSM and the need to become ODF at lower levels of government. In order to sustain the district head's commitment to the program, the health office presented him with statistics related to the decline in diarrhea and computations of the cost-effectiveness of this approach. In Trenggalek, as a result in part of high capacity among the district health office and high *bupati* commitment, village triggering rates and ODF attainments rates are very high and a concerted strategy seems to be in place for attaining district-wide open defecation elimination.

2. Establishing Tiered Coordination Mechanisms for TSSM Implementation in Districts

TSSM desired cross-sectoral coordination to be a key element of program implementation. It envisaged the creation of coordination committees as a key mechanism for joint execution of the program. According to the TSSM manual, coordination committees would be created for program implementation at the district, subdistrict, and village levels, with TSSM providing technical assistance to these committees. The committee would secure the engagement of all relevant stakeholders (including political, administrative, and civil society sectors). The committees would serve two critical purposes: (1) ensuring multisectoral coordination and ownership and (2) implementing key program execution tasks. For committees at the higher levels, these tasks might include conducting a situational analysis, identifying existing resources and creating budgets, developing implementation strategies, and monitoring and oversight. At lower levels, for example at the village level, the committees would focus more on frontline activities, such as triggering, follow-up, and ODF verification and monitoring. (Box III.3 provides a description of the intended composition and responsibilities of the coordinating committees at each level.)

The coordination committees existed and worked well at the national level, but they were less effective at the provincial level and often did not materialize at district levels and below. In general, multisectoral coordination through committees was high at the national level but weaker at lower levels of government. The program had great success establishing coordination committees at the national level, which led to the adoption of a sanitation strategy, convergence on a nonsubsidy demand-stimulation approach, and a focus on supply enhancement interventions. At the provincial level, the sanitation coordination committee existed but the level of multisectoral convergence appeared somewhat lower. The provincial health office was the primary implementer

Box III.3. Intended Structure and Responsibilities of Coordinating Committees

At the national level, a steering committee was supposed to be established that consisted of high-level (Echelon I) officials from relevant ministries, including the National Development Planning Agency, Health, Public Works, Home Affairs, Education and Culture, and Finance, for devising appropriate policies. A technical team consisting of implementing (Echelon II) officials from these ministries was to be created. This technical team would elaborate on the operational activities established by the steering committee, allocate funds, and monitor performance. A TSSM program secretariat was also going to be developed to support decision making by the steering committee and technical team.

At the provincial level, a coordinating team was supposed to be created under the leadership of the provincial planning office (*Bappeda*). The team would encompass the following provincial offices: Planning, Health, Public Works, Village Community Empowerment Office, nongovernmental organizations (NGOs), and mass women's associations such as Women and Family Welfare Association (*Tim Penggerak PKK* and *Fatayat*). This coordinating team was to be responsible for oversight of program implementation, monitoring and evaluation at the district level; advocacy; and allocation of budgets and provision of regional budget funds to support interdistrict TSSM activities.

At the district level the coordinating team would be composed of the following institutions: Planning, Health, Public Works, NGOs, and women's organizations. Its responsibility was to devise TSSM program implementation policies, prepare and propose funding to implement the TSSM program, organize responsibilities among the different stakeholders, track progress toward ODF attainment, oversee ODF certification of villages, devise competitions among areas to motivate ODF attainment, carry out periodic monitoring and evaluation, share information and lessons learned regarding effective strategies, and integrate TSSM with other social programs to maximize impact.

At the subdistrict level, a coordinating team was supposed to be created that consisted of the subdistrict and health center (*Puskesmas*) heads, the sanitarian, community development officers, public works, NGOs, and women and mass organizations. The coordinating team was to be led by the subdistrict head and its secretary was to be the *Puskesmas* head. Its responsibilities included providing training for volunteers, preparing a budget for TSSM and proposing it to the district government, collaborating with the district coordinating team to certify ODF areas, conducting periodic monitoring and evaluation of TSSM progress, integrating the TSSM with other programs, providing technical guidance for TSSM program development, and sharing information on lessons learned.

At the village level, a committee representative of the community as a whole was to be democratically elected. The committee was to strive for gender balance, include both poor and rich members of the community, and involve community leaders. (The committee could also be established before triggering). The committee would undergo triggering training in order to develop self-managed sanitation programs, carry out participatory monitoring of TSSM progress, trigger and motivate the community about the importance of access to latrines and hygienic sanitation facilities, develop TSSM promotion activities and integrate them with other village-level activities, work with the community to equip schools with sanitation facilities, and, together with the community, determine when the area was ODF.

Source: Based on information from the TSSM Implementation Manual (WSP n.d.).

of TSSM and perhaps did not adequately engage other departments. At the district, subdistrict, village, and hamlet levels, we rarely saw the creation of TSSM-specific coordination committees or more general sanitation coordination committees. There were some exceptions. Bondowoso had a formal district coordination team (or *tim koordinasi kabupaten*, TKK), which included officials from several departments including Health, Education, Public Utility, and Planning departments. Malang was another district that had a sanitation coordination group at the district level, but stakeholders reported limited cross-sectoral collaboration. In Perak subdistrict of Jombang, strong coordination across various health officers at the *Puskesmas*, as well as with the subdistrict head (*camat*) and related officials, led to effective implementation of the program and to high rates of ODF achievement in the subdistrict.

Taking steps to ensure the creation and effective functioning of desired institutional relationships, such as program coordination committees, is important. TSSM will have to provide districts with technical assistance on how to set up these committees, define the roles and responsibilities of the various partners, and operate the committees effectively. The TSSM manual contained a fairly extensive discussion of the nature of the committees and their functions and roles

at each level; it also indicated that TSSM would provide training to these committees (WSP n.d.). However, it did not explain the responsibilities of the TSSM program relative to district responsibilities in the creation of these committees, nor TSSM's role in ensuring that these committees performed the critical implementation tasks to which they had been assigned. This lacuna in specification of responsibilities might have resulted in districts often not forming the committees, or the committees not maximizing their potential even when created. Some of the risks from not forming such committees were lower multisectoral coordination; fewer opportunities to gain the support of political authorities; and less clarity regarding who had responsibility for strategy formation, budgeting, oversight of implementation, and planning. To avoid these risks in the future, TSSM might have to provide assistance to district-level officials to help them understand the importance of establishing these institutional relationships. It should also help districts devise strategies regarding the alternative implementing relationships and distribution of responsibilities that should be pursued in the event that these structures cannot be created.

C. Securing and Making Effective Use of Resources for TSSM

Securing adequate resources for TSSM implementation was critical both for early program success and longer-term program sustainability. As we shall see in later chapters, TSSM was a resource intensive program requiring substantial time and effort from government officials, health staff, and a range of unofficial contributors such as health volunteers. Budgeting adequately to support the activities of these individuals was important for ensuring thorough program implementation. Budget allocations also indicated district prioritization of TSSM to stakeholders at all levels and were an early signal to stakeholders of the importance of the program to political and sectoral authorities.

District expenditures on TSSM were typically low; however, substantial variation in expenditure levels existed across districts. The TSSM program made co-investment a precondition of district participation and worked with MoH to create an enabling environment that encouraged investment in sanitation. Its efforts bore mixed success. Among the districts we visited, the TSSM program resulted in an increase in the amount of money districts dedicated to sanitation. However, as seen in Table III.1 there was substantial variation in the extent of district contributions, as well as the degree to which these were maintained over time. For example, among our study sites, Trenggalek reported allocating over U.S. $115,000 in total for TSSM program implementation, whereas Malang reported allocating less than U.S. $9,000 for the program. Bondowoso started with a significant budget but scaled back rapidly.

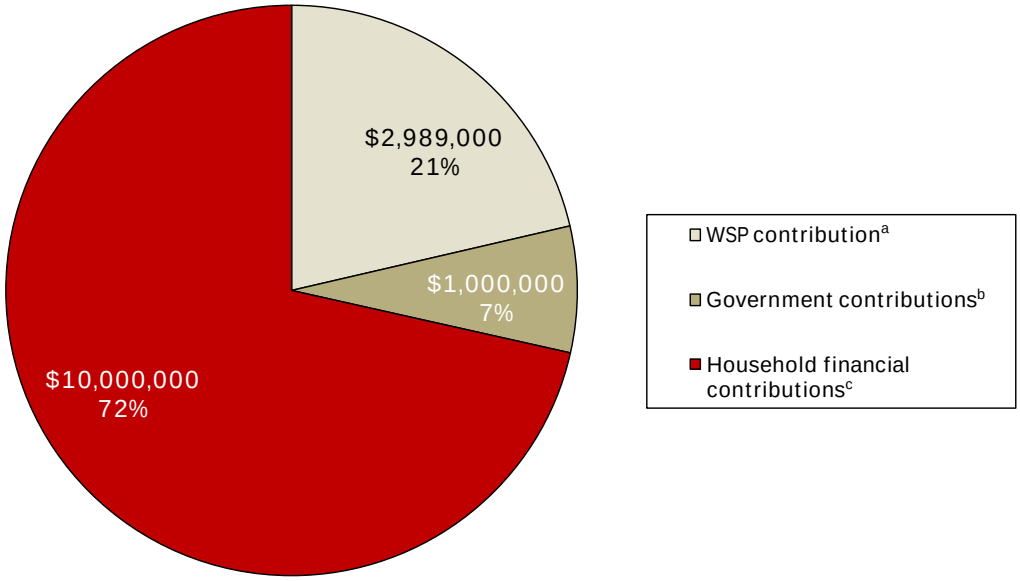
Table III.1. District Budget Allocations for TSSM

Year	Bangkalan	Bondowoso (US$)	Gresik (US$)	Jombang (US$)	Malang	Trenggalek (US$)
2007	33,333	0	0	NA	NA	14,222
2008	0	27,444	0	NA	NA	53,333
2009	17,778	15,000	16,667	NA	NA	45,444
2010	21,111	1,444	33,333	NA	NA	2,778
Total	72,222	43,889	50,000	28,811	8,889	115,778

Source: Data on Bangkalan, Bondowoso, Gresik and Trenggalek budgets was provided by districts during Mathematica site visits. Data on Jombang and Malang budgets is drawn from WSP administrative data (WSP 2010b).

Data provided by WSP on district budgets, shown in Appendix C, confirmed this skewed distribution of expenditure for TSSM. Only 5 of the 29 districts targeted by WSP accounted for 45 percent of district expenditure on TSSM as of February 2010. The lowest spending district Lamongan allocated less than U.S. $3,500 to the program despite having a sizable population that was twice that of the high spending district Trenggalek (WSP 2010b). On aggregate, WSP estimates of the overall contributions under TSSM by different sources show that local governments account for less than 7% of expenditure on the program, which is one-third of WSP's contributions, and one-tenth of household contributions in TSSM target areas (See Figure III.2 below).[10]

Figure III.2. Contributions Under the TSSM Program



[a]WSP 2011.

[b]USAID 2010 and WSP 2011.

[c]WSP 2010, and WSP 2011.

Insufficient resources placed extra burden on front-line program implementers. During our field visits, we heard from a range of stakeholders that resources were insufficient. Officials in districts such as Gresik cited inadequate resource availability as the reason for limited monitoring of program results. Subdistrict facilitators, and sanitarians in particular, cited numerous examples of the ways in which resource and staffing constraints impeded their ability to effectively implement the program. These examples included insufficient funds for providing food at triggering events or hosting ODF celebration events, lack of transportation for conducting follow-up and monitoring, and inability to provide token gifts or compensation to health volunteers who assisted with key tasks. Saddled with competing responsibilities, it was challenging for these staff to undertake additional duties without adequate resources. These constraints were particularly onerous in places where Puskesmas staff filled dual posts due to staffing constraints, as observed, for example, in

[10] WSP estimates of households' expenditure on TSSM presumably encompass expenditures on latrines incurred by households in target areas since TSSM began.

Bangkalan. In a number of cases, subdistrict staff working on TSSM reported feeling isolated and unsupported in their efforts to implement the program.

In some cases, facilitators or village or hamlet officials ended up paying for some program costs themselves. For example, in Kokop subdistrict in Bangkalan, the village midwife used her own resources to make the food and other preparations for the celebratory event when the district head (*bupati*) attended the ODF declaration at the village. In Gresik the female head of the village of Katimoho used her personal funds to buy uniforms for TSSM volunteers. Similarly, in Jombang sanitarians reported using their own money to provide token gifts for health volunteers who assisted with monitoring. For more systematic and thorough implementation of TSSM, districts may need to provide resources to cover some of these costs.

Expenditures under the TSSM program consisted of different kinds of costs, which were borne by different sources. In the table below we present data on per-latrine expenditures born by different stakeholders. Computing per-latrine costs allows us to understand the level of expenditures in relation to outcomes. We did not collect detailed expenditure data for this study. However, we used the data provided by WSP on contributions by different sources and change in access to latrines under the program to compute very approximate estimates of per-latrine expenditure (See Table III.2).[11] According to these rough estimates, local government expenditure per latrine was relatvely low (U.S. $5 per latrine). These expenditures were mostly for "software" inputs, such as triggering activities, training, and so on. WSP contributed U.S. $14 per latrine for program development and implementation activities. Households contributed the largest share of expenditures (U.S. $46). There contributions were primarily for "hardware", that is for latrine construction or improvements.

Table III.2. Total Expenditures and Per–Latrine Expenditures, by Source of Contribution

	Total Expenditure (in U.S. Dollars)	Per Latrine Expenditure (in U.S. Dollars)
WSP contributions	2,989,000	$14
Government contribution	1,000,000	$5
Household financial contributions	10,000,000	$46
Total	13,989, 000	$78

Sources: USAID 2010 and WSP 2011.

Note: Per–latrine calculations are based on the estimate that 215,856 new latrines were built or accessed under the program as of December 2010. In private correspondence with Mathematica, WSP indicated that 906,362 people had gained access to improved latrines as of December 2010. To translate this number to an estimate of new latrines built or accessed, we use an average household size of 4.2 drawn from our household survey data and assume that each household gained access to just one latrine.

[11] These calculations should be treated with caution due to the very approximate nature of component data. For example, the household financial contribution data provided to us is likely to be an estimate because we observed limited data collection of household expenditures on sanitation in districts. Similarly, all the data points are reportedly as of December 2010—since we are not relying on primary data collection we cannot verify whether they are all indeed collected in the same time period.

As the program scales up districts may need to assume a greater share of expenditures. During TSSM, many of the program implementation costs had been borne by WSP. Some of these were one-time costs incurred in establishing the program and developing content and materials for training, capacity building, and marketing. However, other activities, like training and monitoring, were recurring ones. Many of these recurring software costs will have to be assumed by the districts for continued scale-up. Moreover, under the current zero-subsidy approach of TSSM, households shouldered the bulk of the "hardware" costs for latrines. As the program expands to poorer areas, if districts decide to provide additional material or financial support to the poorest households for latrine construction, they will need to factor in some additional costs.

Technical assistance to help districts conduct systematic planning for effective use of limited resources may be needed. Districts have limited resources and they may need help figuring out how to use these resources more effectively. Given the additional costs that districts may have to assume in the future that were described above, districts may need assistance offsetting increased costs through more strategic use of funds and investing more in activities with higher pay-offs.

The TSSM manual indicated that coordination councils should conduct situational analyses to determine available and required resources and devise budgets accordingly, as well as to identify existing programs and resources to leverage. However, it did not indicate how these activities should be conducted, the role of TSSM or other parties in these activities, and who should assume these responsibilities in the absence of coordination committees. Our observations were that the TSSM team and district officials appeared to underestimate the resources required for thorough program implementation. As a result, there appeard to be inadequate district financial planning for budgeting and distributing resources to subdistricts and village implementers. In the future, technical assistance for budget planning could help districts to:

- **Anticipate the various types of resources they will need so that they can adequately budget for them.** This entails anticipating the needs of the full range of stakeholders involved in TSSM implementation and identifying the critical supports they need to function effectively. These supports are important both for staff assigned to the program and health volunteers (*cadres*) who were slated to play such a large role in follow-up and monitoring. We frequently heard from midwives and sanitarians about how it would be important to provide these volunteer workers with token financial incentives to give them some motivation to take on additional responsibilities.
- **Leverage resources from other programs and sectors.** Some subdistricts, particularly more creative or proactive ones, overcame resource constraints by leveraging existing programs to conduct follow-up and monitoring. These included programs such as the *Jumantik* (dengue fever elimination) or the *Desa Siaga* (Healthy Village) program. For example, Jombang added monitoring of TSSM indicators to the tasks of volunteers paid by the *Jumantik* program to conduct monthly data collection visits to households. Some districts were effective at finding alternate means to motivate volunteers (including praise or pressure from the village head or recognition from the subdistrict or district head). Some, like Perak subdistrict in Jombang, successfully engaged the private sector to make progress towards attaining ODF status (See Box III.4). Highlighting innovative practices from districts like Jombang can help motivate other districts to replicate these strategies.

Box III.4. Perak: Effective Use of Scarce Resources

The Perak subdistrict in Jombang is a good example of resourcefulness. It had almost fully attained ODF, despite having limited funds. Subdistrict officials forged close collaboration among stakeholders at all levels to conduct triggering and follow-up with the community. They also successfully engaged the private sector to assist with TSSM implementation; for example, they invited a prominent cigarette manufacturer to an ODF celebration event, which in turn donated funds to buy a large number of latrine components for poorer members of the community. Although the kind of coordination and strategic approach to implementation that we saw in Perak was supposed to be routinely conducted, in practice it seemed to be more frequent in places that already had a culture of strong intersectoral coordination and where there was clear political and social support for the program. Finding ways to replicate this level of coordination, innovation, and resource leveraging in lower-capacity subdistricts will be the key to cost-effective scale-up.

- **Make more effective use of available funds.** Where resources are scarce, it is important to develop mechanisms to identify strategies that are working and those that are not and re-allocate resources accordingly. For example, when it was clear that triggering isolated hamlets was not producing the type of yields that the TSSM program had expected, districts might have been encouraged to spend their resources triggering fewer sites more intensively by including greater post-triggering follow-up, rather than simply targeting larger numbers of communities to trigger.

The following chapters can help inform decisions to improve resource use by detailing the steps taken to implement CLTS and sanitation marketing and indicating which steps were most effective.

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IV. IMPLEMENTATION OF CLTS AT SCALE

One of the key sanitation challenges in Indonesia is the difficulty of getting households to appreciate the importance of defecating in hygienic latrines (range of defecation facilities is shown in Figure IV.1). Open defecation, especially in rivers, is often culturally acceptable and frequently considered to be hygienic. WSP sought to implement CLTS at scale to change this mindset. The CLTS approach is specifically designed to stimulate community awareness about the dangers of poor sanitation behavior and trigger shame regarding poor sanitation practices. This is intended to motivate the hamlet to adopt collective action to eliminate open defecation. The premise is that CLTS triggering will encourage households to quickly cease defecating in the open by adopting simple, low-cost approaches (for example, digging a pit, sharing a latrine, or making a lid for an unimproved pit latrine). After eliminating open defecation, post-triggering follow-up and sanitation marketing can encourage households to continue progress up the sanitation ladder.

As part of TSSM, CLTS was to be implemented at scale and applied province-wide in all districts of East Java. TSSM's theory of change was that if TSSM was able to trigger a set of 30 hamlets in each district and make them ODF, these hamlets would have a demonstration effect and inspire other hamlets and villages to request the intervention. Districts' participation in introducing the program in the original 30 hamlets would build capacity for scale-up in other areas, enabling them to expand the program. The combination of increased demand for CLTS combined with increased district capacity to deliver the intervention would result in the so-called viral spread of the program. The goal of the program was to build district capacity, commitment, and momentum to eventually scale up the program to all areas in each district, leading to rapid improvements in sanitation outcomes.

On aggregate, in each district we observed some areas of success in implementing CLTS, but also areas where hamlets were triggered to no avail. In some exceptional subdistricts, such as Perak in Jombang and Wringinanom in Gresik, these area of success were substantial, encompassing

Key Findings

- In each district we visited, we observed some pockets of success, but the scale of success varied significantly from small, isolated clusters of ODF hamlets in some districts to entire subdistricts in others. In all districts we also observed hamlets that had been triggered but had not become ODF.
- These pockets of success shared some common characteristics: (1) a high degree of coordination and collaboration across various stakeholders at the different levels; (2) a more purposeful geographic clustering or village triggering approach (rather than targeting isolated hamlets in villages); and (3) more intensive and systematic post–triggering follow–up and monitoring activities.
- We were more likely to see lack of progress in places that conducted diffuse triggering, that is, where a hamlet in a village had been triggered but not other nearly hamlets. In these communities, village/hamlet heads and households often had only limited awareness of the program. Progress was poorest in communities close to a river, regardless of the amount of effort expended.
- The strategy of triggering individual hamlets did not create a viral effect of inspiring other communities to request the CLTS intervention and become ODF, as anticipated by the program. Triggering by itself did not appear to be the pivotal event it was meant to be. Most households in focus groups, even those that attended the event, recalled it only upon repeated probing.
- Follow–up was an important program component that was not adequately prioritized. Reasons were lack of resources for follow–up and monitoring and competing priorities for stakeholders' time. Better results were observed when there was repeated socialization, and targeted monitoring through household visits.
- It will be important to determine how to leverage community resources or support for the poorest households, which might not be able to afford even low–cost options.

Figure IV.1. Range of Defecation Facilities

the entire subdistrict or all the villages under a *Puskemsas*. More frequently they consisted of large clusters or significant numbers of villages, as was observed in Dampit in Malang. In other subdistricts, the islands of success were fewer and more limited in nature, as observed in Bondowoso and Bangkalan. Successful areas shared some common characteristics: (1) a high degree of coordination and collaboration across various stakeholders at the different levels; and (2) a more purposeful and strategic use of resources in targeting, follow-up, and monitoring. Less successful areas were characterized by limited resources that were not spent strategically, lower levels of commitment, and closer proximity to a river. As we examine the key activities involved in implementing CLTS at scale in this chapter, we will draw out these themes in greater detail. Implementing CLTS at scale included three related sets of activities. The first was to prepare local governments for triggering, including identifying a strategy to select 30 hamlets for triggering in each district and to build capacity for delivering the intervention in target districts, subdistricts, villages, and hamlets. The second involved the delivery of the CLTS intervention by triggering hamlets and conducting post-triggering follow-up. The third set of activities was to encourage ODF attainment, verify and award ODF status in hamlets that eliminated open defecation, and conduct post-ODF follow-up.[12]

[12] Routine monitoring of triggered hamlets is discussed in Chapter VI on measurement of TSSM outcomes.

A. Preparing for Triggering

Key elements of local government preparation for triggering included selecting the hamlets to trigger and then developing the capacity to trigger them.

1. Developing a Targeting Strategy that Would Create Momentum for Scale-Up

Regardless of whether hamlets to be triggered were identified through voluntary demand or top-down selection, districts had to identify criteria to prioritize the types of hamlets to trigger. In order to have a strong demonstration effect, districts had to develop a targeting strategy that would facilitate successful implementation in the intervention hamlets and replication of the program beyond those hamlets.

To promote program ownership, TSSM provided initial guidance on how to select hamlets, but left the selection of a targeting strategy to the districts. TSSM began by encouraging districts to target high-risk, high-impact hamlets. TSSM's implementation manual identified the following criteria for districts to use in selecting intervention hamlets: (1) the hamlet has low access to sanitation or a high percentage of households exhibit poor sanitation behavior, (2) the hamlet has high diarrhea rates, and (3) the hamlet is not targeted by externally subsidized sanitation programs. To maximize leveraging of local government funds, it recommended triggering just one hamlet per village (WSP n.d.). It was hoped that rapid progress in the triggered hamlet would encourage other hamlets in the village to trigger themselves. Early on, districts often followed these guidelines. Some added their own criteria, such as the existence of a water supply program or prior experience with sanitation programs or CLTS.

As program implementation progressed, the TSSM team and many districts refined their targeting techniques. Although TSSM started by suggesting that districts target places that had poor baseline sanitation practices, the team soon realized that in some hamlets where open defecation habits were deeply entrenched it might be very hard to change behavior in a short time. Hence, they would not be able to provide the desired demonstration effect. The program shifted to recommending that districts choose hamlets farther from a river where program gains might be easier to achieve. Our field visits confirmed the premise that behavior change was extremely difficult to induce in hamlets near rivers. Irrespective of the strength of CLTS implementation, persuading poorer households to cease river defecation by adopting simple low-cost latrine options, such as pit latrines, was extremely difficult. Although these households preferred owning flush latrines, an option that they often could not afford, over going to the river to defecate, they universally preferred defecating in rivers to using pit latrines. They considered pit latrines unhygienic and difficult to maintain, especially during the rainy season when latrines flooded.

Pit latrine in flooding-prone area

On the other hand, in remote hamlets located far from a river, encouraging pit latrine use was much more effective. Remote and mountainous Kokop subdistrict in Bangkalan had nearly become

completely ODF by promoting pit latrines. Villages there lacked access to a river and most households did not have latrines, so residents often used the woods or fields to defecate openly. After triggering occurred, many households became ODF by building and using pit latrines. Similarly, ODF attainment was higher in the Dampit subdistrict, which also has mountainous topography, compared with other subdistricts in Malang district.

The viral spread of CLTS did not materialize, leading some districts to revise their strategies. Many districts learned that triggering only one hamlet per village was not adequate for having a strong demonstration effect. ODF attainment at subvillage levels was not a sufficiently remarkable achievement for neighboring places to take note and aspire to replicate. In some instances, districts became discouraged and stopped focusing on program implementation (see Box IV.1). In other more successful places, we saw districts shift to alternate strategies. Some of the strategies we observed in our field visits include the following:

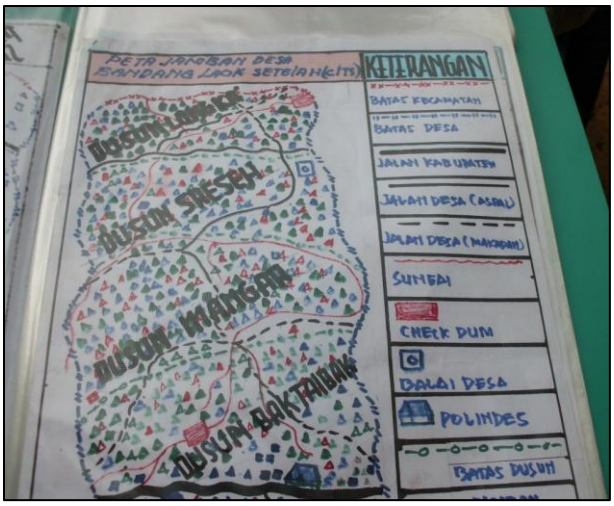
Box IV.1. Bondowoso: Lack of Early Results Discourages Scale-Up

Located at the eastern end of East Java, Bondowoso is characterized by high rates of poverty (more than 60 percent) among its residents. Bondowoso joined the TSSM program in 2008. With the support of WSP, the district triggered 30 hamlets in 2008, selecting places for triggering based on whether the subdistrict had an active sanitarian and whether the village had received water from WSLIC-2. The program experienced poor outcomes; it succeeded in converting only one village (*desa*) to ODF status by 2009. (Even though hamlets were triggered, the district required the entire village to become ODF in order to recognize ODF status.) Health office officials noted that only about 10 percent of the hamlets selected in 2008 showed interest in participating in SToPS; the rest were appointed to the program. Officials cited high rates of poverty, lack of support, and pressure from higher-ranking administrators for sanitation as a priority as likely reasons for poor program performance. With high poverty rates, the economy and poverty reduction were the highest priorities of the district government. The only village to attain ODF status in Bondowoso, Kabuaran in Grujugan subdistrict, became ODF because the facilitators in that community were quite interested in the program and the sanitarian received significant support from the village heads and other officials. In addition, many households already had latrines and the village was far from a river. Given the poor rate of success from triggered places in the first year, health office officials felt fiscal responsibility to the district government and requested cutting the funding program for the program by 50 percent in 2009. As a result, only 15 hamlets were triggered that year. However, none of these villages had become ODF, and in 2010 health officials further cut the funds and conducted only monitoring activities.

Many districts learned that triggering just one hamlet per village was not adequate for having a strong demonstration effect. The more successful districts adopted or shifted to the following strategies:

- **Clustered rather than diffused targeting.** Some districts targeted geographically clustered subdistricts and hamlets rather than widely dispersed hamlets. For example, Gresik initially chose to target only three neighboring subdistricts in the south of the country; Jombang, on the other hand, began by triggering hamlets in 14 subdistricts. Gresik favored geographic concentration of resources (clustering) to achieve more comprehensive and visible progress within a few subdistricts, rather than district-wide breadth of coverage. In Bangkalan, the district began with a diffused approach in which hamlets in more than a dozen subdistricts were originally triggered, but district staff switched to concentrating their resources on a single subdistrict (Kokop). Kokop was nearly ODF during the time of our visit (except for a few hamlets in one or two villages), and the district was ready to replicate this approach soon in another subdistrict.

- **Village rather than hamlet triggering.** TSSM initially recommended triggering a single hamlet within a village, allowing the triggered hamlet to spark demand among its neighbors. Although a few districts followed this approach, several others—including Trenggalek, Gresik, and Bangkalan—found it more effective to switch to triggering all hamlets in a village. District officials felt this gave the households a greater sense of purpose and encouraged the village to become ODF. In fact, in some places the district recognized the achievement of ODF only when the entire village became ODF, rather than one hamlet.



Targeting all hamlets in a village

Geographic clustering or triggering all hamlets in a target village often proved more successful than triggering a single hamlet per village in the hopes of kindling replication. The TSSM team has already discovered and shared the lesson that a clustered approach is more effective than diffused targeting. An equally critical lesson relates to the potential benefits of triggering all hamlets in a village at the same time (or in quick succession). In a few isolated instances, we observed that triggering a single hamlet led to replication in other hamlets in the village. In the Dampit subdistrict of Malang district, triggering a single hamlet motivated the remaining hamlet heads to request and receive triggering and become ODF. However, this seemed to be an anomaly. In most cases, we observed that triggering just one hamlet or subhamlet was not powerful enough to lead to village-wide behavior change. Almost all successful districts and subdistricts that we observed adopted the approach of triggering all hamlets in the village. It seemed to promote more knowledge of the program, allowed sharing of resources and techniques (for example, joint triggering of all sites by all facilitators), and enabled local officials to harness competition to generate more momentum for program implementation.

2. Building Capacity of Key Stakeholders

The TSSM team helped local governments prepare for CLTS adoption by training facilitators and other key staff at the district level. The training aimed to improve knowledge of TSSM and create capacity for implementing and monitoring the program. The TSSM team hoped to use these trainings to create a core team of reliable and skilled facilitators to support the implementation of the TSSM program. The purpose of the training was to build capacity for triggering and for district staff to train additional facilitators in subsequent rounds of training as needed. The target audience for the training included district and subdistrict government and health officials and coordination committee members (where they existed), as well as representatives from the villages. Selection of participants at each level was originally intended to be conducted by coordination committees. In the absence of such committees, district and subdistrict staff typically conducted selection.

CLTS training for local stakeholders consisted of multiple types of instruction. Training content covered both the fundamental principles of CLTS and tactics for triggering household demand. This component was based on tested CLTS techniques. The training also exposed stakeholders to newer elements developed by TSSM, including principles of sanitation marketing

and templates for monitoring progress, collecting data, and verifying ODF status. Training techniques incorporated adult education approaches that made use of participatory methods, including question-and-answer techniques, group discussions, games, and brainstorming. Training generally lasted for four days. In addition to in-class instruction, training consisted of in-class simulation, live field practice in triggering hamlets with resource agency training staff, and a plenary discussion to analyze lessons from field implementation and plan next steps. During the trainings TSSM trainers hoped to help facilitators create a follow-up plan for attaining ODF status at village, subdistrict, and district levels. Overall, in each district, the resource agency triggered 15 hamlets for demonstration purposes and supervised trained facilitators while they triggered another 15.

The content and format of the trainings were positively viewed and seemed to generate support for the nonsubsidy approach incorporated in CLTS. Nearly all of the stakeholders we interviewed who had participated in training thought that the sessions were conducted well and were very useful. In particular, the interactive nature of the trainings seemed to make a strong impression on many participants. The practical component of the training was also considered effective. It likely played an important role in convincing participants about the viability of the TSSM approach. For example, district officials in Gresik indicated that these trainings were instrumental in convincing skeptical subdistrict officials and health center (*Puskesmas*) heads that a nonsubsidy approach could work; in the absence of this conviction, implementing the program would have been difficult.

Training efforts need to expand to encompass village and hamlet staff who are often on the frontline of program delivery. Much of the CLTS training focused on district- and subdistrict-level staff. Some of these staff were to be trained as facilitators, whereas others were trained so they could know more about the program or so they could help with future trainings, rather than direct facilitation. Although training higher level district and subdistrict officials is important for program success, effective triggering also seems to require the participation of trained facilitators who belong to the target village and hamlet. In Gresik, after the first round of triggering conducted by district officials failed in several hamlets, the *Puskesmas* held a follow-up training for stakeholders from the village who were then able to use their local knowledge to effectively retrigger the hamlets. Conducting trainings at periodic intervals in which village and hamlet officials and volunteers are included is likely to be an ongoing need as districts try to scale up.

Greater attention might have to be paid to creating a well-trained core of district master trainers for training facilitators at the village and hamlet levels as the program scales up. We observed variation in the degree to which districts had developed this capacity to conduct such additional training. In some cases, district and subdistrict officials conducted these village-level trainings themselves; in others they drew on resource agency assistance. Some districts hired these staff to help with the training even after the WSP program implementation had ended. For long-term sustainability, a greater emphasis on creating a district core of master trainers might be necessary.

B. Delivering the CLTS Intervention

In order to instill the will to eliminate open defecation among hamlets, TSSM planned on helping districts use a range of techniques to trigger hamlets and conduct follow-up. The triggering process itself was conceived as a sequence of three activities: pretriggering planning, triggering, and post-triggering.

1. The Pretriggering Planning Activities

Pretriggering planning activities consisted of preparing the logistics for the triggering events and conducting a preliminary investigation of the hamlet. Knowledge gained about the hamlet would be used to customize the triggering approach. In a number of hamlets we visited, facilitators briefed and strategized with village, hamlet, or subhamlet officials before triggering. They sometimes also conducted baseline data collection beforehand to inform their triggering approach. This mapping exercise sometimes served as a mechanism for village officials to gain a better understanding of their hamlets. For example, in the Dampit district of Malang, village and hamlet officials commented that mapping made them aware of the severity of sanitation problems in their hamlets and increased their dedication to participating in triggering and post-triggering activities.

2. The Triggering Event

The triggering event was designed to be a pivotal hamlet-wide occasion for bringing together the entire community to spark collective determination to eliminate open defecation. The triggering process itself was to be guided by an emphasis on learning from households about their perceptions about sanitation, making them aware of the dangers of open defecation, and allowing them to devise solutions.

TSSM prescribed guidelines and provided training on the techniques to be used for triggering, leaving facilitators free to improvise based on the local context. The triggering process generally started with some introductions and questions about current practices, using CLTS tools. These could include conducting a focus group discussion; engaging the households in drawing a social map to indicate where they live, where they defecate, and the kind of sanitation facilities that they use; and conducting a transect walk through the village to see evidence of open defecation. The next step was to trigger disgust through tactics that included the use of chaff to represent the amount of human waste produced or the contamination of water with a hair dipped in mud or feces followed by questions to the hamlet members about whether they would drink that water. These tactics aimed to make households aware of the dangers of contamination resulting from open defecation. Subsequently, the facilitators obtained a collective commitment to eliminate open defecation, as well as individual commitments from households that defecated in the open. The facilitators would identify natural leaders who would motivate the hamlet to fulfill these commitments, transfer the social map onto paper for future use in tracking progress, and discuss cheap latrine options as necessary.

Social map

Most triggering events followed this format, although some places adhered to prescribed techniques more closely than others. Facilitators and other district-level staff who might have participated in triggering were likely to describe the triggering process as containing many of these elements. During our focus groups, when we prompted participants about the triggering event, the usual elements they remembered included attempts to evoke disgust by contaminating water with feces or by estimating the amount of waste produced by households.

Occasionally, participants recalled social maps being made or transect walks being conducted as part of the triggering. Districts sometimes added their own variations to this basic triggering. For example, facilitators in Gresik found that using the story of a man being bitten by a snake while defecating in the river was very effective. We heard this example from stakeholders at every level within the district, suggesting that it had made quite an impression.

Triggering did not appear to be the pivotal event it was meant to be among hamlet members; many households had difficulty recalling the event. Only a handful of focus group attendees recalled attending the triggering event, which might have been due to the size and timing of the events. Triggering events were often small affairs attended by 20 to 30 people. The attendees were typically women, often because the events were held during the day when men might have been at work. Although facilitators were informed of the importance of scheduling the triggering events at times that were convenient for the households, they were not necessarily provided with incentives to overcome the additional inconvenience of triggering after work hours. This was especially true for facilitators from the district or subdistrict levels who were not from the local hamlet, and when target hamlets were remotely located. Among participants in our household focus groups, even people who had attended the triggering event did not instantly recall that they had done so and remembered details only when they were probed and had their memories jogged. In general, we also observed little recognition among households of terms such as SToPS (*Sanitasi Total dan Pemasaran Sanitasi,* the Bahasa term for the program) or TSSM, triggering, ODF, and so on. Partly, this might have been because triggering could have occurred as long as two or three years ago in some of the hamlets we visited, making it difficult for people to remember the event. It also appears that households were often invited to hamlet events without much information on the purpose of the meetings. This likely made it difficult for them to distinguish triggering from a host of other socialization events that occur in the hamlets. Nonetheless, the triggering did not appear to be a memorable event in the minds of many households in these hamlets (even those that had become ODF).

Some communities took a joint triggering approach, which seemed to yield more success. Typically, a few facilitators from the subdistrict conduct triggering in a hamlet by collaborating with village and hamlet stakeholders. In a few places we saw a departure from this approach. In these instances, the full *Puskesmas* staff engaged in the triggering effort. For example, in Kokop subdistrict of Bangkalan, the doctor who headed the *Puskesmas* involved his entire staff in triggering all the villages. They organized the villages in Kokop into roughly three groups, each to be triggered in successive years. Because the doctor, nurse, midwife, and various other *Puskesmas* staff were all engaged in the triggering, they were able to focus household attention on the importance of behavior change. The team successfully engaged natural leaders from the villages, and members from one village helped those in a neighboring village build latrines and provide other program follow-up support. Similarly, the Wringinanom subdistrict in Gresik and the Gandusari district in Trenggalek adopted a joint triggering approach. Here, all trained village-level facilitators from different villages jointly triggered each of the target villages in the subdistrict. They felt that this approach to triggering allowed them to have a greater impact on households and facilitated cross-site learning.

3. Post-Triggering Activities

TSSM designed a range of post-triggering activities, which were conducted less frequently than anticipated. TSSM designed these activities as a means to reinforce the messages delivered during triggering. The TSSM manual suggests that facilitators and natural leaders identified during triggering are to conduct the following activities: follow-up triggering, household visits to encourage progress,

disseminating knowledge of the different contamination paths though which poor sanitation results in disease, and introduction to low-cost options. Additional steps included creation of interaction networks of natural leaders from hamlets in the village to encourage cooperation, learning, and competition among hamlets, as well as helping village leaders devise contests among hamlets. However, in many instances, these post-triggering activities were not systematically conducted.

Where post-triggering follow-up occurred, it consisted primarily of two types of follow-up activities. These follow-up activities included (1) repeat socialization and messaging and (2) targeted monitoring through household visits. Several of the more successful hamlets conducted *repeat socialization and messaging,* whereby religious and political authorities and health staff or volunteers stressed the importance of becoming ODF through existing congregational avenues and communal gatherings. These included prayer meetings, women's group meetings, savings scheme meetings, and health outpost visits or events. Repeat socialization often seemed to have had more of an effect on households than the initial triggering event on its own. *Targeted monitoring through household visits* included subdistrict and village officials, staff, and volunteers regularly visiting households that defecated in the open to encourage behavior change until the households adopted latrine use. We observed considerable variation across subdistricts and villages in the extent of follow-up conducted: frequently none was conducted or was conducted only with households that had made a commitment during triggering events. In a few instances, facilitators followed up with all openly defecating households in the community, sometimes by using the social map.

Adoption of both types of follow-up resulted in more lasting behavior change. Better results were observed in hamlets where both types of post-triggering follow-up activities were adopted through multisectoral coordination and where health benefits of ODF status were emphasized during follow-up. In places with strong performance, we frequently observed repeat socialization in several forums and sustained, ongoing follow-up with households. These types of follow-up activities tended to occur more frequently in places where there was high commitment among key people at the subdistrict, village, and hamlet levels, such as we observed in Wringinanom subdistrict in Gresik (see Box IV.2). In places where ODF attainment was driven by a less holistic approach, the gains in ODF might have been more transitory. For example, the Kedamean subdistrict of Gresik attained ODF largely because officials and volunteers conducted repeat visits to the households until they became ODF, without repeat socialization or ongoing monitoring after hamlets achieved ODF. In those hamlets, the sanitation facilities of the households we observed were of poor quality. Hamlet awareness of the link between open defecation and disease was also less strong.

Box IV.2. Gresik: Success Through Repeated Socialization and Individualized Monitoring

In the Wringinanom subdistrict of Gresik, which managed to attain subdistrict-wide ODF status, *Puskesmas* and village officials and volunteers used a combination of repeat socialization and individualized monitoring visits to homes to convince households to cease open defecation. They used multiple venues, such as the weekly prayer group (*Tahlilan*) meetings and the funeral prayer (*Yasinat*) congregations, village meetings, and events at the health post to reinforce the importance of good sanitation behavior. They were particularly effective at making households realize the importance of the health dividends of being ODF. During these follow-up events and house visits, the facilitators seemed to have successfully communicated the principles of contamination routes linking poor sanitation to disease. As a result, households' primary motivation in maintaining their ODF status was to prevent diarrhea and other diseases. The sanitarian was also diligent about visiting people's households in order to inspect facilities and observe whether they were maintaining ODF status, earning him the nickname "Latrine Police." During focus groups in Wringinanom, households suggested that if an ODF cash reward were offered it should be given to these facilitators for their instrumental role in helping their hamlets attain and maintain ODF status.

Post-triggering follow-up was not adequately prioritized at all levels for a number of reasons, despite stakeholders' recognition of its importance in driving ODF attainment. Districts and subdistricts appeared to focus disproportionately on pretriggering and triggering activities and prioritized them relative to post-triggering activities. This emphasis was driven by a lack of resources for post-triggering, which we discussed in the previous chapter. An additional constraint was competing priorities for implementing stakeholders' time, with subdistrict and village/hamlet staff, officials, and volunteers having a wide range of responsibilities. In some cases a lack of motivation (and not enough prioritization of the program at higher levels) was the reason.

Some successful strategies for increasing post-triggering follow-up that we observed were (1) provision of *increased resource allocation*, including small token financial rewards for facilitators and volunteers; (2) provision of *nonmonetary rewards* or leveraging recognition from political authorities for improved commitment to follow-up; and (3) *use of health data* to convince officials of the need for follow-up. In a few villages in Gresik and Trenggalek, we observed that subdistricts' provision of data on changes in diarrhea incidence in the village after triggering motivated the village head and village stakeholders to intensify their post-triggering follow-up efforts. Similarly, concern about diarrhea prompted adoption of TSSM in the Koncer Darul Aman village, which was one of the few islands of success in Bondowoso (see Box IV.3).

Box IV.3. Koncer Darul Aman: Using Health to Motivate Latrine Adoption

Although TSSM progress in Bondowoso was poor, it did contain a few interesting islands of success. At the time of our visit in October 2010, Koncer Darul Aman in Tenggarang subdistrict, which had been triggered in 2009, was fairly close to becoming ODF. Our team was invited to the village to support its commitment to becoming ODF. When the SToPS program was introduced, the sanitarian asked about the possibility of implementing the program in Darul Aman because it had a high prevalence of diarrhea cases. The success in Darul Aman is partly attributable to its using a less conventional facilitation process, using health as a major issue, and having a low-cost pour flush latrine option in the community. Finding that the community members were not enthusiastic about the conventional triggering process, the facilitator used other methods, including watching the rivers in which people usually defecate openly and following up with them in their houses a few days later about their behavior; persuading them to build latrines; and if they did not have funds, suggesting a collective fund as a solution. The facilitator also used the religious setting (*pengajian* or reading of the Quran); with the cooperation of the religious leader he would sit with the people and trigger those around him. The facilitator was a farmer who talked about sanitation with farm workers during their lunch breaks including the health problems from openly defecating. Diarrhea, typhoid, and hepatitis were health issues in the area; in particular, diarrhea had resulted in several deaths in the village. The midwife (*bidan*) supported the facilitator by triggering people who came to her office with diarrhea cases, immediately asking them if they had a latrine and explaining the contamination links. These measures motivated the community to utilize its own funds to construct latrines. Many of their latrines had gooseneck ceramic bowls but lacked roofs and had simple bamboo or plastic tarpaulin walls, which made them very cheap. Because households were clustered, usually five households collected funds and built a shared latrine. There was only one pit latrine in the whole village. One of the masons who attended the mason training helped build some of these latrines. At the time of our visit, only five households in the village had been unable to build their own latrine; those households used the public toilet when possible but still openly defecated in the river at times. Village officials promised to do their best to make the whole village ODF by the following month.

Pour flush latrines with tarp walls

C. Achieving and Maintaining ODF

After hamlets have been triggered and are undergoing post-triggering activities, districts also have to create mechanisms to encourage ODF attainment in those hamlets. After those efforts culminate in hamlets becoming ODF, districts must verify that a real change of behavior has occurred and offer public recognition of households' achievement to encourage adherence to new sanitation behaviors. Finally districts must continue with follow-up efforts in ODF hamlets to encourage continued improvement in sanitation choices.

1. Strategies to Encourage ODF Attainment

TSSM advised districts to adopt a range of strategies to encourage progress toward ODF achievement, including encouraging competition among hamlets and offering rewards on ODF attainment. At the district level, TSSM sought to establish interdistrict competitions by collaborating with *JawaPos* to include sanitation in the indicators for evaluating district performance. However, encouraging within-district performance and fostering competition among subdistricts and hamlets was the responsibility of district stakeholders.

Local governments adopted a variety of strategies for encouraging ODF attainment:

- **Fostering competition.** Some subdistricts sought to encourage competition among *Puskesmas*, villages, and hamlets through comparisons in public forums, such as subdistrict and village meetings, on which localities would attain and be declared ODF first. For example, the Gandusari subdistrict of Trenggalek employed this technique successfully when it persuaded some village leaders to redouble efforts to attain ODF status.

- **Offering rewards upon ODF declaration.** Nonmonetary or monetary rewards were sometimes used to incentivize achievement of ODF. Nonmonetary rewards included the district head (*bupati*) personally presenting ODF certificates to the hamlet or village head or attending the ODF declaration ceremony. Monetary rewards included cash rewards to hamlet or village chiefs when their areas became ODF. Among the districts we visited, the cash awards ranged from Indonesian rupiah (Rp) 750,000 (U.S. $83) per hamlet in Jombang, to Rp 5 million (U.S. $556) for an entire village achieving ODF in Trenggalek. Allocation of the rewards was often at the discretion of the hamlet or village head. In Jombang, a hamlet head used the rewards to help poor families build latrines. In Trenggalek, a village head used the funds to create low-cost ceramic latrines for distribution. However, in most districts—such as Gresik, Malang, Bangkalan, and Bondowoso—no monetary rewards were awarded. In some cases this was because the district did not have any money for this purpose. For example, in Bangkalan district, staff mentioned several times how they would have liked to reward Kokop subdistrict because most of its villages had become ODF, but they did not even have the resources to support the ODF ceremony.[13]

[13] Although the TSSM manual encouraged districts to incentivize ODF by providing development assistance (such as building a communal well or latrines for schools) to newly ODF hamlets rather than cash rewards, we saw limited evidence of such rewards being offered among the places we visited.

- **Triggering clusters of sites and making ODF declaration contingent on collective progress.** Although the general TSSM model indicates that individual hamlets can be declared ODF as soon as they become ODF, some districts adopted an alternate approach. They sought to accelerate ODF attainment by indicating that ODF declaration could occur only when a cluster of target areas (villages, clusters of villages, or a *puskesmas* or subdistrict) became ODF.

Requiring collective progress for ODF attainment seemed to be an effective strategy. Requiring collective progress had several key advantages. First, when an individual hamlet's goals were part of a larger set of goals (such as ODF achievement at the level of a village or cluster of villages) more stakeholders were tracking progress towards achieving ODF status. Second, it also gave hamlet households a sense of belonging to a larger group and more accountability. Third, when a larger cluster of hamlets achieved ODF status, rather than a single hamlet, the scale was more likely to attract attention and replication from neighboring villages. In the Wringinanom subdistrict in Gresik, the achievement of ODF status by all villages triggered by one *Puskesmas* was effective in motivating the other *Puskesmas* to renew their efforts and follow suit. Finally, it was also a more cost-effective way of using existing resources. For example, by focusing existing resources on a few clustered areas, districts could minimize travel and time costs of following up and monitoring households in triggered hamlets.

The effectiveness of other techniques, including financial rewards or district pressure, was more ambiguous. Financial rewards did not seem to be particularly effective in encouraging ODF attainment among the sites we visited; in some instances, few people other than the hamlet or village head were even aware that a financial reward had been received. District pressure to accelerate ODF attainment could be an important lever for progress but could also, on occasion, be counterproductive. We observed a few instances in which district pressure to attain ODF targets quickly led to facilitators identifying strategies that would permit quick ODF attainment. These included switching to or selecting areas with high existing baseline access to sanitation or switching from sites close to rivers with hard-to-change behavior to hamlets that were farther away and perceived to be easier to change. Although the original purpose of selecting easier places might have been to have a few early success stories to inspire other hamlets, in practice having individual hamlets become ODF quickly did not seem to inspire replication unless there was a concerted effort by stakeholders to trigger and show progress in additional locations.

Strategies encouraging leveraging of group resources facilitated acceleration of ODF outcomes. TSSM encouraged the use of collective resources to achieve ODF outcomes. In a number of places, we saw that villages effectively leveraged group resources to help poor households gain access to latrines. One common method was the use of community labor in hamlets to assist households to build pit latrines (known as *gotong royong).* In many districts we heard of villages where *gotong royong* had been used for latrine construction, especially to assist poorer households or the elderly and the poor to make pit latrines. In the Koncer Darul Aman village in Kabuaran subdistrict in Bondowoso, groups of five families pitched in to construct cheap pour flush latrines that those households could use. In the Dampit subdistrict in Malang, the Perak subdistrict in Jombang, and the Kokop subdistrict in Bangkalan, we heard of communities reaching ODF through volunteers helping households dig pit latrines, or making lids for existing latrines. Another mechanism in some places we visited, such as Perak in Jombang, was the establishment of revolving funds (known as *arisans*) for sanitation, whereby households made monthly contributions to a common savings

scheme that would enable one member per month to build a latrine. Although TSSM sought to foster more widespread adoption of these approaches, we most often observed these mechanisms for leveraging joint resources in hamlets or villages with a tradition of community cohesion; such mechanisms therefore depended greatly on the specific culture of the village or hamlet.

Proximity to a river made progress toward ODF outcomes extremely difficult as households would not consider low-cost pit latrine options; other strategies might have to be considered in such communities. The program had the most difficulty achieving behavior change in hamlets located near a river. Households in such areas were averse to using pit latrines, and considered defecating in the river superior to using pit latrines. Several respondents in our focus groups mentioned that they thought defecating in the river was cleaner because it simply washed away the feces. Some of the weaknesses of pit latrines that households cited included feces overflowing whenever the river floods, collapse of latrines due to the soil sagging in the rainy season, and the danger of people and livestock falling into the pit. However, these households preferred to defecate in pour flush latrines, but often could not afford them. This suggests that customized triggering approaches and strategies focused more directly on identifying an affordable supply of cheaper permanent latrines might be necessary in places near rivers.

2. ODF Verification, Certification, and Awards to Motivate and Encourage Replication

As a hamlet becomes ODF, the TSSM program recommends that local stakeholders conduct ODF verification and offer certification awards and rewards. These activities aim to encourage a sense of accountability toward ODF commitments among hamlets, verify and confirm the quality of self-reported progress among households, and recognize the accomplishments of the hamlet and enable it to act as a role model for other places.

The TSSM program advised the adoption of a rigorous process for ODF verification that included thorough inspection by independent observers of the hamlets' sanitation facilities. According to the TSSM manual and a WSP learning note, when a hamlet neared ODF achievement, it was to notify the subdistrict *Puskesmas*. The *Puskesmas* would then notify the district and schedule a verification visit. The verification team was to consist of staff from the *Puskesmas* and district, and include independent observers, such as government officials and facilitators from neighboring areas and nearby *Puskesmas*. Using the social map, the verification team would split up to visit all households in the hamlet using a checklist of 10 indicators developed by the TSSM program. Houses that met these standards would receive an ODF sticker to enhance pride in ODF attainment and motivate replication by other households. After conducting the visits, the verification team would reassemble to collate results and announce to the hamlet whether it was found to be ODF. Hamlets that were not ODF received reasons for the negative assessment and advice on remedial steps. Districts provided ODF certificates to successful hamlets and held special award ceremonies attended by district or subdistrict heads.

ODF verifications were usually not as intensive or independent as advised by TSSM, but did not appear to be systematically biased. Overall, the process of verification varied significantly from place to place, but appeared to be more ad hoc and much less stringent than the recommended procedures. We encountered four types of verification among the hamlets we visited: (1) almost no verification (health volunteer indicates hamlet is ODF and the hamlet is certified); (2) verification by the sanitarian; (3) verification by a team of *Puskesmas* staff and subdistrict officials;

and (4) verification by a team that included independent observers from a different *Puskesmas* or district, and/or district health office staff. The first two processes for verification were most frequently adopted, particularly as the program progressed beyond the initially triggered locations. According to the accounts we heard, only a small sample of houses was selected for verification, and the examination procedures did not appear to have been as thorough as those stipulated in the TSSM model.

Nonetheless, ODF declaration did not appear to be systematically inaccurate. Our observations through transect walks, discussions with households, and examining the latrines of households in hamlets declared ODF suggest that in these communities households primarily used latrines and did not defecate in the fields or rivers.[14] However, the condition of the latrines households used varied to some extent. Whereas in some places that had been declared ODF we observed clean and hygienic latrines, in others we observed more lax standards. For example, in some hamlets declared ODF, we noted that though pit latrine users owned lids, they were of poorer quality and less diligently used. Lower-quality latrines were more likely to be observed in places that had become ODF with less intensive triggering or post-triggering processes, or in places triggered in isolation. In contrast, in locations where there was great pride in ODF attainment or a greater appreciation of the immediate health risks of open defecation, we observed that the lids were more sturdily built and more diligently used. For example, in the Wringinanom subdistrict of Gresik district, officials, health volunteers, and households all knew and seemed to apply pit latrine standards defined by the district. The few pit latrines we visited in an ODF hamlet in this subdistrict were all firmly sealed with heavy lids, had clean water readily available, and were sufficiently far from the house, in accordance with the rules. A corresponding knowledge of the health reasons that necessitated application of those standards accompanied this knowledge of the rules.

ODF verification and declaration did not always seem of great importance to hamlets and were a higher priority for districts than for hamlets. The TSSM model posits that the ODF declaration should be a critical event for the hamlet. The premise is that the hamlet tracks its own progress toward ODF status, applies for ODF verification when it is ready, and takes pride in the ODF declaration and certification when the hamlet receives it. However, with a few exceptions, we found that district staff or subdistrict *Puskesmas* staff were the most anxious about making sure that hamlets were declared ODF. (This trend seemed to gain impetus with the inclusion of sanitation as one of the criteria used in the *JawaPos* awards to evaluate district performance.) It was rarer for us to encounter hamlets actively concerned about applying for ODF verification. We sometimes even encountered hamlet or village officials who knew their hamlet had been declared ODF but were uncertain what the term meant or how they had achieved the declaration. Similarly, households had seen banners with the ODF logo but were uncertain of what they implied.

Again, our observations were that the lack of interest about ODF declaration was greater for hamlets in which ODF gains were realized through minimal investments, either because baseline

[14] It is worth noting that in most hamlets that we visited households consider ODF to be the use of latrines instead of rivers, fields, and other open areas. It is rare for households to think of ODF in terms of using latrines of a minimum quality (for example, with proper sealed lids and slabs).

access was high and only a handful of households had to change behavior or because households already used open pit latrines that needed minimal upgrades to become ODF. However, even in hamlets in which ODF attainment was a priority, the actual verification and declaration process seemed less of a momentous occasion, recalled by none or very few of the households in our focus groups. In a few instances, hamlets held formal awards ceremonies, usually entailing a district or subdistrict head visiting the first hamlet to become ODF. In most other cases joint award ceremonies were held at a central location or the ODF certificate was simply delivered to the hamlet.

ODF declaration banners and monuments

3. Post-ODF Follow-Up Is Important to Maintain ODF Status

It is also important for facilitators to encourage households in ODF hamlets to improve latrines and make further progress up the sanitation ladder. The TSSM manual suggests that the program envisaged post-ODF follow-up as a mechanism for encouraging improvement of additional sanitation behaviors, including hand washing, safe treatment and storage of water and food, treatment of liquid and solid household waste, and safe disposal of garbage. Our field visits indicate that an additional reason for conducting post-ODF follow-up is to ensure that ODF gains are maintained over time and that households continue to look for ways to improve their latrines on an incremental basis.

Post-ODF follow-up was quite infrequent and more likely to occur when the hamlet had great pride in ODF attainment and/or received many external visitors. In the few places that had made exceptional and concerted progress toward ODF outcomes, or in which there was high program ownership and pride, we saw some evidence of post-ODF follow-up that focused primarily on sanitation conditions and use. This was usually in the form of continued socialization during village gatherings or prayer meetings. Few other places had conducted follow-up.

Hamlet officials and households on many places we visited indicated that continued monitoring of households through house visits is critical for maintaining ODF status. They also noted that such visits require resources. Some village officials even indicated that external monitoring visits from district or subdistrict staff could help reinforce the importance of staying ODF. In our observations, many of the visibly ODF hamlets that maintained latrine quality were ones in which some form of post-ODF follow-up and monitoring occurred. To encourage maintenance of ODF and facilitate continued ascension up the sanitation ladder, TSSM might have to explore more mechanisms for encouraging post-ODF follow-up and help districts find ways to mobilize resources for this activity.

In conclusion, some elements of the CLTS component appeared to be more critical to program success than others. These include strategic targeting of geographic clusters and triggering all

hamlets in target villages; training hamlet-level stakeholders and involving them in the triggering process; conducting systematic and intensive post-triggering follow-up through repeat socialization by a broad coalition of stakeholders; publicizing the health benefits of ODF practices; and conducting post-ODF follow-up to ensure maintenance of ODF behaviors. Additional resources must be dedicated to ensure wider adoption of these key measures.

V. EXAMINING THE DEVELOPMENT AND IMPLEMENTATION OF SANITATION MARKETING IN EAST JAVA

WSP's examination of global applications of CLTS led it to conclude that although CLTS effectively generated demand for eliminating open defecation, it was not by itself sufficient for driving adoption of improved latrines. WSP believed that ODF gains would be hard to sustain over the longer term if households were unable to upgrade to more permanent latrines (WSP 2009; Frias 2008). To drive progress up the sanitation ladder, WSP adopted sanitation marketing to strengthen the market supply and demand for sanitation products and services. Its strategy in the TSSM program was to first trigger households using CLTS and encourage them to quickly become ODF by adopting the simplest and most readily available solutions possible. The program would then build on this community-level behavior change by using sanitation marketing to encourage ODF households to upgrade slowly and incrementally to improved and better-quality latrines.

The sanitation marketing component aimed to enhance both the supply of and demand for safe, healthy, and hygienic sanitation products. This component would make use of behavior change communication (BCC) to reinforce anti-open-defecation attitudes and encourage greater household demand for and investment in improved sanitation facilities. It would also use supply-enhancement measures to encourage the market to deliver improved sanitation options that catered to a range of consumer segments, particularly those that could afford only low-cost solutions.

To execute this approach, TSSM undertook three clusters of activities, which we discuss in the following three sections of this chapter. In Section A, we describe preparation for the development and implementation of sanitation marketing. In Section B, we examine efforts to enhance competitive supply. In Section C, we discuss the creation and dissemination of sanitation marketing materials for behavior change.

A. Preparation for Sanitation Marketing

Unlike CLTS, which had previously been tested in Indonesia, sanitation marketing was an entirely new intervention in Indonesia that had to be designed from the beginning. This was a

Key Findings

- The development time for sanitation marketing was longer than TSSM anticipated at the outset, affecting the program's ability to appropriately sequence sanitation marketing with CLTS.
- TSSM tried to develop supply of sanitation by training masons. Unfortunately, the mason training effort failed to have the anticipated results, in part because of poor targeting and selection of masons.
- TSSM shifted its efforts to providing training to small numbers of sanitarians and business-minded individuals on developing a social franchising model of sanitation solutions. This approach alone is on too small a scale to strengthen the supply market substantially.
- TSSM produced many promotional materials focused on behavior change, but adoption was limited, largely because of insufficient budgets and weak dissemination networks.
- TSSM developed an informed choice catalog to inform households of options for progressively upgrading latrines. Considered very useful by facilitators and sanitation providers who had seen it, its impact was curtailed by late and limited circulation. It might be useful to introduce this catalog early on with triggering and post-triggering activities, particularly in communities close to rivers where behavior change is more difficult to accomplish.
- Explicit strategies will be needed for poorer households unable to afford improved latrines, such as using revolving funds (*arisans*) or partial support from community development funds.

challenging task given the dearth of existing market research on sanitation choices and lack of knowledge among implementing stakeholders regarding what sanitation marketing entailed. The preparations for sanitation marketing and design of appropriate tools based on the research took almost 18 months to complete (WSP 2009). As a result, sanitation marketing began full implementation only well into the second phase of the project. Finding appropriate staff with the marketing, sanitation, and contextual expertise to develop the component was difficult; translating the market research findings into usable tools was a challenging and time-intensive exercise.

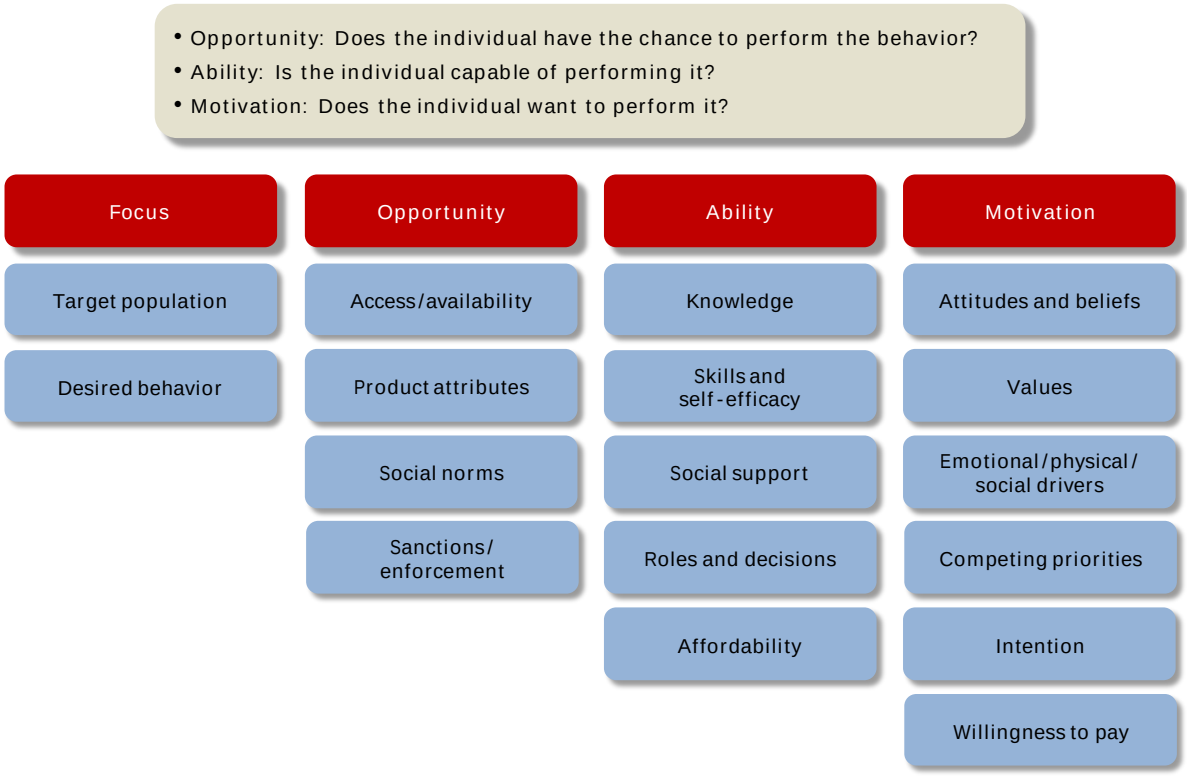
The TSSM team began by conducting a situation assessment followed by a detailed market analysis to inform the strategy and design of the sanitation marketing intervention. The TSSM team believed that marketing solutions would be most effective if based on context-specific knowledge. A situation assessment conducted for WSP in 2007 indicated that although there was no shortage of sanitation suppliers (people or businesses selling latrine construction materials) and providers (people offering latrine installation and maintenance services), they often lacked formal training in sanitation masonry. The situation analysis indicated that demand for latrines was low, households did not prioritize latrine acquisition, and people were comfortable with open defecation. Lack of supply was not the main constraint on demand but households appeared to overestimate the costs of installing improved latrines (Frias 2008).

The situation assessment was followed by a consumer research market analysis conducted in 2008 that drew on household surveys, focus group discussions, and in-depth interviews with sanitation experts. The market research on the demand side began in two districts in East Java, Probolinggo and Pacitan, with focus group discussions involving three kinds of households: open defecators, owners of unimproved facilities, and owners of improved facilities. In-depth interviews with sanitation experts and household surveys in 29 districts followed the focus groups. The research on the supply side consisted of conducting a rapid assessment of the sanitation supply chain. It encompassed masons and owners of construction material stores selling supplies for toilet construction, as well as their suppliers and buyers (Nielsen Indonesia 2009).

In the course of this research, WSP developed a strategic framework to guide analysis of behavior change determinants. It was called SaniFOAM, short for the Sanitation Framework of Opportunity, Ability, and Motivation (see Figure V.1). This framework helped WSP analyze the data from the market research conducted in East Java (Devine 2009; WSP 2010). This analysis revealed a number of factors constraining adoption of approved latrines. On the demand side, households did not prioritize investment in sanitation because they perceived (1) flush latrines to be expensive, yielding lower benefits compared with alternate investments; (2) disease to be a result of poverty and/or destiny and unrelated to sanitation behavior; and (3) sanitation to be a waste of clean water in water-scarce areas. Open defecation, rather than latrine use, was considered the norm (Nielsen Indonesia 2009).

On the supply side, a number of constraints also surfaced. Although supply of sanitation materials and services generally appeared plentiful, sanitation suppliers, retailers, and providers all thought of relatively expensive options when asked about the total cost of a hygienic latrine facility (Nielsen Indonesia 2009). It became clear that building a market for low-cost hygienic latrine options was critical, but the barriers were significant. The supply market chain was highly fragmented and lacked clear standards to identify safe and hygienic latrines. Moreover, the product to be promoted was complex: different latrine components (the below-ground receptacle for waste;

Figure V.1. SaniFOAM Framework



the middle part interfacing with the user, such as a ceramic squat pan; and the above-ground structure for privacy) could be combined in a variety of ways for latrines of different costs, making it difficult to select a few standard options (Devine 2009).

TSSM used this research to design a sanitation marketing component with the following features. The first set of activities sought to enhance supply through three key initiatives: (1) TSSM developed a customizable menu of low-cost options based on market research; (2) it trained and accredited providers and suppliers to boost their capacity to build and promote hygienic latrines using the menu of options devised by TSSM; and (3) it sought to promote a social franchising model that encouraged entrepreneurs to develop one-stop shops offering a full array of sanitation services. The second set of activities sought to boost demand by segmenting households based on their sanitation behavior and using targeted BCC to bolster rejection of open defecation and encourage latrine use, as well as increase demand for improved latrines by spreading awareness of low-cost options.

The development time for sanitation marketing was longer than TSSM anticipated, which affected the program's ability to appropriately sequence sanitation marketing with CLTS. Conducting background research and developing the interventions and tools for sanitation marketing took a long time. CLTS implementation had begun by 2007, but background research was not completed until the middle of 2008. This meant that the component was not ready for adoption for Phase 1 (implemented November 2007–June 2008), and the full bundle of interventions was not ready until into the implementation Phase 2 (September 2008–June 2009), and was only more fully integrated into Phase 3 (September 2009–March 2010). As a result, TSSM was not delivered as a holistic intervention in many of the districts as had been originally anticipated.

B. Competitive Supply Development

TSSM focused on competitive supply development to facilitate suppliers and providers to offer a greater number of and more affordable high-quality latrine options. It sought to strengthen the private sector operating in rural areas sufficiently so that it could profitably and sustainably deliver affordable and attractive sanitation goods and services to household consumers.

The TSSM team used market and consumer research to devise a range of low-cost hygienic latrine options. TSSM examined the range of options available in the market for different latrine components, examined their price points, and conducted research to see why household customers preferred certain options. Based on this research, TSSM started to devise different low-cost options for which suppliers could potentially build demand. Over time, the TSSM team developed an informed choice catalog that suppliers and providers could use to illustrate how to combine different latrine components to create options that were suitable for households' budgets. This catalog also showed households how to adopt latrine improvements incrementally. The catalog was not ready in the initial rounds of mason training but appears to have been distributed in later rounds of training. The TSSM team introduced the lower-cost ceramic pans popularized by the program to the market.

Poster comparing latrine prices

Next, TSSM focused on developing supply by conducting training of sanitation providers under the TSSM program. Initially, TSSM had intended to target the entire supply chain but, given resource and time constraints, it decided to focus on improving the skills of frontline providers (Frias 2008). TSSM initially opted to focus on masons. The market research study showed that although masons typically do not directly sell latrines, they can function as sources of information to households about latrine types to purchase and suppliers to visit. Moreover, although households often made simple pit latrines themselves or with the assistance of neighbors, they usually used masons for installation of more permanent latrines, particularly for installing the latrine pans and building the disposal system. Despite their potentially important influence on household sanitation decisions, masons often lacked in-depth knowledge of hygienic latrine options. Typically, they were informally trained members of the community who acquired sanitation masonry skills through learning by doing. (Our field visits indicated that many masons were farmers or construction workers doing masonry as a second job.) TSSM opted for the strategy of training masons to build their technical expertise.

TSSM planned and executed a mason training and accreditation program to improve the technical skills of masons. The team requested districts to send two masons from each of the 30 originally triggered hamlets. The training was developed and conducted in collaboration with ITS Surabaya, a leading technological training institute in East Java. TSSM sought to ensure that masons in every district received training to strengthen their formal training. At the very least, TSSM hoped to enhance masons' capacity to recommend, promote, and install low-cost hygienic latrines using guidance from WSP's market research. Accrediting trained masons and encouraging them to use *WC-Ku Sehat (My Latrine Is Healthy)* promotional stickers and branding materials developed by the TSSM program would hopefully enhance masons' profiles to ensure households sought their advice. At best, TSSM hoped that training would transform some of the masons into entrepreneurs in the

mold of the mason Pak Sumadi in Nganjuk district, who had developed a one-stop shop offering branded packages of low-cost options that the program was eager to have replicated (WSP 2010).[15]

Unfortunately, the mason training effort failed to have the anticipated results. We heard from several stakeholders, including the trainers and the TSSM team, that these mason trainings seemed to have had limited results. According to the TSSM team, only 10 percent of trained masons actively promoted low-cost options. With a few exceptions, masons did not actively participate in sanitation committees or promote low-cost options. TSSM's market research had indicated that households had ready access to a supply of sanitation goods and services. The value-added of its training centered on the promotion of low-cost hygienic options. A few masons we talked with reported that they had benefited from what they learned and used information from the training in helping households construct latrines. These masons found information on the appropriate distance of the septic tank from the water source and instructions on installing septic tanks especially useful. However, several others who went to the training did not end up using the information. Some indicated that it would have been useful if it contained a practical component. In most of the communities with trained masons we visited, household perceptions of costs of latrine options remained high and there was little awareness of lower cost-options.

Mason training yielded limited results, in part because participants for mason training appeared to have been poorly selected. As noted, the TSSM team asked the districts to identify masons for training, two from each of the 30 triggered hamlets in each district. Districts usually wrote to subdistrict and village staff asking them to send candidates for training. Village heads, who often received the request to select candidates with very short notice, did not seem to have adequate knowledge of the intent of the training or the criteria to use to select appropriate candidates. In many instances, nonmasons with no particular interest in masonry attended the training. Village officials sometimes selected such persons, either because they received insufficient notice and had to quickly identify someone to send to the training or because selected masons refused to go because they did not want to lose their daily wages. A number of officials indicated that either no or insufficient per diem was offered to the masons. The master trainer from ITS Surabaya confirmed that many attendees were not well selected and often not only lacked a masonry background but many also had low capacity in general. As part of our site visits, we met several masons; although some were more capable than otherssseveral primarily provided labor for latrine construction and likely lacked the business expertise to promote and market sanitation options to their community effectively. Indeed, in many communities, masons often have an agricultural background and acquire masonry skills on the side. A few exceptions, such as Pak Sumadi, did exist but these were rare and insufficient for creating change at scale.

When initial attempts to create a corps of well-trained masons promoting low-cost options failed, TSSM shifted its attention to training sanitarians and focused on developing a social franchising model of "One-Stop" sanitation solutions. The TSSM team adapted the mason training and focused it on sanitarians and other business-minded individuals, hoping to create entrepreneurs who could effectively promote low-cost sanitation options. In particular, the TSSM

[15] We heard about Pak Sumadi and his entrepreneurial skills from stakeholders in nearly every district we visited. A former mason, he had successfully devised several upgradeable models of latrines and improved sanitation options using local products. He had become quite popular, conducting many presentations and workshops on his approach and is featured in some WSP learning reports.

program wanted to replicate the social franchising model of the one-stop sanitation shop created by Pak Sumadi. To that end, it trained 14 one-stop shop providers from 14 districts. Trainees trained an additional seven providers (WSP 2010). During our field visits we heard that two people per district received entrepreneur training, so it was conducted on a smaller scale than mason training with fewer participants, but more intensively. People who attended the training seemed to find it useful, and we heard that a handful of active entrepreneurs seem to have emerged.

Despite TSSM's focus on entrepreneur training, it is unclear whether the program will be able to strengthen the market at scale. It appears that there still remained some problems with targeting individuals for entrepreneur training. One or two trainees we encountered were interested in developing a sanitation business but lacked adequate networks to enter the market. In Dampit subdistrict of Malang, for example, households complained that although low-cost options had been mentioned in passing during training, they heard no further information about such options subsequently. We discovered that the sanitarian who received the training was still trying to figure out how to establish a viable network of production and supply. Similarly, Bangkalan had sent a young, dynamic natural leader from Kokop for the entrepreneur training who was neither a mason nor a sanitarian. Although he valued the training and really wanted to become an entrepreneur, he did not have the resources or expertise to get started. He sought more time and support from the trainers and Pak Sumadi to get help in getting started.

TSSM might have to devote more resources to identifying, training, and following up with an adequate number of sanitation suppliers to increase access at scale. First, TSSM might have to train adequate numbers of suppliers in each target district and subdistrict for there to be demonstrable impact on availability of low-cost options. Second, more careful screening of training participants will be necessary. Trainees will likely have to be more carefully selected for the training to have the anticipated returns. For example, this might require describing the training and its intent to stakeholders at the subdistrict and village levels and working closely with them to develop methods of identifying suitable candidates, instead of leaving selection to district officials as was done for mason training. Special attention should be paid to trying to encourage voluntary (demand-led) participation from sanitation providers. Third, in order to gauge the effectiveness of the training, the program will have to devote resources to tracking sanitation sales and services provided by the trainees and how they change over time. This will be necessary to determine if trained suppliers do indeed increase access to low-cost sanitation supply. All of this suggests that the training component might require substantial investment of time and resources to be effective at scale.

In order to make this programmatically efficient, TSSM could conceivably adopt a phased approach, as was done for CLTS implementation. By adopting a phased approach, the program could focus on a few districts and subdistricts at a time and trigger a significant number of well-selected suppliers. This would increase the chances of there being a strong demonstration effect and building support for expansion of training in the future. By engaging district officials in this process and training them as master trainers, TSSM could build district capacity to phase in and deliver the training in the remaining subdistricts over time.

Finally, any further improvements on the sanitation supply side might have to consider strategies for households unable to afford improved latrines. In most of the household focus groups that we held, households that did not own latrines listed cost as the primary barrier to building a latrine, and typically did not include sanitation as high on their list of spending priorities. Although this perception might have partly been driven by the fact that households were unaware of lower cost pour-flush latrine options, it was also driven by the high levels of poverty of certain

households and hamlets. Some of these households reported that they would have to save for several years in order to acquire a pour-flush latrine, and would have difficulty affording even low-cost latrine options. Many of the households also appeared to rely on savings to finance expenditures on investments such as latrines, increasing the likelihood of sanitation construction plans getting disrupted by emergency expenditures on other items. (These general observations from focus groups are confirmed in our quantitative analysis described in Chapter VII.)

Some subdistricts tried to help poor households gain access to latrines by establishing community revolving funds (*arisans*), as was observed in Perak subdistrict in Jombang. Other approaches have leveraged private sector support (also observed in Perak in Jombang), used community development funds earmarked for villages (observed in Pakisaji in Malang), or used in-kind or cash support from within the hamlet (observed in several hamlets) to help fund latrine construction costs for poor families. Our discussions with the TSSM team in Indonesia indicate that they are aware of the need of adopting a differential approach for targeting poorer families that are unable to afford latrines and are investigating potential partnerships with other organizations to devise a solution as the program prepares for further scale-up. Our site visit observations suggest that systematic consideration of how to improve access to financing could be critical if the program is to achieve significant gains among poor communities, particularly in hamlets near rivers where there is resistance to adoption of pit latrines.

C. Development and Dissemination of Sanitation Marketing Materials for Behavior Change

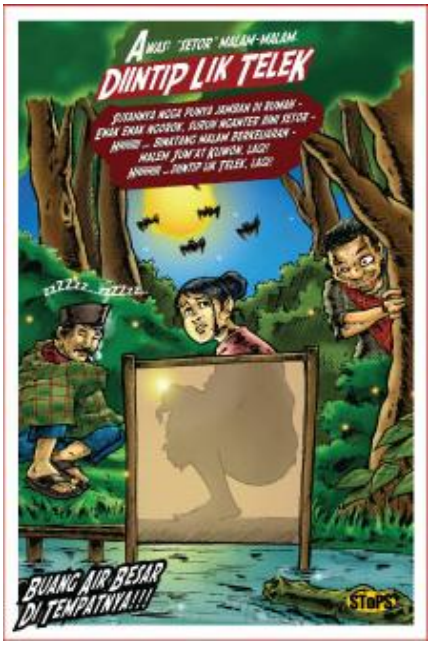
TSSM's market research had revealed that households were habituated to open defecation, did not consider sanitation a high priority, did not appreciate the link between defecation practices and disease, and thought that latrine ownership entailed high costs. To change these perceptions and attitudes, TSSM developed a range of BCC tools to encourage improved sanitation behavior. TSSM segmented the market of latrine users into three groups—(1) open defecators, (2) users of unimproved latrines, and (3) users of improved latrines—and created targeted strategies for each market segment.

TSSM produced a range of sanitation marketing promotional materials to help eliminate open defecation, move households from the use of unimproved latrines to improved latrines by increasing awareness of features and standards of hygienic latrines, and popularize and reinforce latrine use. Next, we describe and assess the specific materials developed for each of these purposes.

TSSM Lik Telek poster

To eliminate open defecation, WSP developed a range of promotional materials. The TSSM team developed posters and promotional materials, such as games, as well as marketing strategies to raise awareness of the dangers of open defecation and to promote latrine use. They created a signature character, "Lik Telek," who personified open defecation and made him the centerpiece of the campaign to promote sanitation awareness. To increase ownership over the adoption of this sanitation marketing approach and longer-term sustainability, the program sought to develop sustainable distribution

mechanisms. TSSM disseminated only a limited amount of the promotional materials for free, and instead offered districts a communication tool kit that contained ready-to-print materials along with a brochure of estimated costs of production for various templates.



Additional TSSM poster

Adoption of these posters and other materials was limited among the districts we visited. The TSSM team spent substantial time and effort in developing and market testing attractive materials, such as the ready-to-print poster tool kit. However use of these materials seems limited so far. Districts officials in most districts we visited indicated they had received posters and stickers from TSSM but we saw limited evidence that these exact posters were disseminated widely at lower levels. Although we occasionally saw sanitation posters in the subdistrict *Puskesmas*, for the most part, many sanitarians and staff at lower administrative levels were not aware or familiar with TSSM posters. There were a number of reasons for the limited production and distribution of the posters and related marketing materials:

- **There were insufficient funds in the district budgets for sanitation promotion.** Most districts had limited budgets for health promotion and several competing programs vying for promotional funds. With the exception of Jombang and, to a lesser degree Trenggalek and Bondowoso, most of the districts we visited did not allocate many funds for sanitation promotion. Instead, districts allocated their limited budgets to a few health issues that reflected high priorities for the district head and district health office.

- **The dissemination network for health promotion materials was weak.** Sanitation and other health marketing campaigns are primarily conducted by the Health Promotion (*Promosi Kesehatan [Promkes]*) division of the health office. Provincial officials of the Health Promotion division indicated that there were severe shortages in the *Promkes* network of staff with *Promkes* positions in several *Puskesmas* left unfilled. Poor coordination at higher levels between the Health Promotion and Environmental Health offices, which was primarily responsible for implementing TSSM, further weakened the production and distribution of these materials. Thus, even when sanitation promotion materials were produced at the district levels, they were rarely seen at lower levels.

- **Districts appeared to prefer using their own sanitation marketing materials.** Even those districts that invested in producing marketing materials often produced their own rather than use TSSM's ready-to-print templates. We observed that a few districts dedicated resources to developing posters, stickers, and, on occasion, even videos. (The Jombang district had developed an impressive array of these materials and won a *JawaPos* autonomy award for innovation for these efforts.) However, these materials were independently designed and produced and did not use TSSM templates, and even in this district we did not see much trickling down of the materials to the lower levels. District, subdistrict, and village officials sometimes cited their unique local knowledge as a reason for developing their own marketing materials, which were often much simpler banners and stickers.

Pages from an information catalog

To encourage households to upgrade from the use of unimproved latrines to improved latrines and to popularize perceptions of ideal latrines, TSSM developed informed choice catalogs. TSSM developed informed choice catalogs that would enable households to understand the features of healthy latrines, learn about options for adopting progressive approaches to latrine upgrades, and increase their awareness of low-cost options. These catalogs illustrated different combinations of latrine options, ranging from the lowest- to the highest-cost options for each of three latrine components: below-ground, ground-level, and above-ground structures. The purpose of the catalogs was to help households ascend the sanitation ladder by increasing their knowledge of viable hygienic alternatives. The informed choice catalog seemed to have been used in training of sanitarians, masons, and entrepreneurs.

- **Those who saw the informed choice catalog considered it useful, but many had not seen it and thought it would have been useful if they had.** Our impression from interviews with TSSM staff is that the informed choice catalog was to be disseminated during training and provided to facilitators, sanitarians, masons, and entrepreneurs so that they could use it to encourage households that had become ODF to ascend the sanitation ladder. The number of stakeholders who reported seeing the catalog varied. Those who had seen it thought that it was informative and potentially useful, but they had not yet used it, suggesting that guidance on its use might be necessary.

- **Careful consideration of the appropriate time to use the informed choice catalog might be necessary.** Some stakeholders who had seen the catalog (or who we showed it to during our field visits) thought it would be useful to use during or soon after triggering and follow-up, when interest in exploring latrine options is most high. The TSSM program staff, on the other hand, indicated that they often introduced the manual to communities *after* the community had attained ODF and reached the first step of the sanitation ladder. The reservation against using it earlier, during the triggering phase, was that it might distract households from reaching ODF status through adoption of more basic options by encouraging them to focus on building costlier latrines. Indeed, our observations from field visits (and our analysis of quantitative data in Chapter VII) suggest that households in ODF hamlets had recently adopted cheaper and lower-quality latrine options.

  However, in some hamlets, especially those near a river, households are not likely to consider basic latrine options, such as pit latrines. In every district visited, we heard that facilitators found it very hard to create behavior change among households in hamlets close to a river. In these communities, households that currently defecate in the open are willing to defecate in permanent flush latrines but will not consider pit latrines. In these communities, it might be useful to introduce the informed choice catalog during or soon

after triggering to increase households' awareness of low-cost options. Moreover, because facilitators are able to generate interest and galvanize community attention to sanitation most during the triggering and follow-up processes, some of this interest and momentum can wane after a community attains ODF status. Unless another milestone akin to ODF is created for adoption of improved latrines by the entire community, there might be insufficient incentives for facilitators in ODF communities to use the informed choice catalog to promote further behavior change.

TSSM developed a logo and stickers to popularize shared perceptions and standards of hygienic latrines and encourage ODF attainment and adherence to latrine use. The logo was a thumbs-up sign accompanied by the slogan *"WC-ku Sehat" (My Latrine Is Healthy)*. It was intended to be used for a range of purposes: to indicate to households which latrines met hygiene standards, to facilitate suppliers in branding and selling sanitation options meeting improved supply criteria, and to mark the houses of ODF households with latrines to increase pride of ownership of latrines. The *WC-ku Sehat* logo was made widely available and districts were encouraged to customize it as necessary. Although we saw these stickers in most districts or noticed that officials in subdistricts that had achieved good success frequently used the thumbs-up signal during our visits to hamlets, we rarely saw these stickers used at lower levels. For example, we rarely saw the stickers in use at *Puskesmas* or in villages or hamlets. Households did not seem to recognize it and we saw limited evidence that it had become a signal of latrine quality for households.

TSSM promotional sticker

Sticker developed by Gresik district

Overall, TSSM attempted to use sanitation marketing to introduce some innovative approaches to strengthen the sanitation market in East Indonesia. However, its delayed implementation due to the time taken to prepare and develop tools and strategies, and the diluted application at lower levels, appears to have limited its impact. It appears that CLTS has driven most of the gains realized by TSSM at the household and hamlet levels, and there is potential for more gains by improving approaches to providing low-cost latrine options to communities.

VI. MEASURING TSSM RESULTS—PROGRAM MONITORING DATA AND IMPACT EVALUATION

WSP incorporated a variety of monitoring, evaluation, assessment, and learning activities as key components of the TSSM program. Such activities were necessary for measuring success, indicating areas of improvement, and maximizing learning about program progress and outcomes. In this chapter, we focus on two measurement activities: (1) program monitoring data to measure access to hygienic sanitation and track the number of ODF communities and (2) the independent impact evaluation to measure the health and economic impacts of the TSSM program.

One of the early goals of this study was to reconcile some observed discrepancies between the program monitoring data and the longitudinal impact data. In fact, much of the impetus for conducting this study stemmed from the Foundation's desire to investigate why the impact evaluation longitudinal data showed little difference in behavior-related variables for sampled households in the treatment and comparison hamlets, whereas in fact the TSSM program monitoring data would suggest more behavior change.

To gain further insight on the nature and causes of the discrepancies between the two data sources, we sought to answer the following questions:

- What is the magnitude of the divergence between results depicted by the TSSM program monitoring data and impact evaluation data?
- What could account for this divergence? If it was the result of weaknesses in the program monitoring or impact evaluation data collection or approach, what could be done to strengthen these in the future?

As we examined the data monitoring process as part of our field visits, we also sought to assess the effectiveness of the innovative stakeholder-led monitoring model that WSP piloted for TSSM in East Java:

- To what degree did TSSM succeed in creating a sustainable, scalable, and effective mechanism of monitoring that produced high-quality data on sanitation outcomes? Which elements of this system worked well? How can the less effective elements be improved?
- What key lessons learned in the implementation of the monitoring process are relevant for nationwide scale-up in Indonesia and replication in other contexts?

To answer these questions, we focused on documenting the magnitude of the discrepancy between the monitoring and impact data sources for the impact evaluation locations. We conducted qualitative interviews with stakeholders at various levels of government to understand the processes by which monitoring data were collected and aggregated. We also studied the design for the impact evaluation and in our interviews with officials at the district and subdistrict levels sought to learn about their understanding of the process of selecting sites for randomization for the impact study.

The rest of the chapter is organized as follows. In Section A, we summarize the results from our comparisons of the two data sources to help reconcile the apparent discrepancies. In Section B, we summarize our observations on how two districts understood and implemented the selection of sites for the impact evaluations. We then discuss some implications of the interpretation of impact

evaluation results and draw lessons for future impact evaluations of TSSM-type interventions. In Section C, we describe the TSSM monitoring mechanisms to examine their efficacy. Finally, in Section D, we suggest some avenues for improvement.

A. Examining Divergences in Program Monitoring and Impact Evaluation Longitudinal Data

Monitoring System. WSP has set up a monitoring system to gather information on households' sanitation practices and the availability of hygienic latrines to learn about scale-up of the interventions in the three countries. As part of the TSSM program monitoring data, WSP defined key indicators. Those indicators consisted of information on the types of sanitation facilities that households accessed in the hamlets and whether a hamlet was ODF. Health volunteers at the hamlet level collected most of the data on the types of sanitation facilities. Subdistrict and district officials obtained and aggregated this information on a monthly or quarterly basis and transferred it to WSP staff in Jakarta. The latter in turn submitted the data to the Foundation to inform it of program progress and achievements.

Impact Evaluation. WSP's Global Impact Evaluation team in Washington, D.C., leads the impact evaluation. The team hired independent investigators to design and implement the impact study. The evaluation is part of a cross-country impact study of the Global Scaling-Up Rural Sanitation project being conducted in India, Indonesia, and Tanzania. Its purpose is to provide rigorous evidence of the effects of sanitation on a range of health and social outcomes.

The evaluation of TSSM in East Java used a randomized design with allocation of hamlets into two groups: a treatment group eligible to receive the TSSM intervention and a control group that would *not* receive the program for about two years. The impact evaluation team focused on eight districts from Phase 2 of program implementation (Cameron and Shah 2010). Hamlets (*dusuns*) were the unit of assignment, and to generate adequate statistical power, the team needed a sample of 20 hamlets in each of the eight districts included in the study, for a total of 80 treatment and 80 control hamlets.

To select the sample for the evaluation, the evaluation team requested district officials to provide the names of at least 30 villages in each district that were potential candidates for the TSSM intervention.[16] The team requested that district heads select villages that they expected would likely participate in the program based on district-specific selection criteria, such as sanitation and poverty levels, access to water, or prior exposure to water and sanitation interventions. Districts typically sent the team the names of 40 to 70 villages. From this set of villages, the evaluation team randomly selected 20 villages per district to be in the study sample (10 villages for the treatment group and 10 for the control group, stratified by subdistrict).

Because triggering occurs at the hamlet level, hamlets had to be matched to the villages. The evaluation team gave the names of the 20 study sample villages to district officials and requested them to select a hamlet in each village where triggering might potentially occur. After receiving the names of the hamlets, the evaluation team then notified district officials of the hamlets' assignment status. That is, the team told district officials which were treatment hamlets and which were control hamlets (based on their prior randomization of the villages that matched the hamlet). The evaluation

[16] As previously noted, villages are the larger administrative units, and usually consist of four to five hamlets.

team urged the district authorities to observe these designations and do all they could to avoid triggering the control hamlets.

From the hamlets in the research sample, households were selected for baseline, end line (or follow-up), and monthly longitudinal data collection. Household listings were conducted in each hamlet using information provided by health volunteers to identify a universe of households with children younger than 2 years old in each hamlet.[17] Thirteen households were randomly selected from each hamlet to participate in the baseline survey. These families also participated in a longitudinal survey conducted on more or less a monthly (or bimonthly) basis for more than a year starting in August 2008. The longitudinal surveys were necessary because of the sample size (or statistical power needs) required to measure the prevalence of diarrhea among children. A final follow-up (or end line) survey conducted in November and December of 2010 measured the full impacts of the program.

Reconciling the Divergent Results. As noted earlier, results from the longitudinal data showed little difference in the sanitation behavior of households in treatment hamlets compared with those in control hamlets (Table VI.1). Households in treatment hamlets also showed low awareness of TSSM program activities. Yet, according to TSSM program monitoring data, about 44 percent of the triggered hamlets had become ODF, suggesting that some behavior change might be expected. This raised concerns about the quality or validity of the TSSM program monitoring data, the impact evaluation results, or both, and the need to reconcile these findings.

Our first step in reconciling the differences in findings across the two sources was to examine what the monitoring data showed in terms of ODF status by phase of implementation, as well as for the subset of hamlets included in the treatment sample. We observed that the ODF attainment rate for Phase 2 districts was much lower than the rates for Phase 1 and Phase 3 districts (17 percent in Phase 2 compared with more than 50 percent in Phases 1 and 3). In addition, the ODF attainment rate for hamlets in the impact evaluation treatment sample was even lower (11.3 percent). These findings suggest that the perceived discrepancies between the two sources of data are not as large as originally thought and indicate why the impact evaluation might not have picked up behavior change.

Table VI.1. ODF Rates for Different Samples of Hamlets

	Percentage of Triggered Hamlets That Became ODF	Number of ODF Communities as a Fraction of Triggered Communities
Total TSSM Sites	44.4	1,230/2,870
IE Full Sample	11.3	9/80
Triggered IE Sample	16.1	9/56
Phase 2	16.6	166/999
Phase 1	58.1	784/1,350
Phase 3	53.7	280/521

Source: WSP 2010a.
IE = impact evaluation.

[17] This was eventually extended to 5 years of age in some hamlets, as there were not adequate sample sizes of women with children younger than 2 in all hamlets.

Given these results, our next step was to determine why Phase 2 districts performed worse than other districts. As noted earlier, TSSM program implementation occurred in three phases with districts appointed to phases based on the order in which they expressed interest and marshaled funds for allocation to the program. It is likely that the most motivated districts and those willing to commit resources to sanitation were selected in Phase 1 and perhaps showed better performance.

However, this leaves unanswered why the Phase 3 districts performed better than those in Phase 2. Based on discussions with resource agency staff and the TSSM team, we identified several possible reasons why Phase 3 districts could have outperformed their Phase 2 counterparts.

First, by the time Phase 3 was implemented, the CLTS approach had been adopted as a pillar of the national sanitation and hygiene policy. All districts were more aware of the importance of sanitation and of CLTS in particular by then. This might have motivated Phase 3 districts to concentrate more on TSSM program implementation. The inclusion of sanitation indicators in *JawaPos'* competition for district performance might also have intensified this focus.

Second, some changes made to program implementation in Phase 3 might have contributed to greater ODF attainment. These changes included the following:

- Just before Phase 3 implementation, WSP organized a meeting of all districts to share lessons learned by districts that had already implemented the program. Unlike districts in the earlier phases, Phase 3 districts had greater opportunity to learn from prior application of TSSM in East Java before starting program implementation.
- The resource agencies slightly changed their strategy of district consultants' engagement with districts in Phase 3. At the end of Phase 1, each district consultant continued to provide some support to his or her Phase 1 district as needed, while initiating the program in Phase 2 districts. The agencies followed a different division of labor during Phase 3, whereby the heads of the resource agencies focused on supporting the districts from the previous two phases. This left the district consultants to focus exclusively on their Phase 3 districts.
- Refinement of targeting criteria could have enabled more effective leveraging of resources. Instead of selecting hamlets dispersed across the district, resource agencies worked with districts to concentrate on fewer subdistricts. This strategy made it easier for staff to move among different locations.
- The sanitation marketing activities of the program took time to develop; they were more integrated into Phase 3 district activities. In particular, market research conducted for the sanitation marketing component might have strengthened triggering approaches in Phase 3 hamlets.

Finally, it is also possible that the site selection process, which differed in Phase 2 relative to the other phases, could have contributed to the range of ODF attainment. Site selection in Phase 2 took place well before districts were ready for program implementation. As we describe in more detail in Section B, it is possible that the whole process created some confusion on the part of district officials. Furthermore, we heard of major delays in passing the budget the year that Phase 2 districts implemented TSSM, so the program might have had less implementation time for Phase 2 districts.

We also attempted to understand why the ODF attainment results for the impact evaluation hamlets were so low, and whether any features related to random assignment or the impact

evaluation design might have affected the performance. Our qualitative examination revealed several possible reasons these hamlets might have shown poorer performance.

- ***Impact evaluation communities had poor fidelity to treatment assignment.*** About 30 percent of the treatment hamlets were not triggered, and about 15 percent of the control communities were triggered (Table VI.2). As described in detail in the next section, low rates of triggering might be due to a different site selection process in Phase 2, as well as the lack of clear comprehension on the part of district officials about the evaluation design. Given that a significant portion of the treatment hamlets were never triggered, combined with the fact that some control hamlets were triggered, it is not surprising that differences between treatment and control hamlets were lower than expected. Among triggered hamlets, ODF attainment was 16 percent (9 of 56).

Table VI.2. Triggered and ODF Status, by Treatment and Control Hamlets in the Impact Sample

	Treatment	Control
Original Sample	80	80
Triggered Sample	56	12
Not Triggered	24	70
ODF (of Those Triggered)	9	1

Source: WSP 2010a.

- ***The sampling approach taken for the impact evaluation might have further diluted the team's ability to pick up program results.*** The impact team conducted baseline surveys by sampling households with young children in the hamlets in the study sample. Our examination of the monitoring data and subsequent discussions with WSP staff and district-level officials revealed that triggering did not always take place at the hamlet level. Rather, sometimes triggering occurred at administrative units lower than a hamlet (that is, neighborhoods of a hamlet referred to as RWs [*Rukun Wargahs,* or administrative neighborhoods] or RTs [*Rukun Tetanggas,* or household clusters]). Because the impact evaluation sample was drawn from all households with young children from the entire hamlet, it is possible that some portion of the households in the survey sample lived in neighborhoods that were not triggered and hence were not exposed to the intervention.
- ***Some indicators included in the survey might not have been optimal for detecting program exposure.*** Our focus groups with households revealed poor brand recognition of the TSSM program. For example, although a household member could eventually recognize a description of program activity after considerable prompting, he or she did not often necessarily recognize that the TSSM program was responsible for the activity. Nor was the individual familiar with the terminology used by TSSM to describe key activities and milestones (for example, triggering and social maps). Many of the questions in the survey related to program exposure explicitly asked about the TSSM/SToPs

program by name; therefore, those questions might not have elicited accurate responses.[18]

B. Lessons Learned for Impact Evaluations of Programs Being Implemented at Scale

Our examination of the impact evaluation design and sample sheds light on considerations to keep in mind when evaluating complex programs such as TSSM, in which the goal is application at scale. Such interventions rely on the actions of implementers in several districts and at various levels of government within each district, which can lead to a great deal of program diversity as well as the need to engage multiple stakeholders. We start with some general lessons regarding evaluation of projects such as TSSM and to ensure that the evaluation occurs as planned. Next, we focus on how to ensure that the impact evaluation sample is representative of a scaled-up intervention and determine what questions the impact evaluation can answer.

1. Ensuring Effective Execution and Implementation of the Evaluation

Although random assignment is the gold standard of evaluations, it is considerably trickier to implement for large-scale, complex projects. Maintaining fidelity to assignment is particularly hard when program implementation responsibilities spread across myriad partners and implementation methods and staff capacity vary significantly across and even within districts.

Where the local context and capacity is so varied, it is important to understand the program context fully to identify the full range of implementing stakeholders relevant to study execution. In TSSM, implementation authority was tiered. District officials were usually involved in helping with the site selection process for the evaluation. Ultimately, however, program implementation took place at the hamlet level. Therefore, subdistrict officials, such as the sanitarian and other health center staff and village officials, typically led the implementation. Both high-level decision makers at the district level and lower-level officials at subdistrict and hamlet levels responsible for the frontline program execution have to understand the evaluation purpose and design; they must also appreciate the importance of following guidelines related to treatment and control communities.

Our field visits indicated insufficient or mistaken knowledge of the evaluation design among stakeholders at all levels. District officials varied widely in their understanding of research, random assignment, and what preserving the integrity of random assignment implied. Subdistrict officials, such as the sanitarian and other health center staff and village officials, were even less likely to know and understand what random assignment meant or which hamlets were treatment and control hamlets. We visited two districts that were part of the TSSM impact evaluation and tried to learn from district- and village-level officials about their understanding of the selection process of hamlets for assignment status. In both districts, district-level officials were aware that there were treatment and control hamlets. However, there was a great deal of confusion (and sometimes mistaken notions) regarding the process of selection, who selected the hamlets, which hamlets were

[18] In addition, there might be issues about the quality of the longitudinal data itself. Local health volunteers (*cadres*) usually collected these data; although trained in data collection, the volunteers were not professional staff of the data collection firm. In addition, they lived in the same hamlet as the respondents and might have experienced "data collection fatigue" from gathering such information on a frequent basis, which could have affected the data quality.

part of the impact evaluation sample, and what these hamlets represented. At the lower levels of administration, there was a considerably greater lack of knowledge (and usually no knowledge) about all of this.

District officials in one impact district we visited remembered something about there being treatment and control sites, but they did not remember the list provided by the impact evaluation team that indicated treatment and control hamlets. In fact, some district-level staff were truly convinced that they had selected the treatment and control hamlets themselves. Only after we probed repeatedly on the issue and asked them to look for the old paperwork that showed the assignment status did they realize that the team had provided the list to them. This confusion might have existed because we conducted our visits almost two years after random assignment had occurred. Nonetheless, the fact that officials clearly thought they had selected the treatment hamlets indicates that they neither understood the research design nor the random nature of the selection of treatment and control hamlets. More effort early on to ensure that critical stakeholders understand what the treatment and control hamlets were, how they had been chosen, and why it was important to preserve their status might have caused these officials to appreciate the importance of ensuring that hamlets were triggered (or not) as planned.

It is critical for the evaluation to monitor program implementation regularly and carefully to learn about deviations from the plan. In large-scale projects, especially those in developing countries, implementation often deviates from what is planned. In a program such as TSSM in Indonesia, the decentralized context of the program's implementation and the number of partners at different levels who determine whether and how the intervention is administered can make a big difference. For example, the TSSM program had a specific approach to recruiting hamlets for triggering: hamlets expressed demand for the intervention and districts selected among them based on identified criteria. In reality, the selection of hamlets varied substantially across the districts: selection was usually top-down and districts modified their selection criteria over time and in different ways. Because TSSM provided technical assistance and relied on districts to implement rather than having centralized implementation, we would expect heterogeneity of treatment and service delivery approaches. It is therefore important to create mechanisms to track program implementation carefully.[19]

Close cooperation between the evaluation and program implementation teams is necessary to ensure thorough knowledge of program design and to build support for the evaluation. Concern for maintaining independence of the evaluation can sometimes lead to limited engagement between the impact evaluation team and implementation partners. However, successful impact evaluations require close and ongoing collaboration between these teams. The collaboration is essential to ensure that the evaluation team thoroughly understands program design and any changes to the design. Conversely, the implementation team must fully understand the evaluation design and alert the impact evaluation team about any deviations from original plans.

[19] Having an external process evaluation can also help toward this purpose by providing important information to facilitate the evaluation's execution and inform program implementation. TSSM's implementation was complex and depended on the cooperation of a variety of stakeholders at various levels of governance, each of which had differing levels of capacity and resources, and was implemented in diverse district settings. Building in a strong external process or implementation analysis from the start could have strengthened program staff's ability to detect issues early and helped with course corrections. It would also provide the impact evaluation information on changes in implementation and more contextual information that could inform survey design and interpretation of results.

In the case of the TSSM program, adequate collaboration between the impact and TSSM teams might not have occurred early in the project. The impact evaluation team reached out directly to districts to discuss their requirements for sites for the impact evaluation. More intensive engagement with the TSSM implementation team began only when the evaluation team realized that not all treatment hamlets were receiving the intervention. Our discussions with the TSSM team indicate that they were not aware of the specific needs of the impact evaluation team and sent regular reports as requested by the impact team on the status of the hamlets based on information it obtained from the districts. Not understanding the evaluation design and the meaning of treatment and control status, village officials sometimes substituted hamlets when they decided a hamlet was difficult to trigger, assigning a different hamlet to "treatment" status. More direct engagement of the TSSM implementation team on the needs of the evaluation and increased coordination with them could have led to more TSSM oversight of the process and greater preservation of hamlets' treatment status.

2. Ensuring the Impact Evaluation Sample Is Representative of Overall Program Scale-Up

The issues identified thus far are somewhat straightforward and can be avoided or resolved with careful planning. A more complicated question is how to create an evaluation sample that is representative of a scale-up program. The approach to selecting sites for the impact evaluation could affect how representative that sample is of overall program implementation. This has a number of implications, which we describe next.

Site selection in impact evaluation districts for the TSSM program was conducted using a different approach compared with other districts. The usual process of selecting hamlets involved the resource agency staff and district officials holding road shows at various government/administrative levels to generate program awareness. For example, district officials held road shows to inform subdistricts (and sometimes villages) about the program. However, because the impact evaluation had to collect baseline data before program implementation, Phase 2 districts had to select communities well in advance (four to five months) before program implementation began. If the program had been truly demand responsive, as had been anticipated, then the districts' approach to selecting communities for the impact evaluation would have not been representative of how the program was actually implemented. However, because in many cases, selection of communities ended up being more of a top-down process, rather than purely demand driven, district selection of hamlets might not have been as different. Nonetheless, even with a top-down approach for selecting villages and hamlets for triggering, some amount of information sharing would have taken place before selection and district level officials might have made more informed selection choices and could have factored in likely demand for the program better than was possible for the impact evaluation sites.

The impact evaluation site selection process might not reflect the targeting strategies that districts ultimately adopted. Phase 2 districts used criteria specified by TSSM to select sites at the outset for the impact evaluation. These criteria, however, were not the same ones that the districts ended with as they tried and tested different strategies before settling on an approach they deemed most successful. The fact that the targeting strategy evolved over time contributed to the impact evaluation sample not being representative of the full set of triggered hamlets in the districts. In many districts we visited, district officials started with a dispersed targeting approach, but soon moved to taking a more clustered approach to triggering because they realized that this had a bigger demonstration effect. For instance, in Jombang, district officials focused more on ensuring Perak subdistrict became ODF, rather than focusing equal effort on each isolated hamlet that was originally triggered. Isolated and remote hamlets that were more difficult to influence quickly did not

often receive the attention and resources that the more purposively selected communities received. To the extent the former were part of the impact sample, this practice might explain why some of those hamlets did not get triggered or become ODF if triggered. In our visits to most districts, we observed limited success in getting all original 30 hamlets ODF, although there were pockets of villages or subdistricts in every district that had become ODF.

Because of the evolving implementation, the impact evaluation sample is not likely to be representative of the ultimate district implementation strategy and might not capture a representative picture of overall program performance. The sample will demonstrate only how TSSM works when assigned to specific sites irrespective of its level of interest in the program and in isolation of improvements in the district strategy and capacity. It is more a test of whether a set of hamlets assigned to the program show impacts, rather than a test of the effectiveness of scale-up.

Future impact evaluations of TSSM-type interventions with a focus on scale-up should carefully consider the approach and timing of sample selection. Impact evaluations often need to have sites identified early so baseline data can be collected. However, program staff might soon realize that those early sites are not the ideal places to start implementing the program and desire to change course. In pilot programs, focusing on the initial sites is less of an issue because the goal is to test the effectiveness of the intervention. However, for programs at scale, the ability of districts to create and develop strategies that improve over time are integral to scale up and determine overall success. Evaluations should either (1) consider sequencing their study so that site selection can occur when program implementers have had time to develop an understanding of the program and their targeting strategy (and possibly test and refine it) or (2) consider alternative, well-executed quasi-experimental designs. For example, as programs roll out, triggered communities can be matched with other similar communities and their outcomes examined. Although less rigorous than randomized studies, such quasi-experimental studies might be better able to build on program targeting strategy and provide a better sense of program effects. Finally, given that the whole TSSM effort is to learn about scale-up, other evaluation designs that try to measure take-up rates in different districts and understand the reasons for take-up will also be important in assessing program success.

C. Examining TSSM Monitoring Mechanisms

WSP established a monitoring system for tracking TSSM progress and results that drew on the participation of stakeholders at various levels of the program. The monitoring system was distinctive in that it placed monitoring responsibility on local officials from the beginning, rather than opting for independent monitoring mechanisms. WSP's objective in adopting this system was to create a culture of data tracking and data use at these administrative levels. It was hoped that demonstrating the feasibility of collecting sanitation data and its utility for policy and program decisions would result in districts' being willing to continue data collection after TSSM ended.

The TSSM implementation manual explains in detail the monitoring activities envisioned by the program at the hamlet/village, subdistrict, district, provincial, and central levels. The flow of monitoring data was intended to be bottom-up. Volunteers and other village or hamlet residents would conduct participatory monitoring of TSSM program progress in their communities on an ongoing basis, gathering data on changes in defecation practices and disposal of the feces of children younger than 3. They would use colored paper to mark progress made on the façade of the monitored houses and on the social map, leaving indicators of baseline progress untouched. The district facilitator would provide on-the-job training for these community stakeholders so they could conduct participatory monitoring in an effective manner.

According to the TSSM implementation manual, subdistrict officials and Health Center (*Puskesmas*) staff were to gather this information and record progress from all intervention villages on a monthly basis. They were also supposed to verify the information by conducting monitoring visits to households with updated statuses and send the verified data to the district. Subdistrict-level officials (primarily the sanitarians) received a template, the LB-1 form (see Appendix C), that enabled documentation of the types of sanitation access among households in the hamlet, disaggregated by latrine type and by household wealth. Monthly data collection aimed to capture defecation behavior change, disposal of children's feces, and hand washing with soap. WSP also devised several additional forms for use by subdistrict and health center staff in collaboration with natural leaders in the hamlets to conduct the following data collection activities: ODF verification and certification upon the hamlet's request, ongoing tabulation of investments in latrines by households, and quarterly data collection on craftsmen providing sanitation services. After achieving ODF, subdistrict, *Puskesmas,* and district officials were responsible for documenting the change in sanitation conditions in the hamlet six months after ODF status and sharing these findings.

The TSSM team developed template forms ranging from LB-1 to LB-10 to assist in each of these monitoring and data collection activities. To facilitate data collection, TSSM over time also invested in developing a short message system- (SMS) based system.

In our visits to each of the six districts, we tried to understand data collection—both in terms of the process and reporting—and how stakeholders might have used these data at the various administrative levels. Although all districts used a bottom-up process to collect monitoring data, with volunteers (*cadres*) being the primary source of obtaining the information, we observed that the approach to data collection was not systematic and the periodicity of reporting was not regular. Changes made by the TSSM team to the data collection forms also created some additional confusion among the district and subdistrict officials who aggregated the information. Despite this, we did not see systematic over-reporting of latrine construction or ODF status (which was originally a source of concern when the impact evaluation and monitoring data both seemed to show divergent results). Next, we elaborate on our findings related to the monitoring data.

Officials focused mostly on gathering data on household access to sanitation and progress toward ODF attainment. The most frequently collected sanitation indicators that we observed in monitoring reports related to access to sanitation, which was obtained through the LB-1 form (or some close variant of it). We observed that the data collection was not consistent across districts and often not even across subdistricts within a district. In a few instances, such as the Wringinanom subdistrict of Gresik, we observed that officials maintained even more detailed information; for example, health center village reports contained information on hamlet expenditures on latrines. However, in most places we saw little evidence of the regular occurrence of data collection on the additional indicators recommended by the TSSM manual, such as the disposal of feces of children younger than 3, sanitation suppliers, and household expenditure on latrines.

Sanitation data was collected through a bottom-up process mostly using reports from hamlet health volunteers (cadres), but there was little systematic monitoring by subdistrict or district officials. Generally, the flow of information about progress toward ODF outcomes involved health volunteers/facilitators updating staff at the subdistrict health center, either directly or through the village head or midwife. The subdistrict then transferred this information to the district. Although data collection of sanitation indicators occurred in all places, we observed little systematic monitoring by subdistrict and district staffs and, in general, the reporting was not done periodically. The process of obtaining the information at the hamlet level was frequently based on the health volunteer hearing someone in the hamlet had built a new latrine and reporting that to the

midwife or sanitarian. The sanitarian then reported this information upward, either on a regular basis or when requested. The health volunteer would likely visit the specific household to confirm reports of latrine construction. However, verification by the sanitarian was far less frequent.

TSSM had mixed success introducing an SMS reporting system to encourage more regular reporting. This new reporting systemaimed to encourage more regular reporting by simplifying the process of submitting and aggregating data, and eliminating the travel and time costs required for submission of paper updates. Hamlet- or subdistrict-level facilitators could use mobile phones to text updates on sanitation using a format specified by WSP; they also submitted real-time updates on sanitation progress in lieu of monthly or quarterly reporting. A district-based server received and aggregated the data in the text messages into the existing database. During our field visits we observed a range of attitudes toward this system. Some sanitarians liked this reporting system and thought it saved them time. Others had heard about it and waited for training. Still others had either not heard about it or had difficulty using it. We heard a number of reports of duplicative efforts. Facilitators provided updates using the SMS reporting system but still had to submit paper reports. In a few instances we interviewed facilitators who said they used an SMS system but actually texted updates notifying staff at the Health Center or district levels who manually updated records, rather than adopting the TSSM automated SMS. Among the districts we visited, there was limited evidence of district-level ownership of this system so it is unclear how useful it will be in the future.

Sanitation access indicators to be collected also evolved over time, which created some confusion and might have affected data quality. Sanitation access indicators initially consisted of four classifications—improved latrine, unimproved latrine, sharing, and open defecation—reflecting the type of latrine and ownership status. More than two-and-a-half years into program implementation, the TSSM team reduced the number of classifications to three and changed them to the following: permanent latrine, semipermanent latrine, and open defecation. This facilitated closer alignment between TSSM indicators and the Joint Monitoring Programme classification system; officials also hoped it might better capture households' progress up the sanitation ladder.

Officials in several districts and subdistricts reported that they found the new latrine categories (permanent and semipermanent) confusing, although according to WSP staff, they made this change partly in response to district requests. As a result, data collection often used the old indicators at lower (hamlet) levels in almost all districts. Officials at subdistrict or district levels subsequently reclassified the data to fit the new template. They did not always do this with sufficient accuracy or discretion. For example, in some cases districts reclassified all shared latrines as permanent even though they had no data to confirm the types of latrines that were shared and TSSM trainings instructed that districts classify such latrines as open defecation. TSSM is conducting ongoing training on these indicators, so this problem might be less pervasive in the future.

The initial forms also classified households and their ownership of different of types of latrines by wealth status (high, medium, and low). Input from village or hamlet leaders often formed the basis for these classifications. It is unclear how accurate these were. They might have been accurate at baseline, when these forms were created, but we anticipate that updates on latrine use by health volunteers would not have accurately captured changes in latrine access by household wealth. This detailed level of information, which is not always accurate, unnecessarily adds to the complexity of the form. (TSSM eventually phased out disaggregation by wealth when introducing the SMS-based monitoring system.)

Despite little independent verification by district or subdistrict officials, we did not observe any systematic over-reporting of latrine construction or ODF status in the program monitoring data. As noted, there was very little systematic verification conducted of the data, although ad hoc visits from subdistrict health center staff occurred in some instances. We saw little evidence, however, that the hamlet-level volunteers or facilitators had incentives to provide false reports of latrine construction. We suspect that they more likely made reports when latrines were built but not when they broke down or were abandoned, simply because the latter might have been less noteworthy events in the hamlet (which might lead to slight overstatement of the conditions of latrines in the hamlet). However, given that those with latrines would eventually repair or build new ones, we do not expect these differences to be large in magnitude. Our field visits also suggest that, for the most part, places reported as ODF in the monitoring data had shifted to universal latrine use. Because the districts had stopped reporting to WSP when they perceived the TSSM program had ended, we observed instances in which more communities had become ODF than were reported in the TSSM program monitoring data.

The impetus for tracking outcomes also waned when hamlets achieved ODF status. For the most part, we did not encounter post-ODF self-assessments of the kind described in the TSSM manual. Indeed, we found that even routine monitoring in the hamlets became a less urgent priority after achievement of ODF status. The exceptions were in villages or subdistricts that had achieved ODF and were very proud of having attained that status; often, those villages or subdistricts served as role models for other communities or external visitors. Some type of monitoring was more frequent in such hamlets and villages. If continued monitoring decreases after hamlets attain ODF status, it will be difficult to track any continued progress up the sanitation ladder or regressions back to open defecation among community members.

D. Lessons Learned About Program Monitoring

Although the TSSM monitoring program seems to have met some of its basic goals, the data appear to have been gathered largely for WSP. Also, the data gathering requirements were more complex than needed. However, given the importance of monitoring and eventually improving sanitation indicators, we suggest some ways to improve the collection of program monitoring data.

Monitoring takes considerable effort, and providing the volunteers with incentives or token compensation could help systematize the gathering of information. In several districts we visited, subdistrict facilitators indicated that motivating the health volunteers to conduct regular monitoring and maintain data quality in the absence of any token payment is difficult. The health *cadres* at the hamlets are volunteers who frequently consider their job to include helping with weighing babies and assisting the midwife as necessary. Asking them to collect systematic data on sanitation adds to the work they do without compensating them in any way. Jombang was one of the few districts in which we observed collection of sanitation indicators on a monthly basis through house-to-house visits. However, that district had leveraged the TSSM data collection effort to the data collection needed for the *Jumantik* program (dengue fever elimination) for which volunteers received a small monthly stipend to visit households and check their toilets and wash rooms for the prevalence of mosquitoes around bodies of water. In that district, we saw volunteers meticulously maintaining records on sanitation indicators. It is likely that offering even token payments to *cadres* for tracking key sanitation indicators might be difficult, given the likely bureaucratic hurdles and difficulty of obtaining agreement from each district health department. However, it would be worth exploring. Another option is to explore and pursue partnerships with existing health programs that leverage stipend payments for data collection. Nonmonetary rewards and incentives—such as

certificates of recognition by political authorities or periodic invitations to workshops—could be considered.

Training on monitoring data collection should explicitly target health volunteers. Although frontline health volunteers (*cadres*) collect much of the data, training on collecting monitoring data and the indicators was provided mostly to sanitarians or other subdistrict officials. Training *cadres* or volunteers so they clearly understand the purposes and use of the data they collect and how they should collect it could be an effective way of ensuring better data collection. In addition, training might confer social rewards of increased recognition and status among hamlet members and reinforce the key effort that the *cadres* play in gathering important information.

Simplifying the monitoring indicators that are collected might reduce the burden and encourage more regular data collection. The complexity and number of TSSM monitoring indicators might have impeded districts' ability to gather accurate data and report it to WSP. For the TSSM program, districts had to provide information on a set of indicators relating to households' access to sanitation facilities (reported by type of facility) and disaggregated by household wealth. District staff often found it onerous to complete TSSM reporting because these indicators sometimes differed from existing sanitation indicators collected by districts and they required disaggregation by wealth. In Gresik for example, the district collected information classified by the features of the latrines (goose-neck and so on). Districts therefore sometime had to do additional work to aggregate the data in the format required by WSP, reducing their incentive to report on additional non-WSP sites that they triggered by themselves. Keeping data requirements to a minimum could increase compliance with the data collection protocols. At the aggregate level, indicators can include the number of hamlets triggered and the number that became ODF. At the hamlet level, they can simply include the number of households still openly defecating and the number of those with access to and using latrines. Additional information on types of latrines and improvements could be collected on an as-needed basis through surveys of samples of communities.

Mechanisms must be established to ensure that districts collect sanitation data from lower levels and send it to national-level stakeholders. Without some request or requirement to send data to the provincial or national levels, districts could either collect the data but not send them to relevant stakeholders at higher levels (as we observed in Jombang and Trenggalek) or they could stop collecting or aggregating these data (as occurred in Bondowoso, Bangkalan, and Malang). In many of these places, district officials indicated that they stopped providing the data as soon as the TSSM resource agencies stopped requesting them to send data to WSP. The national sanitation committee members indicated that though they regularly requested data from districts, they have limited authority and leverage to compel districts to submit data regularly. District-level aggregation sometimes failed to occur even when detailed monitoring data existed at lower levels.[20]

[20] Occasionally, we saw more current and carefully documented data at the subdistrict and village levels compared with the district level. In Malang, the district reported outdated figures on triggered and ODF villages, whereas subdistricts had meticulous records indicating that many more villages had been triggered, along with tabulations of resulting changes in sanitation access. Similarly in Gresik, although the district seemed to be up to date on overall figures, it reported limitations in its ability to aggregate the data due to personnel constraints. At the village and subdistrict levels, however, we saw village-specific progress reports replete with maps, figures, and triggering dates.

One approach to improving the TSSM monitoring system is to build local government capacity for data use. For example, subdistricts and villages might be able to use monitoring data to request funds. Similarly, the planning department staff at the province or district levels (*Bappeda*), which are in charge of fund allocation, usually did not directly receive the TSSM monitoring data. Such information could have been useful for their planning purposes. In a few villages and subdistricts (for example in the Wringinanom subdistrict of Gresik) and in Trenggalek district, we saw facilitators and village officials make effective use of data on changes in sanitation access and changes in diarrhea incidence to build community support and commitment for eliminating ODF. Building incentives and capacity for data use could facilitate more effective monitoring of TSSM on an ongoing basis.

Another approach would be to include the attainment of other milestones in addition to reaching ODF. The impetus to achieve ODF status drives much of the tracking of TSSM outcomes. When that is achieved the focus on tracking outcomes wanes, even though the TSSM philosophy is that communities should shift their focus to moving up the sanitation ladder to attain total sanitation. In the absence of concerted programmatic efforts, including rewards and incentives for achieving these next targets, it is unlikely that tracking of continued progress up the sanitation ladder will occur.

VII. HOUSEHOLD SANITATION PRACTICES AND BEHAVIORS

To complement the qualitative evidence described in earlier chapters, we conducted a household survey designed to collect information on latrine access as well as knowledge, attitudes, and practices relating to sanitation among rural communities in East Java. Specifically, we gathered information from a random sample of households from 36 hamlets (6 hamlets in each of the six districts we visited as part of our qualitative site visits). Seventeen of these hamlets were declared open defecation free (ODF), and 19 were non-ODF hamlets.

This chapter describes the results of this quantitative data collection effort and the findings from the subsequent analysis. In Section A we explain the purpose of this analysis; we follow by presenting our approach to data collection (Section B) and describing the characteristics of the analysis sample (Section C). In Sections D to F we present our main descriptive findings on various aspects of sanitation access, knowledge, attitudes, and practices in the surveyed hamlets. Finally, in Section G, we examine key factors correlated with latrine access and open defecation behavior.

A. Purpose of the Quantitative Analysis

The primary purpose of our analysis is to gain a more systematic understanding of the extent to which households in these rural communities have access to latrines and practice hygienic defecation, as well as to identify the factors related to latrine access and defecation behavior. In addition to these core outcomes, we obtain information from households on where they received their knowledge on sanitation practices and whether they are aware of any sanitation-related programs in their communities. We chose not to ask exclusively or explicitly about the TSSM program (known locally as *SToPS*), because qualitative information from our field visits suggested that its "brand" recognition was low. We did, however, ask households some general questions about their awareness of sanitation programs and whether they received knowledge about sanitation practices in community meetings and other forums.

Although our analysis focuses on the overall sanitation situation in the surveyed hamlets, we also look at differences in access to latrines and in defecation practices based on a hamlet's ODF status. Specifically, we examine whether there are any observable differences in sanitation access and behavior among residents in hamlets that have been declared ODF versus hamlets that are not ODF (though some of these might have been triggered). Furthermore, the absence of differences in sanitation practices between these two sets of hamlets would call into question the standards used to designate a hamlet ODF and/or the duration for which behavior change resulting from the program persisted, whereas the existence of differences would suggest that programs to promote ODF attainment at the hamlet level are worthwhile.

Because hamlets were not randomly selected as part of an experimental evaluation, any differences we observe in practices across the two types cannot be directly attributed to the TSSM program. Hamlets that became ODF could differ significantly from the non-ODF hamlets. For example, ODF hamlets might differ on observable characteristics (such as being in wealthier villages) or in some other, unobservable, ways that affect sanitation behavior but are difficult to capture. Nonetheless, observable differences provide useful information about any differing practices among households in these two types of hamlets. We make a crucial distinction regarding

causality by interpreting differences between ODF and non-ODF hamlets with caution and not simply attributing all observed changes to TSSM.[21]

B. Data Collection Approach

We developed a survey instrument to address key dimensions of sanitation in the rural Indonesian context. We collected inputs from several sources to develop this instrument, including previous surveys on sanitation and context-specific knowledge and information gained through our field visits and focus groups. The instrument was refined through an iterative process that included input from two international sanitation consultants. It was piloted by Survey Meter, our local data collection partner, and appropriate revisions were made based on the findings of the pilot to arrive at the final version.[22]

The hamlets in our sample were selected from the six districts we had visited as part of the qualitative data collection process in fall 2010. As noted in Chapter I, in each of the six districts, we selected two subdistricts, and within each subdistrict we selected three to four hamlets that we visited (usually in one or two villages). We tried to visit both ODF and non-ODF hamlets (including those that were and those that were not triggered). Our final list of sites selected for household surveys included 36 hamlets, of which about half were ODF and half were not. (We used primarily program monitoring data to define hamlets as ODF or non-ODF.[23]) A list of the surveyed hamlets by ODF status is in Appendix B.

We obtained a household listing for each hamlet from the hamlet head, and the research team randomly selected 20 households for surveying, with replacement households randomly selected in case of nonresponse. The survey was administered by Survey Meter during the second and third weeks of January 2011.

C. Sample Description

The distribution of households across the six districts in the sample is presented in Table VII.1. Within each district, 20 households in each of six hamlets were surveyed, yielding a total of 120 households per district and 720 overall. The sample is about equally divided between ODF and non-ODF hamlets.

[21] In cases with large observed differences, it is reasonable to conclude that the TSSM program contributed to such differences to some extent by encouraging hamlets to become ODF, although the precise magnitude of the contribution is difficult to quantify.

[22] A copy of the survey instrument can be provided upon request.

[23] Two of the 36 hamlets selected for the survey had a discrepancy in ODF status between the monitoring data and data from our field visits. For these 2 hamlets we updated the program monitoring status accordingly. In addition, Survey Meter had to replace 2 selected hamlets that it could not identify in the field, and for which information on ODF status was not available from program monitoring data. For these, we used the information reported on ODF status from the field visit by Survey Meter. The final ODF status for the analysis was therefore determined by the program monitoring data in 32 hamlets, by our field visit data in 2 hamlets, and by Survey Meter data in the remaining 2. As a sensitivity check of our results, we reran the analysis, dropping the four hamlets for which we did not use the program monitoring data. The main results were substantively similar.

Table VII.1. Sample Distribution, by District and ODF Status

	Hamlets			Households		
District	Total	ODF	Non-ODF	Total	ODF	Non-ODF
Bangkalan	6	4	2	120	80	40
Bondowoso	6	1	5	120	20	100
Gresik	6	5	1	120	100	20
Jombang	6	2	4	120	40	80
Malang	6	2	4	120	40	80
Trenggalek	6	3	3	120	60	60
Total	36	17	19	720	340	380

For a better understanding of the sample and setting, we present some basic sample characteristics. Specifically, these include characteristics of the household head, selected dwelling characteristics, and measures of household wealth. As seen in Table VII.2, the average head in our sample is a 50-year-old male who heads a family of four and has almost six years of formal education (corresponding to the completion of elementary school in Indonesia). Almost 90 percent of household heads are employed, largely in agriculture, forestry, and fisheries.

We also asked households for information on selected components of their wealth. Household wealth is likely to be particularly important for latrine access and use, because in our focus groups, cost was often cited as a barrier to latrine construction. In addition, wealthier households might have access to better information on sanitation or have different attitudes regarding the importance of good sanitation practices. The median monthly income reported by households in our sample is almost Indonesian Rupiah (Rp) 900,000, which includes all sources of cash and in-kind income (Table VII.3). This translates into a monthly income of about U.S $100 (or $150 in Purchasing Power Parity terms[24]). However, this measure of income is fairly crude and should be viewed with caution. Some households might have purposely misreported their income to gain some perceived advantage, for example, if they believed that low-income families would be targeted for assistance. Others might simply have failed to recall all sources of income accurately.

[24] The Purchasing Power Parity dollar exchange rate accounts for the difference in price levels between Indonesia and the United States.

Table VII.2. Characteristics of Household Head (Percentages Unless Otherwise Noted)

	Total	ODF Hamlets	Non-ODF Hamlets	*p*-Value
Household Size				
1–2	14.6	13.8	15.3	0.589
3	24.9	27.1	22.9	
4	24.9	25.6	24.2	
5 or more	35.7	33.5	37.6	
(Mean number)	4.2	4.1	4.2	0.759
Household Head Characteristics				
Male	88.2	88.8	87.6	0.675
Age				
Age < 30	4.9	5.0	4.7	0.555
30 ≤ age < 45	33.2	33.6	32.9	
45 ≤ age < 65	46.0	47.8	44.5	
Age ≥65	15.9	13.6	17.9	
(Mean age)	49.8	49.2	50.4	0.408
Education				
< 7 years	73.2	74.6	71.8	0.713
7–9 years	13.8	13.6	13.9	
> 9 years	13.1	11.8	14.2	
(Mean years)	5.7	5.6	5.9	0.538
Spouse's Education				
< 7 years	73.2	72.6	73.7	0.768
7–9 years	15.5	16.8	285	
> 9 years	11.3	10.5	285	
(Mean years)	5.8	5.8	5.7	0.895
Occupational Status				
Self-employed without employees	22.5	20.6	24.2	0.787
Self-employed with unpaid/ nonpermanent employees	21.6	22.4	20.8	
Day laborer	18.8	20.6	17.1	
Employee	18.4	19.8	17.1	
Not working	10.2	8.3	11.8	
Other[a]	8.6	8.3	8.9	
Field of Employment for Those Currently Employed:				
Agriculture, forestry, fisheries	54.0	48.6	59.1	0.122
Grocery, retail, restaurant, and hotel	13.5	13.5	13.4	
Manufacturing and processing	10.5	14.5	6.9	
Public service	10.1	8.4	11.6	
Other[b]	11.9	15.1	9.0	
Sample Size	601–720	285–340	316–380	

Notes: *p*-Values are for the test of differences between ODF and non-ODF hamlets, using a t-test for means and a chi-squared test for distributions. They adjust for clustering within hamlets.

[a]"Other" includes self-employed with permanent paid employees and day laborer.

[b]"Other" includes mining and excavating; electricity, gas, and water; construction; transportation, warehouse, and communication; and finance, insurance, rental, building, land rental, and company services.

Table VII.3. Dwelling Characteristics and Household Wealth (Percentages Unless Otherwise Noted)

	Total	ODF Hamlets	Non–ODF Hamlets	*p*–Value
Dwelling Characteristics				
Number of Rooms[a]				
1–4	22.2	18.5	25.5	0.502
5–6	40.4	41.5	39.5	
7–8	26.7	28.8	24.7	
More than 8	10.7	11.2	10.3	
Mean	6.1	6.3	5.9	0.117
Material of Walls				
Brick or concrete	77.1	75.6	78.4	0.794
Bamboo	12.6	13.5	11.8	
Wood	10.0	10.9	9.2	
Other	0.4	0.3	0.5	
Household Wealth				
Income (Rp 000s)[b]				
0–499	32.2	29.1	35.0	0.385
500–999	21.7	23.8	19.7	
1,000–1,499	13.8	11.5	15.8	
More than 1,499	32.4	35.6	29.5	
Median	888	941	836	0.297
Mean SES index[c]	4.66	4.64	4.67	0.926
Sample Size	591–720	327–340	264–380	

Notes: *p*–Values are for the test of differences between ODF and non–ODF hamlets, using a t–test for means and a chi–squared test for distributions. They adjust for clustering within hamlets.

[a]Includes rooms for storage, cooking, and sleeping, but not rooms or huts for keeping animals.

[b]The sum of income from all sources, including in–kind income.

[c]Socioeconomic status (SES) index ranges from 0 to 10. See text for details of index construction.

To address these concerns regarding the accuracy of self-reported income, we also construct, for use in the analysis, a broader socioeconomic status (SES) index: a composite variable that includes data on a variety of household and dwelling characteristics. The variables include income, the number of household members per room, years of education and employment status of the household head, an indicator for the house having brick or concrete walls, indicators for ownership of various durable goods, the number of various types of farm animals owned, and the value of goods held by a household business. Specifically, we use Principal Components Analysis to identify common variation in a set of variables relevant in determining an SES-type of indicator and optimally weight each of these variables to obtain an aggregate SES index[25] (Appendix D, Table D.1 shows the weights for each component and the distribution of the final index). We rescale the SES index on a range of 0 to 10, with higher values indicating higher SES; we also use this variable in subsequent analysis to divide the sample into SES quartiles.

As described earlier, one potential concern we have in comparing sanitation behavior in ODF and non-ODF hamlets is that the two types of hamlets might have very different characteristics (for example, non-ODF hamlets could be substantially less wealthy). In that case, it would be difficult to interpret any observed sanitation-related differences as the effects of the program, because the

[25] This index is based on the methodology used by Filmer and Pritchett (2001) and in the Demographic and Health Surveys (Rutstein and Johnson 2004).

differences could be due to these inherently different characteristics. (In the example, one would expect less wealthy hamlets to have lower latrine access regardless of program exposure.) However, tables VII.2 and VII.3 show that ODF and non-ODF hamlets are remarkably similar across the range of characteristics that we consider. None of the differences in these characteristics are statistically significant, and we expect that they are unlikely to drive any differences in behavior that we observe. However, we cannot rule out that there are, between these hamlets, important *unobservable* differences not captured in our survey (for example, differences in the strength of community leadership), so again we are careful not to attribute observed differences to the effects of the TSSM program alone.

D. Latrine Access, Latrine Characteristics, and Defecation Practices

A critical step toward a hamlet's becoming ODF is for households to have adequate access to latrines. Features of the latrines are also likely to influence how they are used and where people defecate. We start by describing levels of latrine access, proceed to describe the characteristics of the existing latrines, and end this section with defecation practices of residents in these hamlets. We also examine differences in access and practices between ODF and non-ODF hamlets.

1. Latrine Access

- ***The majority of households either own a latrine or have access to a shared latrine.***

In aggregate, more than 80 percent of the households own a latrine or have access to a shared latrine (Figure VII.1 and Table VII.4). Nearly two-thirds of the surveyed households own a latrine; another 13 percent have access to a latrine owned by another household. Use of a communal latrine is uncommon (about 5 percent of households); 18 percent of the households have no access at all to a latrine. The vast majority of latrines for those with access are located close to the residence, with about half inside the house and another third within 10 meters of the house.

Figure VII.1. Latrine Access Across All Hamlets

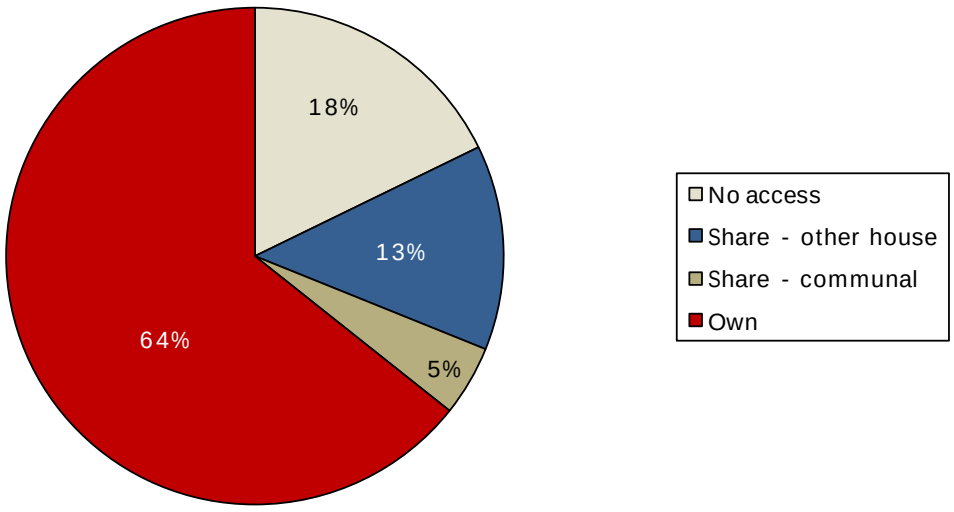


Table VII.4. Latrine Access and Ownership (Percentages Unless Otherwise Noted)

	Total	ODF Hamlets	Non–ODF Hamlets	*p*–Value
Has access to latrine (owns or shares)	82.2	96.5	69.5	0.001***
Mode of Access for All Respondents				
Has access to latrine:				
Owns a latrine	64.3	77.1	52.9	0.000***
Shares latrine with other household	13.3	17.1	10.0	
Shares communal latrine	4.6	2.4	6.6	
No access to latrine	17.8	3.5	30.5	
Distance of Latrine from House for All Those with Access (Independent Observation)				
Inside house	49.5	44.3	55.9	0.391
Outside house				
Fewer than 5 meters	17.5	19.3	15.2	
6–10 meters	16.8	18.7	14.4	
11–50 meters	15.4	17.1	13.3	
More than 50 meters	0.8	0.6	1.1	
Reason for Not Owning or Sharing a Latrine for All Those Without Access[a]				
Too costly	90.6	100.0	89.7	0.003***
Satisfied with current situation	39.8	16.7	42.2	0.067*
Other priorities	30.5	33.3	30.2	0.840
No physical space	12.5	16.7	12.1	0.721
Sample Size	128–720	12–340	116–380	

Notes: *p*–Values are for the test of differences between ODF and non–ODF hamlets, using a t–test for means and a chi–squared test for distributions. They adjust for clustering within hamlets.

[a]Because respondents could select up to three options, percentages do not sum to 100. Other categories are all less than 10 percent.

- ***Latrine access is significantly higher in ODF compared with non-ODF hamlets.***

We observe clear differences in rates of latrine access by hamlet ODF status: just under 4 percent of households in ODF hamlets have no access to a latrine, whereas just over 30 percent have no access in non-ODF hamlets (Table VII.4). The almost universal access to latrines in ODF hamlets is consistent with the TSSM program's intent to improve latrine access as an essential step to eliminating open defecation. Among those with access to a latrine, we do not observe any differences between ODF and non-ODF hamlets in the proximity of the latrine to the house.

- ***Cost is reported as the most common reason for not having a latrine.***

Cost is by far the most common reason cited for not owning or for sharing a latrine by those without access and appears still to be an important barrier to latrine adoption. Among those without access, almost 90 percent reported high cost as the main reason they did not have a latrine. In addition, in non-ODF hamlets—where latrine access is far lower—only about 40 percent of those without access to a latrine reported being satisfied with the current arrangement (open defecation). This implies that about 60 percent were dissatisfied with open defecation, which suggests in turn that many of them would like to have access but face barriers to obtaining it—especially cost. At the same time, about 30 percent of those without access in non-ODF hamlets report that they have other priorities besides investing in latrines. Therefore, there is scope for further demand-side

programming even though cost, a supply side constraint, is the major barrier to access. These results coincide with the findings from our qualitative focus groups in which households without latrines cited cost as the primary barrier to latrine access and use.

2. Characteristics of Existing Latrines

Latrines can transmit disease if they are in poor condition or their disposal systems do not handle waste properly. We examined key characteristics of latrines both by asking respondents the characteristics of their latrines and through independent observations conducted by data collectors implementing the surveys.[26]

- ***The flush latrine is the most prevalent type. Septic tanks and pits are equally prevalent as disposal systems. Few existing latrines dispose of waste directly into the open, but many have features that could still result in contamination.***

Overall, about two-thirds of the latrines that people own are the flush type; the remaining third are nonflush (Table VII.5). About 45 percent use a septic tank as the disposal system (primarily, households with a flush latrine). Almost half the respondents have a pit disposal system, about 25 percent use an unlined pit, and nearly 20 percent use a brick-lined pit.

Although few latrines dispose of waste directly into the river or in the open, the common use of unlined pits is a concern to the extent that waste could seep through the soil and contaminate sources of drinking water such as wells. This poses a significant risk, because the majority of households use wells for their main water source, as seen in Table VII.5. Indeed, independent observation suggests that 44 percent of households with latrines have the source of final disposal of waste within 10 meters of their household's water source, which could easily lead to contamination.[27]

Lids are important features of pit latrines, as they can prevent insects from entering the latrine and transmitting diseases. We find that overall about 44 percent of households with a pit latrine report that it has a lid. This percentage is similar across ODF and non-ODF hamlets. Therefore, although the definition of ODF requires that pit latrines have lids, we find that this was not the case in practice for many of the pit latrines in the hamlets declared ODF. With regard to other selected features of a latrine that promote good hygiene and prevent disease transmission, slightly more than half the latrines have a floor that is smooth and easy to clean, more than three-quarters of flush latrines have a water seal, and just slightly under two-thirds of pit latrines do not have holes in the floor that could allow insects to enter.

Overall, although most of latrines in these hamlets are therefore of a type that promotes good hygiene, there are still concerns that a substantial fraction of the existing latrines could still result in

[26] For many of these latrine characteristics, we have information from self-reports and independent observations by the surveyor. In a few hamlets, however, some of the independent observations were inadvertently not conducted. Because a separate analysis showed the answers from these two sources to be almost identical in cases in which both are reported, we present only the self-reports in Table VII.5.

[27] We can also look at the percentage of latrines that have an appropriate disposal system for the existing environmental conditions. Pits are not appropriate where the water table is high, and unlined pits are not appropriate where the soil is sandy (that is, porous). Based on these criteria, about 8 percent of latrines have an inappropriate disposal system that could cause contamination.

Table VII.5. Latrine Characteristics (Percentages)

	Total	ODF Hamlets	Non–ODF Hamlets	*p*–Value
Latrine Characteristics				
(Self–reports)				
Latrine Type				
As percentage of all respondents				
Flush/pour flush	55.8	55.6	56.1	0.000***
Nonflush	26.4	40.9	13.4	
No access to a latrine	17.8	3.5	30.5	
As percentage of those with latrines				
Flush/pour flush	67.9	57.6	80.7	0.010***
Nonflush	32.1	42.4	19.3	0.010***
Disposal System (Among Those with Latrines)				
Septic tank	45.3	41.5	50.0	0.147
Open disposal[a]	3.5	1.2	6.4	
Pit				
Unlined pit	25.2	33.8	14.4	
Brick/concrete–lined pit	19.1	14.3	25.0	
Bamboo–lined pit	5.6	6.7	4.2	
Other lined pit[b]	1.4	2.4	0.0	
Total pit	51.2	57.3	43.6	
Main Source of Drinking Water for All Those with Access:				
Well	54.7	52.3	57.6	0.619
Piped into house	20.8	19.9	22.0	
Bottled water	12.7	17.1	7.2	
Tap	10.7	9.5	12.1	
Distance from final disposal of feces to household's water source (independent observation)				
10 meters or fewer	44.1	43.9	44.3	0.288
10–50 meters	43.1	39.1	47.5	
50 meters or more	12.8	17.0	8.2	
Other[c]	0.8	0.9	0.8	
Slab				
Percentage of latrines with slab	97.1	95.7	98.9	0.151
Material used (among those with slabs):				
Concrete	80.7	74.8	87.7	0.074*
Other[d]	19.3	25.2	12.3	0.074*
Walls				
Percentage of latrines with walls	96.3	96.0	96.6	0.837
Material used (among those with walls):				
Brick or concrete	68.6	58.7	80.8	0.019**
Bamboo	15.8	20.3	10.2	
Sack, plastic, or cloth	11.2	14.0	7.8	
Other[e]	4.4	7.0	1.2	
Roof				
Percentage of latrines with roofs	77.0	70.4	85.2	0.034**
Material used (among those with roofs)				
Tile	70.4	75.3	65.3	0.204
Asbestos	16.0	13.4	18.7	
Other[f]	13.6	11.3	16.0	
Lid				
Percentage of pit latrines with lids	44.2	45.3	41.2	0.693
Material used (among pit latrines with lids)				
Bamboo	81.1	82.1	78.3	0.230
Plastic bucket	3.3	1.5	8.7	
Other[g]	15.6	16.4	13.0	
Sample Size	90–720	67–340	23–380	

Table VII.5 *(continued)*

Notes: *p*-Values are for the test of differences between ODF and non-ODF hamlets, using a t-test for means and a chi-squared test for distributions. They adjust for clustering within hamlets.

[a]Open disposal to river, ditch, gutter, pond, or open space.

[b]"Other" includes concrete and stone.

[c]"Other" includes river, stream, or dam and rainwater.

[d]"Other" includes bamboo, brick, earth/mud, wood/timber, and stone.

[e]"Other" includes wood and tin, zinc, or iron.

[f]"Other" includes tin, zinc or iron, brick or concrete, wood, leaves/thatch, and plastic.

[g]"Other" includes bamboo and roof tile.

contamination of water sources and disease transmission. These concerns include latrines that have waste disposal close to the household's main source of drinking water; disposal systems, especially pits, that are inappropriate for environmental conditions; and latrines that lack key hygienic features, such as pit latrines without lids. The situation suggests that further information is needed regarding hygienic features of latrines even in hamlets where their use is already widespread.

- ***Although rates of latrine access are higher in ODF hamlets, latrines in these hamlets are more likely to be pit latrines and to have more basic characteristics compared to those in non-ODF hamlets.***

We observe some important differences in the types of latrines that exist in ODF and non-ODF hamlets. Although Table VII.4 showed that rates of latrine access are significantly higher in ODF hamlets (97 versus 70 percent), about the same fraction of residents in both types of hamlets has access to flush latrines (Table VII.5). The difference in latrine access stems from households in ODF hamlets having greater access to nonflush latrines.

This finding is consistent with the intent of the TSSM program, in which households were encouraged to build any type of latrine—even a rudimentary type—as a first step to improving sanitation practice, rather than wait until they could afford to build a flush latrine. Indeed, a separate analysis indicates that the SES of those with access to latrines in ODF hamlets is lower than in non-ODF hamlets. This suggests that hamlet members who struggled to afford a flush latrine—typically those of lower SES status—were drawn into basic pit latrine ownership to a greater extent in ODF hamlets. This higher rate of pit latrine ownership is the main driver behind higher overall rates of latrine access in these ODF hamlets.

Other latrine characteristics also tend to be more basic in ODF hamlets, where households are more likely to have simple unlined pits than lined pits or septic tanks. Furthermore, although latrines in both types of hamlets tend to have walls, they are more likely to be made of bamboo or cloth in ODF hamlets and of brick or concrete in non-ODF hamlets. Similarly, latrines in ODF hamlets are less likely to have a roof and a concrete slab relative to latrines in the non-ODF hamlets. Again, this is consistent with the program's focus on encouraging the construction of basic latrines as a first step to improved sanitation practice, which took place to a greater extent in ODF hamlets.

3. Condition of Existing Latrines

The cleanliness and condition of the latrines can be an important determinant of sanitation outcomes for several reasons. First, clean latrines in good repair might be more likely to be used even if cleanliness is the subjective assessment of the household, because perceptions matter for

behavior. Second, latrines that are dirty can spread contamination, potentially negating the benefits of their use relative to open defecation. Third, the current condition of latrines has implications regarding sustainability, because latrines that are poorly maintained might eventually fall into a state of neglect that renders them unusable.

- ***A substantial fraction of the existing latrines are in poor or dirty condition.***

One in five households (20 percent) with access to a latrine report that their latrine is in bad physical condition (Table VII.6). Fifteen percent believe that their latrine is dirty. These figures are higher for independent observation by the surveyors: 29 and 30 percent, respectively. Roughly one quarter of surveyors reported that they could observe feces around the latrine; these exposed feces could well lead to contamination. Again this suggests that, even where latrines are present, there is still room for further improvements in hygiene and that it is important to reinforce the message of the need to maintain the quality and cleanliness of existing latrines.

We see some slight differences in latrine cleanliness by a hamlet's ODF status: latrines in non-ODF hamlets generally appear to be in better and cleaner condition than those in ODF hamlets.

Table VII.6. Latrine Condition/Cleanliness (Percentages)

	Total	ODF Hamlets	Non-ODF Hamlets	*p*-Value
Latrine Condition/Cleanliness				
Physical Condition				
Latrines in bad overall condition as percentage of all latrines:				
Self-report	20.3	25.0	14.4	0.032**
Independent observation	28.9	35.8	20.5	0.037**
Components in bad condition as percentage of each component (independent observation):				
Slab	21.3	28.1	13.1	0.008***
Lid	31.6	37.9	17.2	0.043**
Walls and roof	26.5	34.4	16.9	0.008***
Cleanliness				
Latrine is dirty as percentage of all latrines:				
Self-report	15.2	17.7	12.1	0.253
Independent observation	29.9	34.3	24.6	0.115
Other aspects of cleanliness as percentage of all latrines (independent observation):				
Feces visible	23.4	21.7	25.4	0.466
"Strong" or "some" odor of feces	35.2	38.5	31.1	0.275
Other hygiene-related features as percentage of all latrines (independent observation)				
Floor smooth and easy to clean	56.5	54.4	59.1	0.513
No holes in floor (among pit latrines)	62.6	62.6	62.7	0.984
Water-seal (among flush latrines)	78.3	72.9	83.1	0.013**
Sample Size	95-592	66-328	29-264	

Notes: *p*-Values are for the test of differences between ODF and non-ODF hamlets, using a t-test for means and a chi-squared test for distributions. They adjust for clustering within hamlets.

These results might reflect the fact that the program encouraged residents in ODF hamlets to build basic pit latrines, which tend to be harder to keep clean.[28] This result underscores the need for post-ODF follow-up. As discussed in Chapter IV, our qualitative site visits suggest that households in ODF villages with higher levels of post-ODF follow-up are more likely to maintain hygienic latrines.

4. Defecation Practices

Access is an important component of improved sanitation, but defecation practices determine whether improved outcomes are attained.

- ***Exclusive latrine use is almost universal in hamlets that were declared ODF, but almost 40 percent of those in non-ODF hamlets openly defecate.***

Overall, more than three quarters of the respondents report having exclusively used a latrine in the previous week, whereas about one in five did not use one at all (Table VII.7). Very few respondents had access but still openly defecated: just under 2 percent had access to a latrine but did

Table VII.7. Defecation Behavior (Percentages)

	Total	ODF Hamlets	Non–ODF Hamlets	*p*–Value
Defecation Behavior by Respondent in the Past Week				
Used latrine exclusively	76.9	94.4	61.3	0.000***
Open defecation				
Always—no latrine access	17.8	3.5	30.5	
Always—latrine access	1.9	0.9	2.9	
Sometimes	3.3	1.2	5.3	
Open Defecation Location[a]				
River or stream	91.0	73.7	93.2	0.133
Ditch or irrigation canal	6.6	26.3	4.1	0.079*
Woods or forest	3.6	0.0	4.1	0.224
Stools of Young Children				
Children younger than 5 years old present in household	30.3	26.8	33.4	0.083*
Disposal of stools among households with children younger than 5				
Latrine	62.4	76.9	52.0	0.015**
River	28.9	13.2	40.2	
Other open disposal	8.7	9.9	7.9	
Disposal of stools among households with children younger than 5 and latrine access				
Latrine	76.0	78.7	73.3	0.351
River	16.8	11.2	22.2	
Other open disposal	7.3	10.1	4.4	
Sample Size	166–720	19–340	90–380	

Notes: *p*–Values are for the test of differences between ODF and non–ODF hamlets, using a t–test for means and a chi–squared test for distributions. They adjust for clustering within hamlets.

[a]Because respondents could select all that applied, percentages do not sum to 100. Other categories are all less than 4 percent.

[28] A separate analysis shows that pit latrines are substantially more likely to be reported as dirty by surveyors relative to flush latrines (65 versus 13 percent) and more likely to have a noticeable smell of feces (76 versus 16 percent).

not use it at all, and only about 3 percent had access but used it only sometimes. Almost all of those with access to latrines therefore tend to use them, even though many are in a poor or dirty condition (as shown in Table VII.6).

There are large differences in latrine use by hamlet ODF status: 94 percent of people in ODF hamlets exclusively used latrines in the previous week, whereas only 61 percent in non-ODF hamlets did so. This confirms that there is a difference in sanitation behaviors between ODF and non-ODF hamlets, the concerns about the hygiene of the existing latrines discussed in the previous subsection notwithstanding.

- ***The vast majority of open defecation takes place in the river, as does a substantial percentage of the disposal of young children's stools.***

Focusing on non-ODF hamlets—where almost all open defecation in our sample takes place—a river or stream is by far the most common location for open defecation (93 percent). This poses a health risk to these communities even though very few households report obtaining drinking water directly from the river (under 1 percent, as shown in Table VII.5). Health risks could arise because river water contaminates drinking water in wells or is the source of piped water, or because of other contact with river water (for example, through bathing in the river).

A substantial percentage of households with young children dispose of their children's stools in the river (29 percent across all hamlets). However, the percentage is much lower in ODF hamlets (13, versus 40 percent in non-ODF hamlets), a difference that reflects largely the greater access to any type of latrine in the ODF hamlets (and that is consistent with the behavior change information communicated by the TSSM program). Access to a latrine dramatically reduces disposal of children's stools in the river. For instance, in non-ODF hamlets only 22 percent of those with latrine use the river, compared with 40 percent of all respondents with young children. These findings reflect the results for respondents' own defecation in that those with access to latrines tend to use them.

E. Latrine Construction and Costs

A key aim of the TSSM program was to encourage latrine construction, both by increasing demand for latrines and by lowering costs. In this section, we examine latrine construction among households and the related costs. We look first at the household's decision to invest in latrine construction and investigate the timing of the construction, household contributions, and the main funding sources used. We also look briefly at latrine repair and improvement, as this reflects households' willingness to continue investing in latrines and affects sustainability. Finally, we investigate actual and perceived costs of latrine construction to understand the extent to which they might affect household's decisions.

- ***Almost half of latrines were built within the time span of the TSSM program in ODF hamlets, compared with about 37 percent in non-ODF hamlets.***

Of the households with access to a latrine (either owned or shared), a significant fraction (44 percent) report that their latrine was constructed within the previous three years, which is within the time span of the TSSM program (Table VII.8). There are important differences between ODF and non-ODF hamlets, with latrines more likely to be constructed recently in the former. This is consistent with the TSSM program encouraging households to build latrines, particularly in hamlets that eventually ended up ODF.

Table VII.8. Latrine Construction (Percentages Unless Otherwise Noted)

	Total	ODF Hamlets	Non-ODF Hamlets	*p*-Value
Latrine Construction				
Time of construction				
Past 3 years	43.9	49.1	37.4	0.118
Earlier	56.1	50.9	62.6	0.118
Contributions to construction by owners				
Money	83.6	84.4	82.6	0.665
Materials	38.2	47.7	25.9	0.009***
Labor	78.0	78.6	77.1	0.750
Contributions to construction by sharers				
Money	25.6	28.8	22.2	0.359
Materials	20.2	30.3	9.5	0.021**
Labor	69.8	71.2	68.3	0.770
Main sources of funding as percentage of those contributing money				
Personal savings/income	86.0	88.8	82.2	0.091*
Other[a]	14.0	11.3	17.8	0.091*
Latrine Repair/Improvement				
Type of work in past year as percentage of all those with access to a latrine				
Repair	6.6	6.4	6.8	0.841
Improvement	2.2	1.5	3.0	0.291
Sample Size	129-152	66-328	63-264	

Notes: *p*-Values are for the test of differences between ODF and non-ODF hamlets, using a t-test for means and a chi-squared test for distributions. They adjust for clustering within hamlets.

[a]"Other" includes sale of assets, loans, government schemes, and family assistance.

- ***Latrine construction is funded mainly out of household savings and income.***

Most households that own latrines contributed to the construction with money and labor, whereas fewer contributed materials (Table VII.8). Those who share rather than own latrines were more likely to contribute labor. This suggests that although sharers are expected to contribute to the latrine construction in return for access, the bulk of the money is supplied by the actual owner. The vast majority of funding for latrine construction (86 percent) comes from personal savings or income rather than other sources (such as loans), which suggests that in practice, families invest in latrines only after accumulating sufficient savings. Thus, not having a stock of savings is clearly a barrier to latrine construction.

- ***After latrines are constructed, few households spend further resources on repair or maintenance.***

Fewer than 10 percent of those with access to a latrine reported spending on any improvements and repairs in the previous year. At the same time, as noted earlier, more than 20 percent of those with access believed that their latrine was in bad physical condition. This suggests that latrines are viewed as a one-time investment and that there is a reluctance to make further investments to maintain them, an obvious concern for sustainability.

- ***Actual and perceived costs for flush latrine construction are very high relative to income, but are far lower for nonflush latrines.***

Table VII.9 shows that for those who do not own a latrine, the median perceived costs of flush latrine construction are Indonesian Rupiah Rp 1,500,000, or about US $170 (US $250 in Purchasing

Power Parity terms). These perceived costs, which are identical across the two types of hamlets, represent for nonowners about 2.5 months of median household income, which most view as very expensive. They are about 20 percent higher than the median actual construction costs reported by current owners, which could reflect the fact that the latter were often incurred several years ago (when nominal costs were lower), or that the flush latrines that exist have features different from those of the hypothetical flush latrine that we described in the question (which included a septic tank but excluded walls and a roof).[29]

As expected, costs—both actual and perceived—are substantially lower for nonflush latrines. Because perceived costs are only about 0.3 months worth of median income for nonowners, fewer than one in four nonowners view them as extremely costly. However, although nonflush latrines are less costly (so that one might expect them to be more common than flush latrines), we have shown that they are actually far less common, especially in non-ODF hamlets. This fact ties into our focus group findings in non-ODF hamlets: we frequently heard that people did not want to construct a nonflush latrine despite being aware of their affordability, because they viewed them as unsanitary or inconvenient to use.

- ***Most nonowners have considered constructing a latrine, but only half of these have firm plans to do so, and even fewer consider it a priority for their households.***

To obtain an idea of the future path of latrine construction in the surveyed hamlets, we also examine households' plans for further latrine construction and improvements by current ownership status. Of owners, about 25 percent have considered making improvements to their current latrines; a similar percentage have considered building an entirely new latrine (of the same or a different type). About 56 percent of current sharers have considered building a new latrine; 73 percent of those without access have considered doing so. Consistent with the current situation in which flush latrines are much more common than nonflush latrines, very few of those without access plan to construct nonflush latrines (especially in non-ODF hamlets), even though they are far cheaper.

Although these plans for latrine construction seem encouraging, it is unclear whether these households will be able to achieve their goals. First, only about half of each group has firm plans to undertake this construction in the following year. Second, many of these households might be unable to overcome the cost barriers (particularly to flush latrine construction) identified previously. As shown earlier, more than 85 percent of respondents report personal savings or income as the main source of funding for latrine construction, yet only 25 percent believe that they could access their savings for latrine construction or improvements. A significant proportion of respondents (more than 40 percent) report having access to at least one other source of funding that could alleviate this credit constraint, such as loans, repayment schemes, and village savings schemes. However, it is unclear whether they could obtain enough money from these sources to fully fund respondents (more than 40 percent) report having access to at least one other source of funding that could alleviate this credit constraint, such as loans, repayment schemes, and village savings schemes.

[29] Interestingly, actual construction costs for flush latrines are higher in ODF hamlets, which again could be related to the fact that latrines in ODF hamlets are newer on average and therefore incurred higher nominal costs. It could also reflect greater awareness of costs among those in ODF hamlets if sanitation issues were discussed more in them.

Table VII.9. Latrine Costs (Percentage Unless Otherwise Noted)

	Total	ODF Hamlets	Non-ODF Hamlets	*p*-Value
Latrine Costs				
Flush latrines				
Flush latrines as a percentage of all latrines	67.9	57.6	80.7	0.010***
Median actual costs for those with flush latrines (Rp 000s)	1,200	1,400	1,070	0.206
Do not own any latrine				
Median estimated costs for a basic version (Rp 000s)	1,500	1,500	1,500	1.000
View of costs				
Very costly	66.4	75	65.5	0.753
Somewhat costly	28.1	25	28.4	
Not costly	5.5	0.0	6.0	
Nonflush latrines				
Nonflush latrines as a percentage of all latrines	32.1	42.4	19.3	0.010***
Median actual construction costs for those with nonflush latrines (Rp 000s)	100	117	55	0.041**
Do not own any latrine				
Median estimated costs for a basic version (Rp 000s)	200	200	200	1.000
View of costs				
Very costly	23.4	33.3	22.4	0.853
Somewhat costly	61.7	50	62.9	
Not costly	14.8	16.7	14.7	
Thought about latrine construction				
Currently own latrine				
Improve current latrine	25.1	19.8	31.8	0.308
Build new latrine (same type)	9.5	9.9	9.0	
Build new latrine (different type)	13.8	14.9	12.4	
Plans for construction in next year	46.4	46.2	46.7	0.946
Currently share latrine				
Improve current latrine	11.6	12.1	11.1	0.463
Build new latrine (same type)	35.7	27.3	44.4	
Build new latrine (different type)	20.9	24.2	17.5	
Plans for construction in next year	51.1	64.3	39.1	0.019**
Currently no access to latrine				
Build flush latrine	62.5	58.3	62.9	0.313
Build nonflush latrine	10.2	16.7	9.5	0.313
Plans for construction in next year	46.4	55.6	45.5	0.528
Access to funding sources for construction/improvement				
Personal savings	25.7	29.1	22.6	0.102
Other sources				
Affordable loans	28.8	28.2	29.2	0.904
Deferred payment	24.6	26.2	23.2	0.624
Village savings scheme [arisan]	16.4	16.5	16.3	0.981
At least one source	52.5	54.1	51.1	0.900
At least one source besides savings	42.1	41.5	42.6	0.694
Latrine is one of top 3 spending priorities	14.7	12.9	16.3	0.281
Sample Size	88–720	9–340	34–380	

Notes: *p*-Values are for the test of differences between ODF and non-ODF hamlets, using a t-test for means and a chi-squared test for distributions. They adjust for clustering within hamlets.

[a]"Other" includes sale of assets, loans, government schemes, and family assistance.

latrine construction or the extent to which they are willing to commit to sanitation with borrowed funds (only 15 percent of households named sanitation as one of their top three spending priorities). It is therefore likely that despite households' intentions, other demands on their limited resources will dominate spending on latrine construction.

F. Knowledge and Attitudes

The patterns of latrine ownership and use that we observe in the data are likely shaped to a large extent by the knowledge and attitudes of the respondents regarding sanitation. We examine two aspects of knowledge: (1) general knowledge about sanitation, and the sources of this knowledge; and (2) knowledge about sanitation gained through specific community mechanisms, such as community events and other means. As discussed earlier, because we found low brand recognition in our earlier field visits, we purposefully phrased our questions to avoid referring directly to the TSSM program. Finally, we look at attitudes toward open defecation among the respondents, as they could have an impact on behavior.

- ***Respondents generally have a high degree of knowledge about sanitation, except regarding the health hazards of openly defecating either in the river or far from where people live.***

The average respondent has a relatively high degree of knowledge about sanitation, scoring 4.9 out of 6.0 on the questions we asked regarding open defecation and its health risks (Table VII.10).[30] The most common sources relied upon for advice on sanitation are health center staff (27 percent), family (21 percent), and hamlet head (15 percent). Detailed analysis shows that the only questions with which a substantial number of respondents had some difficulty were "As long as you defecate far from where people live, defecating in the open is not a health problem" (70 percent answered correctly) and "Defecating in the river is not a health problem, because the river carries away the feces" (54 percent answered correctly). This suggests that an important gap in knowledge exists regarding the transmission of contamination and diseases from open defecation when feces do not visibly contaminate the immediate environment. Because we saw earlier that the vast majority of open defecation takes place in the river, this implies that a lack of information regarding the health hazards of defecating in the river might still be a particularly important barrier to eliminating open defecation.

[30] Respondents had to select "agree" or "disagree" for each of a series of statements such as "As long as you do not touch feces directly, defecating in the open is not a health problem." The full set of questions and the percentage answering them correctly are presented in Table VII.10.

Table VII.10. Knowledge and Attitudes (Percentages Unless Otherwise Noted)

	Total	ODF Hamlets	Non-ODF Hamlets	*p*-Value
General Sanitation Knowledge				
Percentage showing correct knowledge of health risks of open defecation:				
"As long as you do not touch feces directly, defecating in the open is not a health problem"	94.7	97.6	92.1	0.001***
"As long as you clean your hands, defecating in the open is not a health problem"	93.2	96.8	90.0	0.018**
"Defecating in the river is not a health problem because the river carries away the feces"	54.0	64.1	45.0	0.009***
"As long as you defecate far from where people live, defecating in the open is not a health problem"	70.0	76.8	63.9	0.012**
"Whether or not other people in the community choose to defecate in the open does not affect my family's health"	91.9	94.1	90.0	0.006***
"Defecating in the open makes it easier for diseases to spread"	85.4	90.5	80.7	0.065*
Knowledge score on 6-point scale	4.9	5.2	4.6	0.006***
Main source for advice about sanitation				
Health center staff	27.1	22.9	30.8	0.024**
Family	21.0	25.9	16.6	
Village/hamlet head	15.3	14.4	16.1	
Village midwife	10.4	15.9	5.5	
Other[a]	26.3	20.9	31.1	
Exposure to Information About Sanitation				
"Triggering" event				
Event held in past 3 years	41.8	49.1	35.3	0.079*
Attended event (as percentage of all respondents)	19.4	20.9	18.2	0.613
Timing of event:				
Past year	68.6	74.3	61.4	0.158
2 years ago	21.7	15.6	29.5	
3 years ago	9.7	10.2	9.1	
Usefulness of event as percentage of those attending				
Very useful	73.6	77.5	69.6	0.617
Somewhat useful	23.6	19.7	27.5	
Not useful	2.9	2.8	2.9	
Saw stickers or posters on sanitation	24.6	25.9	23.4	0.604
Other events attended in past 3 years				
Religious events or meetings	82.6	82.9	82.4	0.889
Women's group meetings	12.1	14.7	9.7	0.224
Activities by Posyandu officers	32.8	32.9	32.6	0.950
Other hamlet meetings	40.3	41.8	38.9	0.607
Sanitation discussed at other events in past 3 years as percentage of all respondents				
Religious events or meetings	12.9	14.1	11.8	0.667
Women's group meetings	6.4	7.6	5.3	0.431
Activities by Posyandu officers	10.0	11.2	8.9	0.617
Other hamlet meetings	14.3	15.9	12.9	0.535
House visits experienced during past 3 years by				
Health center staff	22.1	28.5	16.3	0.005***
Community health worker staff	31.4	35.9	27.4	0.272
Village midwife	22.9	30.9	15.8	0.021**
Hamlet officials	51.9	58.8	45.8	0.021**
Other government officials	13.4	15.6	11.3	0.195
Sanitation discussed during house visits in past 3 years as percentage of all respondents				
Health center staff	9.6	15.9	3.9	0.004***
Community health worker staff	13.2	18.2	8.7	0.074*
Village midwife	8.5	14.7	2.9	0.02**

Table VII.10 *(continued)*

	Total	ODF Hamlets	Non–ODF Hamlets	*p*–Value
Hamlet officials	13.6	20.3	7.6	0.014**
Other government officials	4.4	7.6	1.6	0.006***
Attitude Toward Others Who Openly Defecate				
Strongly disapprove	44.7	51.5	38.7	0.004***
Disapprove	50.7	46.8	54.2	
Don't care	1.3	0.6	1.8	
Think it is acceptable	3.3	1.2	5.3	
Sample Size	140–720	71–340	69–380	

Notes: *p*–Values are for the test of differences between ODF and non–ODF hamlets, using a t–test for means and a chi–squared test for distributions. They adjust for clustering within hamlets.

[a]"Other" includes other community/religious leaders, community members, community health workers, government officials, media, and common knowledge.

- ***Knowledge about sanitation is higher in ODF hamlets than in non-ODF hamlets.***

Sanitation knowledge is significantly better in ODF hamlets (0.6 points higher on the 6-point knowledge scale), which is consistent with the idea that the program successfully disseminated information about good sanitation practices to a greater extent in these communities. Specifically, people in ODF hamlets have a smaller knowledge gap about the dangers of defecating in the river and openly defecating far from where people reside. Reliance on health center staff is somewhat lower in ODF hamlets, whereas reliance on other family members is higher. In these hamlets, more people might have gained information about sanitation from the program and could have internalized it and supplied it to their family members.

- ***About 40 percent of respondents recall a triggering meeting having been held in their community, but only half attended the event.***

We asked about the triggering event indirectly, by referring to "… a community event [held in the past three years]… where health center or district officials came specifically to discuss sanitation and use of latrines." The results in Table VII.10 show that about 42 percent of respondents report that such a meeting was held, although only about half of these (19 percent of all households) actually attended the meeting. The majority of these meetings were reported as being held in the previous calendar year, 2010, although this could reflect recall bias to some extent if the ability to recall the event faded over time.

As expected, a substantially larger percentage of respondents in ODF hamlets report that a triggering event was held compared with non-ODF hamlets (49 versus 35 percent). It is not surprising that some respondents in the non-ODF hamlets recalled triggering, as some of these hamlets might actually have been triggered, or respondents may have recalled a similar event as a triggering event. Overall, the percentage that actually attended a triggering event across the two types of hamlets is similar. One in four respondents report seeing stickers or posters about sanitation or latrine use, although we cannot be certain what fraction of these were the TSSM stickers and posters aimed at increasing demand for latrines as opposed to other types.

- ***Information about sanitation is also obtained to a lesser extent through other community events and home visits by various people within the community, such as health workers.***

We also asked more generally about sanitation-related information obtained through other community mechanisms. First, we asked about various events that are typically held in these hamlets and whether sanitation was discussed at these events in the past three years. A substantial fraction of respondents reported attending events such as religious meetings, activities held by Posyandu officers, and other hamlet meetings. However, relatively few of these meetings included discussions about sanitation. For example, 83 percent of all respondents attended religious meetings, but only 13 percent of all respondents attended religious meetings at which sanitation was discussed.

Second, we asked similar questions about visits to respondents' homes by certain key individuals within the community. Again, visits by people such as community health workers (cadres) and hamlet officials were common, but visits at which sanitation was discussed were much less common. This confirms our qualitative finding that follow-up sanitation monitoring was infrequent and suggests there are good opportunities to use existing community mechanisms to provide information about sanitation. We also note that visits by various categories of health workers are more common in ODF hamlets, as are visits at which sanitation was discussed. This could partly be because these health workers were required to make such visits as part of their role in tracking ODF status. Although we cannot make causal attributions, we do observe a relationship between sanitation monitoring and sanitation information provided through this mechanism and ODF status.

- ***The vast majority of respondents disapprove of open defecation by others within their community.***

Virtually all respondents report disapproving (51 percent) or strongly disapproving (45 percent) of open defecation by other community members (Table VII.10). These findings are consistent with the earlier observation that respondents are generally knowledgeable about the fact that open defecation is undesirable. However, a caveat is that they might not be fully aware of the risks of defecating in the river and might not even consider it to be open defecation in the same way as defecating on the ground within the community. The substantially higher rates of strong disapproval in ODF hamlets are consistent with greater knowledge of the health hazards of open defecation in these hamlets and potentially with the role of the TSSM program in focusing on these issues.

G. Factors Related to Latrine Ownership and Defecation Behavior

The previous sections presented a descriptive analysis of the patterns observed in the data; this section focuses on isolating factors correlated with latrine ownership and defecation behavior in a regression framework. We estimate logit models for latrine ownership and for open defecation behavior, which are each regressed on a set of independent variables that could plausibly be correlated with them.

An important caveat to the interpretation of the results in this section is that the estimates are all correlations and do not allow us to make any causal statements about the effect of any factor on ownership and defecation behavior. For example, if we find that households with a lower SES are less likely to own latrines, we cannot necessarily conclude that improving SES status would lead to greater latrine ownership. It might simply be that households with lower SES tend to live in more remote hamlets far from sources of latrine construction materials, and that this is why they do not own latrines. Nevertheless, identifying readily observable factors that are correlated with ownership

(or open defecation) is still useful, because it allows easy identification of specific subpopulations at which future interventions can be targeted.

1. Factors Correlated with Latrine Ownership

Table VII.11 presents the results for latrine ownership, where the dependent variable is a binary indicator that takes the value 1 for those who own latrines and 0 for those who share or do not have access to latrines. We include a specification with variables that are most likely to be correlated with latrine ownership, including household head age and gender, the household SES quartile, an indicator for having a river in the hamlet, an indicator for high perceived latrine use in the community, an indicator for high perceived latrine construction costs, a set of indicators for the score on the six sanitation knowledge questions in the survey, and a set of district indicators to account for district-specific factors. Because the coefficient estimates from the logit model are difficult to interpret, Table VII.11 reports the predicted probabilities of ownership. These can be directly interpreted as the probability of ownership for a given group of individuals with a specific characteristic, adjusting for differences in other characteristics.[31] We also report the *p*-values from the logit regression, which identifies the variables that are statistically significant predictors of latrine ownership.[32]

- ***Latrine ownership is significantly lower in households with younger heads and lower SES status, for those who perceive low latrine use in their hamlets, and for those with lower levels of knowledge about sanitation.***

The results in Table VII.11 suggest that households with younger heads (especially heads under 45) are significantly less likely to own latrines. This is consistent with the previous evidence that latrine construction in this setting typically requires an expensive payment out of household savings: younger families might not have accumulated sufficient resources. There are strong differences in the probability of latrine ownership by SES quartile. Compared with the wealthiest quartile (quartile 4), in which the predicted probability of ownership is nearly 90 percent, ownership in the other quartiles is significantly less likely. Ownership is predicted to be about 67 percent for quartile 3, 58 percent for quartile 2, and only 47 percent for quartile 1 (the poorest quartile). This suggests that programs or approaches to increase latrine ownership should be targeted at households with younger heads and lower SES status.

Although we hypothesized that having a river in the hamlet might decrease the probability of ownership because a convenient mode for open defecation existed, the difference in predicted probabilities for this variable is small and is not a statistically significant predictor of ownership.[33] There is a large difference in the probability of ownership based on whether respondents perceive

[31] The other characteristics are set to their mean values for these calculations in tables VII.11 and VII.12.

[32] We adjust the *p*-values for clustering at the community level to account for correlation among respondents living in the same community. For groups of indicator variables (for example, indicators for SES quartile), we also report the *p*-value from the test that all indicators in the group are jointly significant as predictors in the model (for example, that SES quartile is a significant predictor of latrine access).

[33] There is also a possibility that surveyors might have perceived the concept of having a river differently. In many Indonesian hamlets, there are several types of rivers, including the irrigation ditch that runs through the hamlet and considerably larger rivers that run past several hamlets and villages.

Table VII.11. Predicted Probability of Latrine Ownership (Logit Regression)

Dependent Variable: Owns Latrine	Mean	Predicted Probability of Owning a Latrine	*p*–Value
Independent Variables			
Head male	88.2	68.9	0.428
Head female	11.8	64.1	n.a.
Age of head			0.011** [a]
Age <30	4.9	54.5	0.042**
30≤ age <45	33.2	56.7	0.007***
45≤ age <65	46.0	73.9	0.605
Age ≥65	15.9	76.8	n.a.
Household SES quartile			0.000*** [a]
Quartile 1 (poorest)	25.0	46.7	0.000***
Quartile 2	25.0	58.3	0.000***
Quartile 3	25.0	66.6	0.000***
Quartile 4 (wealthiest)	25.0	89.7	n.a.
River in hamlet			
Yes	79.3	68.5	0.920
No	20.7	67.6	n.a.
Other community members using latrine:			
"All" or "most"	78.6	73.9	0.000***
"Some" or "none"	21.4	44.1	n.a.
Perceived costs of basic flush latrine			
"Costly" or "somewhat costly"	92.2	66.7	0.106
"Not costly"	7.8	83.5	n.a.
Knowledge of health risks of open defecation			0.026** [a]
Score 0–4	31.7	60.1	0.009***
Score 5	28.5	66.5	0.054*
Score 6	39.9	75.2	n.a.
Pseudo R^2		0.259	
Regression p–Value		0.000***	
Sample Size		719	

Notes: The table shows predicted probabilities from a logit model. The dependent variable is a binary indicator for latrine ownership. The independent variables are as listed in the table and also include a set of district indicators. For each independent variable, the predicted probability is from the fitted logit model and sets all other variables to their mean values. The *p*–values are for the test of significance for each variable in the logit model and adjust for clustering at the hamlet level. "n.a." denotes the omitted category for each set of variables.

[a] *p*–Value for the test of the joint hypothesis that all indicators in this group are equal to zero.

*Significantly different from zero at the .10 level, two–tailed test.
**Significantly different from zero at the .05 level, two–tailed test.
***Significantly different from zero at the .01 level, two–tailed test.

n.a. = not available.

latrine costs to be high, but this variable is not statistically significant. However, the remaining variables that we consider are statistically significant and suggest that latrine ownership is more likely for respondents who perceive widespread latrine use in their community and for those who score higher on the sanitation knowledge scale.

2. Factors Correlated with Open Defecation

Table VII.12 presents the results for open defecation, defined as open defecation in a one-week reference period, as the dependent variable. This indicator is 1 for those with no latrine access as well as those few who own a latrine (including owners and sharers) but did not use it exclusively in

the previous week. It is 0 for those who had access to a latrine and exclusively used it in the previous week. For this analysis, we use a set of independent variables similar to those in Table VII.11 but instead focus on *respondent* characteristics rather than those of the household head. Open defecation is a more individual decision compared with latrine construction, which is likely to be decided upon at the household level. The full set of independent variables includes individual gender; a set of age and education indicators; an indicator for working in agriculture, forestry, or fisheries[34]; the household SES quartile; an indicator for having a river in the hamlet; an indicator for high perceived latrine use in the community; a set of indicators for the score on the 6 sanitation knowledge questions in the survey; and a set of district indicators. As before, we report predicted probabilities and *p*-values from the logit regression.

Table VII.12. Predicted Probability of Open Defecation (Logit Regression)

Dependent Variable: Openly Defecated in Past Week	Mean	Predicted Probability of Open Defecation	*p*–Value
Independent Variables			
Male	52.1	8.0	0.290
Female	47.9	9.8	n.a.
Age			0.263[b]
Age < 30	14.2	14.4	0.177
30 ≤ age < 45	40.1	9.5	0.600
45 ≤ age < 65	35.1	6.9	0.702
Age≥ 65	10.6	7.8	n.a.
Education			0.000*** [b]
< 7 years	16.0	5.8	0.028**
7–9 years	15.7	3.0	0.000***
> 9 years	68.3	12.3	n.a
Works in agriculture, forestry, or fisheries[a]			0.949[b]
Yes	42.1	9.2	0.903
No	35.8	8.3	0.828
Industry missing	22.1	8.9	n.a.
Household SES quartile:			0.032** [b]
Quartile 1 (poorest)	25.0	13.2	0.018**
Quartile 2	25.0	8.5	0.139
Quartile 3	25.0	11.4	0.006***
Quartile 4 (wealthiest)	25.0	4.6	n.a.
River in hamlet			
Yes	79.3	13.3	0.000***
No	20.7	1.6	n.a.
Other community members using latrine			
"All" or "most"	78.6	6.2	0.000***
"Some" or "none"	21.4	28.3	n.a.
Knowledge of health risks of open defecation			0.000*** [b]
Score 0–4	31.7	25.1	0.000***
Score 5	28.5	12.4	0.000***
Score 6	39.9	2.7	n.a.
Pseudo R^2		0.464	
Regression p–Value		0.000***	
Sample Size		720	

[34] We hypothesized that people in this industry would spend more time outdoors and might be more likely to defecate openly. However, industry was reported only for those currently employed. To avoid dropping people who were not employed, we set this indicator equal to 0 where it was missing and added another indicator for missing data.

Table VII.12 *(continued)*

Notes: The table shows predicted probabilities from a logit model. The dependent variable is a binary indicator for open defecation in the previous week and includes those who used latrines only sometimes as open defecators. The independent variables are as listed in the table and also include a set of district indicators. For each independent variable, the predicted probability is from the fitted logit model and sets all other variables to their mean values. The *p*–values are for the test of significance for each variable in the logit model and adjust for clustering at the hamlet level. "n.a." denotes the omitted category for each set of variables.

[a]Zero for those not reporting industry.

[b]*p*–Value for the test of the joint hypothesis that all indicators in this group are equal to zero.

*Significantly different from zero at the .10 level, two–tailed test.
**Significantly different from zero at the .05 level, two–tailed test.
***Significantly different from zero at the .01 level, two–tailed test.

- ***Open defecation is significantly more prevalent among those with less education and those from households in the poorest SES quartile. Having a river in the hamlet, perceptions of limited use of latrines by others in the community, and lower levels of knowledge about sanitation are also significant predictors of open defecation.***

The results in Table VII.12 suggest that those under 30 are most likely to defecate openly, although none of the age indicators is statistically significant. We also find that less-educated respondents are significantly more likely to defecate openly compared with those with more than nine years of formal education (corresponding to the completion of junior high school). However, working in agriculture, forestry, or fisheries is not a significant predictor of open defecation, even though these occupations presumably involve more time spent outdoors, potentially far from a convenient latrine.

Respondents in households outside the wealthiest quartile are far more likely to defecate openly relative to this quartile, although only the quartile 1 and quartile 3 indicators are statistically significant. The other variables that we consider are all significant predictors of open defecation at the 1.0 percent level of significance. These include having a river in the hamlet, which increases the predicted probability of open defecation from 1.6 percent to 13.3 percent, consistent with the previous evidence that defecation in the river remains a major concern. Perceptions of greater use of latrines in the community and correct knowledge about sanitation are also both significant predictors of a lower probability of open defecation.

An important step to reducing open defecation could be to target program resources to specific households and individuals that have a high probability of open defecation. Our analysis suggests that this includes youth, the less educated, households outside the wealthiest quartile, and those who have easy access to a river for defecation. One option could be to target awareness campaigns at these groups—for example, through youth groups or education programs at the junior high school level.

VIII. CONCLUSIONS AND RECOMMENDATIONS

The TSSM program sought to implement a novel approach in East Java to eliminate open defecation and increase access to improved sanitation at scale. It aimed to deliver a holistic intervention that would simultaneously strengthen supply and demand for sanitation, as well as strengthen the enabling environment in which the sanitation intervention was delivered. TSSM's goals were to deliver the program in a sustainable and scalable way by making local districts its primary implementation partners.

In this chapter, we first summarize our overall observations on TSSM implementation. We then briefly describe some of the lessons learned that might help to further refine the TSSM approach, in order to help this promising program achieve its targets for large-scale ODF gains and increased access to improved latrines.

A. Overall Observations of TSSM Implementation

Program implementation varied a great deal, as did the outcomes that resulted. In all districts, we saw pockets of great success that achieved ODF outcomes, but how large these areas were and how many hamlets they encompassed varied significantly. A few districts and subdistricts were very committed to the program and focused on expanding it over time to ensure ODF communities in their entire district. These places had high levels of capacity and cross-sectoral commitment to the program and took a fairly strategic approach to program implementation. They made significant financial and human resource investments in TSSM implementation and scale-up and saw strong results. However, in several locations, we saw weaker program implementation and limited scale-up. These districts typically dedicated fewer resources and lacked capacity and motivation for program implementation.

The viral spread of TSSM assumed in WSP's theory of change did not occur, increasing the burden on district and subdistrict staff for program expansion. In most cases, concerted and fairly top-down efforts by districts and subdistricts—rather than demand from villages—drove program expansion. As a result, the program placed significant burden for expansion and follow-up on district—and especially subdistrict—officials and staff. These activities required additional resources, which were often in scarce supply.

The CLTS component of TSSM, rather than sanitation marketing, largely drove the results that occurred. The TSSM team took some time to conduct research and develop tools and strategies for the sanitation marketing component. Its delayed implementation, combined with its weaker application, appears to have limited the impact of this component. Households in almost all the hamlets in which we conducted focus groups were unaware of low-cost latrine options. Our survey indicates that most households tended to have high estimates for the cost of pour-flush latrines, and these high costs are significant impediments to latrine ownership. As a result, it appears that the CLTS component has driven most of the gains realized by TSSM at the hamlet and household levels.

Implementation deviated substantially from TSSM-prescribed procedures. Despite TSSM's development of a detailed manual describing how to implement the different components of the program, there was substantial deviation from prescribed procedures. At some level, a degree of deviation was to be expected because the program was locally implemented. In a few cases, such as implementation of the triggering event and who conducted the triggering, such changes might not

have mattered very much. Occasionally, deviations even led to innovations that made the program more effective (for example, joint triggering or triggering of clusters). However, these deviations sometimes led to weak implementation of critical program components. For example, they could have contributed to insufficient resource assessment and budgeting at higher levels, insufficient follow-up with triggered communities or trained masons at lower levels, lower sectoral coordination, and coordination at different levels.

In places where the program succeeded (and communities were declared ODF), access to latrines was higher and covered poorer households. Our household survey indicated near-universal access to latrines in ODF hamlets compared with non-ODF hamlets (96.5 versus 69.5 percent). In comparison to households in non-ODF villages with access to latrines, many of the households in ODF villages with latrines had lower socioeconomic status and were more likely to have access to more basic pit latrines. Many households in the ODF villages had gained access to latrines since the TSSM program began. Although we cannot establish causality due to the lack of random assignment of study participants, it is plausible that the TSSM program had some influence on latrine access decisions.

Latrine use was also higher in ODF hamlets than in non-ODF hamlets. Based on our household survey, household focus groups, and transect walks through hamlets, we found that households in communities declared ODF appeared to be using latrines to defecate. We did not find evidence of people defecating in rivers or outdoors, nor did we observe feces in public places. Our household survey confirmed these findings, indicating that 94 percent of households in ODF hamlets exclusively used latrines to defecate in the past week compared with 61 percent in non-ODF communities.

However, the quality of the latrines did not always meet TSSM quality standards for blocking contamination routes. In our site visits and observations of latrines, we noted that although some latrines were well sealed and hygienic, others had features that would permit the spread of disease (for example, poor quality, broken, or no lids on pit latrines). Our household survey revealed that fewer than half of the pit latrines in households in ODF sites had lids. Moreover, in many locations, households seemed to associate ODF with simply defecating in a latrine rather than defecating in a sufficiently hygienic latrine. Our site visits suggest that general latrine maintenance and household awareness of hygienic latrine standards seemed to be higher in places where implementation efforts were better coordinated and contained more follow-up.

B. Recommendations Going Forward

In addition to our general observations of the TSSM implementation, we have identified some lessons learned and recommendations for the program to consider as it goes forward. These lessons pertain to the following areas:

- Preparing local governments for TSSM implementation
- Implementing CLTS at scale
- Developing and implementing sanitation marketing
- Creating a sustainable and useful monitoring system

1. Preparing Local Governments for TSSM Implementation

- ***Conduct program advocacy to create high levels of buy-in among multiple stakeholders, especially the bupati.***

Because TSSM requires substantial investment from a wide range of stakeholders at all levels, it is important to generate broad-based support for the program. Strong and ongoing program advocacy targeted to the district heads (*bupati*) is especially necessary because their support can motivate stakeholders at every level of government to devote the substantial time, effort, and resources required to make the program a success.

- ***Create strong coordination mechanisms to ensure program success.***

TSSM implementation is strongest when there are high levels of multisectoral coordination at all administrative levels. It will be important to identify specific steps necessary to ensure this coordination and to identify the responsibilities of the relevant stakeholders.

- ***Ensure adequate commitment of resources for implementation at all levels.***

TSSM requires significant resources at different levels for various aspects of TSSM implementation and follow-up. Districts might need technical assistance in anticipating what the required levels and types of resources needed for implementation of various components will be at district, subdistrict, village, and hamlet levels. They might also need assistance in budgeting adequately to meet these needs and in identifying existing resources to leverage.

2. Implementing CLTS at Scale

- ***Build capacity to conduct strategic selection of triggering locations.***

Areas that saw strong results were strategic about how they chose and sequenced subdistricts, villages, and hamlets for program implementation. In particular, choosing geographically clustered places; conducting concentrated triggering in those places (that is, triggering all hamlets in target villages); and conducting joint triggering (that is, facilitators from multiple villages trigger each village together) appear to result in greater success in facilitating ODF attainment. These strategies generate greater program momentum and competition among villages, allow better leveraging of resources, and facilitate sharing of program knowledge.

- ***Introduce targeting of specific groups.***

The program could consider developing targeted approaches tailored to specific households and people who have a high probability of open defecation. Based on our analysis, this includes youth, the less educated, households outside the wealthiest quartile, and those living near a river. For example, the program could develop youth education programs at schools.

- ***Conduct and devote resources for post-triggering follow-up.***

Triggering on its own was rarely sufficient for changing household sanitation behavior. Both attainment and maintenance of ODF outcomes depended on the degree to which there was post-triggering follow-up (that is, repeat socialization of TSSM messages and targeted follow-up with households through monitoring visits). These extra steps can entail substantial time and/or travel costs and require devoting explicit resources to them for consistent progress to occur in target areas.

- ***Stress health benefits to improve hamlet and household demand for sanitation.***

Publicizing the health benefits of improved sanitation (for example, showing data on declining diarrhea rates) can be a useful complementary strategy. In the few places that took this approach, we observed that it strengthened commitment to implementing TSSM and increased household willingness to access improved sanitation. Our qualitative and quantitative findings indicate that it might be useful to focus attention on the health risks of defecating in water (rivers, irrigation canals, ponds, and so on). Households do not fully appreciate the health risks of defecating in bodies of water and consider such behavior less risky than openly defecating on the ground. Because defecating in rivers is the most prevalent method of open defecation, it might be worthwhile to pay special attention to illustrating the links between river defecation and diseases such as diarrhea.

3. Developing and Implementing Sanitation Marketing

- ***Adopt a phased approach to training of suppliers/providers; concentrate on training and following up with larger numbers of carefully selected sanitation suppliers/providers concentrated in a few locations.***

For the supply-strengthening component of TSSM, more careful planning is necessary about what it would take to improve delivery at scale. It seems unlikely that triggering a few entrepreneurs in each district would result in improvements at scale, even if those entrepreneurs were well selected. Similar to the phased approach adopted in CLTS, TSSM might target a few districts and subdistricts at a time and concentrate its supply training efforts in these administrative units. This would facilitate dedication of resources for more careful selection of trainees and would enable the program to conduct a greater degree of follow-up and monitoring of trainees, which would help to gauge whether or not training improves the supply of low-cost options at scale. These places could serve as pilots for learning.

- ***Improve distribution mechanisms of sanitation marketing materials.***

For the demand-strengthening component of TSSM, more strategies and mechanisms have to be identified to disseminate sanitation promotion materials and informed choice catalogues. We recommend dedicating greater effort to distributing the informed choice catalogue, because many local stakeholders found that useful but often seemed to prefer developing their own posters and other promotion materials.

- ***Deliver training and sanitation promotion more intensively for poorer hamlets and soon after triggering for households near a river.***

Both components of sanitation marketing should focus more intensively on poorer households and hamlets. For very poor households, cost can be a prohibitive constraint on upgrading to improved latrines, so additional strategies to help with financing will be necessary. Low-cost options should be introduced earlier and promoted more vigorously (soon after triggering) for households near a river that are usually averse to basic pit latrines and want to transition directly from open defecation to improved latrines.

4. Creating a Sustainable and Useful Monitoring System

- ***Improve district capacity for data collection and use.***

Data collection at lower government levels, even when it occurs, is usually reported upward only when there is regular demand at higher levels. However, district officials are likely to request

data regularly from lower levels and exercise data quality control only if they perceive they will derive some benefit from the data. Future implementation of TSSM might have to include strong technical assistance helping various government levels not just on what data to collect or how, but also on how to use the data for various administrative and tracking purposes.

- ***Simplify monitoring indicators for more effective use of scarce district resources.***

In the interim, while districts are still strengthening capacity for data collection, it might be useful to reduce and simplify the indicators on which monitoring data are collected. (These can include simple indicators, such as whether households use a latrine or not and whether communities have been triggered and attained ODF.) This would facilitate more frequent and systematic data collection by reducing the burden on frontline stakeholders (such as village health staff or hamlet health volunteers), who are responsible for data collection.

- ***Provide greater support for volunteers who form the front line of data collection.***

To improve the quality of data collected, frontline data collectors should receive additional training and, if they are volunteers, they should receive token compensation to motivate them. Alternatively, the program could leverage funding from other health programs that might already provide such compensation for volunteers for monitoring.

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APPENDIX A

LIST OF STAKEHOLDER INFORMANTS

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LIST OF STAKEHOLDER INFORMANTS

National-Level Stakeholders

Total Sanitation and Sanitation Marketing (TSSM) program staff and partners

World Bank Water and Sanitation Programme (WSP) staff and team in Jakarta

Sectoral

Ministry of Health (Depkes) staff

Ministry of Planning (Bappenas) staff

Other

PLAN International

UNICEF

Province-Level Stakeholders

TSSM program staff and partners

TSSM Regional Coordinator

Resource agency staff, including marketing specialists, team leaders, district consultants, and training staff

Sectoral

Provincial health office staff, including Environmental Health Office and Health Promotion Office staff

Provincial planning office (Bappeda) staff

District-Level Stakeholders

Political

District head (*bupati*) and staff

Sectoral

District Health Office (*Dinkes*)

District Environmental Health Office (*Kesling*)

District Planning Office (*Bappeda*)

Health promotion officer

Subdistrict–Level Stakeholders

Political

Subdistrict head (*camat*), secretary, and other staff

Sectoral

Staff of Subhealth Center (*Puskesmas*), including sanitarians and health promotion officers

Family Movement coordinator

Economy, Development, and Women Empowerment (*Ekbang*) staff

Education Office staff

Family Welfare Movement (PKK) leaders

Other

Sanitation suppliers and providers

Village–Level Stakeholders

Political

Village head (*kepala desa*) and secretary

Sectoral

Village midwife

Other

Mason

Hamlet–Level Stakeholders

Political

Hamlet heads, RW heads, RT heads, and other local officials

Sectoral

Health volunteers (*cadres*)

APPENDIX B

LIST OF HAMLETS VISITED

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Table B.1. Qualitative Study Locations

District	Subdistrict	Village	Dusun
Jombang	Ndiwek	Kwaron	Nglerep
Jombang	Ndiwek	Kwaron	Sukopuro
Jombang	Mojoagung	Johowinong	Plosorejo Dusun
Gresik	Wringinanom	Sumberame	Sidomukti
Gresik	Wringinanom	Sembung	Sumberploso
Gresik	Kedamean	Katimoho	Katimoho
Gresik	Kedamean	Katimoho	Dukuh
Malang	Dampit	Dampit	Dampit Barat
Malang	Dampit	Sukodono	Kampung The
Malang	Dampit	Sukodono	Petung Sigar
Malang	Pakisaji	Wonokerso	Blau Dusun
Malang	Pakisaji	Wonokerso	RW 1
Trenggalek	Gandusari	Wonoanti	Manggis
Trenggalek	Gandusari	Gandusari	Pundensari
Trenggalek	Tugu	Gondang	Setono
Trenggalek	Tugu	Gondang	Kebonsari
Trenggalek	Tugu	Ngepeh	Ponggok
Bondowoso	Grujugan	Kabuaran	Krajan Selatan
Bondowoso	Grujugan	Dadapan	Krajan Timur
Bondowoso	Maesan	Tanah Wulan	Krajan 2
Bondowoso	Maesan	Suco Lor	Suco Lor
Bangkalan	Kokop	Bandang Laok	Dusun Baktalbak
Bangkalan	Arosbaya	Karang Pao	West Karang Pao
Bangkalan	Kokop	Katol Timur	Bukol
Jombang	Perak		

Table B.2. Quantitative Study Locations

District	Subdistrict	Village	Dusun
Bangkalan	Kokop	Bandang Laok	Baktalbak
Bangkalan	Kokop	Katol Timur	Bukol
Bangkalan	Kokop	Kokop	Torsabih
Bangkalan	Arosbaya	Karang Paoh	Karang Paoh Barat
Bangkalan	Arosbaya	Tengket	Binteng
Bangkalan	Arosbaya	Tambegan	Tambegan Barat
Bondowoso	Grujugan	Dadapan	Giwang
Bondowoso	Grujugan	Dadapan	Krajan Barat
Bondowoso	Grujugan	Kabuaran	Krajan Selatan
Bondowoso	Maesan	Tanahwulan	Krajan 2
Bodowoso	Maesan	Tanahwulan	Selatan Tenggir
Bondowoso	Maesan	Suco lor	Suco
Gresik	Kedamean	Katimoho	Katimoho
Gresik	Kedamean	Katimoho	Dukuh
Gresik	Kedamean	Slempit	Slempit
Gresik	Wringinanom	Sumberame	Sidomukti
Gresik	Wringinanom	Sembung	Sumberploso
Gresik	Wringinanom	Pedagangan	Pedagangan
Jombang	NDiwek	Kwaron	Nglerep
Jombang	NDiwek	Kwaron	Sukopuro
Jombang	Ndiwek	Bulorejo	Kedaton
Jombang	Mojoagung	Johowinong	Ploserejo
Jombang	Mojoagung	Johowinong	Johowinong
Jombang	Mojoagung	Tanggalrejo	Tanggalrejo (desa)
Malang	Dampit	Sukodono	Petung Sigar
Malang	Dampit	Sukodono	Kampung Teh
Malang	Dampit	Dampit	Dampit Barat
Malang	Pakisaji	Sutojayan	RW02
Malang	Pakisaji	Wonokerso	RW 1
Malang	Pakisaji	Permanu	Blau
Trenggalek	Gandusari	Wonoanti	Manggis
Trenggalek	Gandusari	Gandusari	Pundensari
Trenggalek	Gandusari	Ngrayung	Plagen
Trenggalek	Tugu	Gondang	Setono
Trenggalek	Tugu	Gondang	Kebonsari
Trenggalek	Tugu	Ngepeh	Ponggok

APPENDIX C

DATA PROVIDED BY WSP ON DISTRICT BUDGETS

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Table C.1. Expenditure on TSSM by District, 2007–2010 (US Dollars)

District	FY2007	FY2008	FY2009	FY2010	Total
Bangkalan	$33,333	$11,111	$25,000	$11,111	$80,556
Banyuwangi	$0	$16,667	$11,111	$13,333	$41,111
Blitar	$0	$14,444	$2,000	$0	$16,444
Bojonegoro	$0	$0	$3,333	$15,000	$18,333
Bondowoso	$0	$22,222	$33,333	$1,444	$57,000
Gresik	$0	$0	$0	$16,667	$16,667
Jember	$29,222	$44,444	$88,889	$889	$163,444
Jombang	$0	$7,556	$5,556	$15,000	$28,111
Kediri	$4,091	$26,667	$8,889	$15,000	$54,647
Lamongan	$0	$0	$0	$3,333	$3,333
Lumajang	$6,667	$27,222	$94,444	$12,222	$140,556
Madiun	$0	$4,444	$0	$10,000	$14,444
Magetan	$0	$2,778	$8,333	$16,667	$27,778
Malang	$0	$3,333	$0	$5,556	$8,889
Mojokerto	$0	$0	$0	$0	$0
Nganjuk	$7,000	$27,222	$16,556	$0	$50,778
Ngawi	$2,222	$4,889	$10,833	$0	$17,944
Pacitan	$2,778	$2,778	$0	$667	$6,222
Pamekasan	$15,556	$11,111	$16,111	$11,111	$53,889
Pasuruan	$6,667	$15,444	$11,111	$15,000	$48,222
Ponorogo	$0	$16,667	$8,333	$1,444	$26,444
Probolinggo	$5,556	$5,556	$16,667	$0	$27,778
Sampang	$0	$16,667	$38,889	$27,778	$83,333
Sidoarjo	$0	$0	$5,556	$2,778	$8,333
Situbondo	$8,889	$10,556	$25,000	$10,000	$54,444
Sumenep	$5,556	$5,556	$15,667	$30,000	$56,778
Trenggalek	$14,667	$47,778	$44,444	$1,222	$108,111
Tuban	$0	$8,333	$19,444	$8,333	$36,111
Tulungagung	$26,667	$6,889	$3,333	$5,556	$42,444

Source: WSP 2010b.

Note: Data provided by WSP were in Indonesian Rupiah. All amounts were converted to US Dollars at the rate of 9000 IDR/1 USD.

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APPENDIX D

LB–1 FORM

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LB-1

MONTHLY REPORT
PROGRESS OF COMMUNITY BASED TOTAL SANITATION ACTIVITIES
– Improvement of community's access to latrine –

District : .....

Sub-district : .....

Month of reporting : ...../ Year .....

No	Name of village	Name of Hamlet/ communities	No. of population (people)	No. of Households			Baseline data of community's access (HHs)												Cumulative of community's access to this month												Remarks
							Improved latrine			Un-improved latrine			Shared latrine			Still open defecation (OD)			Improved latrine			Un-improved latrine			Shared latrine			Still open defecation (OD)			
				R	M	P	R	M	P	R	M	P	R	M	P	R	M	P	R	M	P	R	M	P	R	M	P	R	M	P	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)

Notes:

Columns (1), (2), (3), (4), (32) are self-explanatory

Columns (5), (6), (7) are no. of households, by welfare classification: R=rich, M=middle of, P=poor

Columns (8), (9), (10) are no. of households having and using improved latrine for defecating (baseline), by welfare classification: R=rich, M=middle of, P=poor

Columns (11), (12), (13) are no. of households having and using un-improved latrine for defecating (baseline), by welfare classification: R=rich, M=middle of, P=poor

Columns (14), (15), (16) are no. of households having and using shared- latrine for defecating (baseline), by welfare classification: R=rich, M=middle of, P=poor

Columns (17), (18), (19) are no. of households that still open defecation (baseline), by welfare classification: R=rich, M=middle of, P=poor

Columns (20), (21), (22) are increasing no. of households having and using improved latrine for defecating (baseline), by welfare classification: R=rich, M=middle of, P=poor

Columns (23), (24), (25) are changing (increase/ decrease) no. of households having and using un-improved latrine for defecating (baseline), by welfare classification: R=rich, M=middle of, P=poor

Columns (26), (27), (28) are are changing (increase/ decrease) no. of households having and using shared- latrine for defecating (baseline), by welfare classification: R=rich, M=middle of, P=poor

Columns (29), (30), (31) are decreasing no. of households that still open defecation (baseline), by welfare classification: R=rich, M=middle of, P=poor

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APPENDIX E

PRINCIPAL COMPONENTS ANALYSIS TABLE

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Table E.1. Principal Components Analysis (Percentages Unless Otherwise Specified)

Variables	Total	ODF Communities	Non-ODF Communities	Weight in SES Index
Household Characteristics:				
Household members per room (mean)	0.75	0.72	0.78	-0.19
Household has brick/concrete walls	77.1	75.6	78.4	0.32
Household Head Characteristics:				
Years of education (mean)	5.7	5.6	5.9	0.37
Employment status:[a]				
Not working	10.1	8.2	11.8	-0.05
Self-employed	22.6	20.9	24.2	0.05
Self-employed with unpaid family helpers	21.5	22.4	20.8	-0.15
Self-employed with paid employees	7.6	7.6	7.6	0.11
Employee	18.3	19.7	17.1	0.25
Day laborer	18.8	20.6	17.1	-0.19
Household Wealth:				
Monthly income (median, Rp 000's)[b, c]	888	941	836	0.31
Value of stock of goods held by household business (median, Rp 000's)[b]	200	205	190	0.11
Durable goods ownership:				
Radio	37.4	36.5	38.2	0.20
Television	79.9	81.5	78.4	0.31
Refrigerator	19.7	18.8	20.5	0.32
Bicycle or rowboat	58.5	58.5	58.4	0.27
Motorcycle or motorboat	66.9	65.6	68.2	0.33
Car or truck	4.9	5.0	4.7	0.19
Number of farm animals (mean):				
Cows, bulls or buffalo	0.4	0.5	0.4	-0.06
Goats or sheep	0.4	0.4	0.5	0.07
Poultry	3.8	3.8	3.8	0.13
Rescaled SES Index:[d]				
Mean	4.66	4.64	4.67	n.a
Standard deviation	1.85	1.89	1.82	n.a
Max	10	9.75	10	n.a
Min	0	0	0.53	n.a
Sample Size	718	718	718	718

Notes: Principal Components Analysis (PCA) following the methodology of Filmer and Pritchett (2001) and Rutstein and Johnson (2004).

[a]Omitted category is unpaid family worker.

[b]Log of the monetary amount used in PCA analysis.

[c]The sum of income from all sources, including in-kind income.

[d]SES index rescaled to a range of 0 to 10.

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