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# Local Solutions for a Global Problem: The Role of NGOs in Maximizing the Efficacy of Local Government Sanitation Efforts in Rural Maharashtra

Jorge Aceves  
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## **Local Solutions for a Global Problem:**

*The role of NGOs in maximizing the  
Efficacy of Local Government Sanitation Efforts in rural Maharashtra*

Jorge Aceves

Dr. Azim Khan

Ravi Arole, CRHP Director of Operations

School for International Learning

Fall 2011

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### **Abstract**

This independent study project looks at the topic of sanitation within rural Maharashtra. Although the Government of India, through the state governments, has initiated nationwide campaigns against poor sanitation and waterborne illnesses, these programmes do not reach all communities or find significant success in improving sanitation. Recent revisions of these sanitation programs have shifted their focus from a centralized supply-driven approach to a localized demand-driven approach, yet the system requires more work to become fully functional. In some areas, non-government organizations, such as the Comprehensive Rural Help Project (CRHP), have stepped up to bridge the gap between the available government programmes and the local communities. The study is a qualitative analysis of two villages near the census town of Jamkhed. One village, Village A, has a long association CRHP of over 20 years and the other village, Village B, has only worked with CRHP for 7 years. Through a series of personal interviews with local residents, CRHP officials, and Gram Panchayat officials, the study will gauge the community's awareness, reaction, and utilization of the government's sanitation schemes and efforts. Additionally, a survey was handed out to 50 households of both villages and used as quantitative data. The study showed that Village A's residents had much better access to improved sanitation and water than the residents of Village B, due to better awareness, demand, and habits regarding water and sanitation. CRHP's efforts in the villages functioned as a catalytic supplement to the government, optimizing the impact of government sanitation programmes through health education efforts and community empowerment.

## Introduction

Since India's creation as an independent nation half a century ago, it has defied all expectations and held itself together as a country while also making impressive developments. In the metropolitan areas of Delhi, one can live with the same comforts and commodities found in developed western countries, such as the United States. Furthermore, numerous private Indian hospitals currently boast world-class care, with state of the art technology and comparatively low prices. However, this spectacular recent growth in India has not yielded equitable benefits to the population of India, especially among rural and tribal populations. Seventy percent of the India's population lives in rural areas, far from the healthcare services available in urban cities and vulnerable to communicable diseases.<sup>1</sup>

Specifically, water-borne diseases, such as cholera, typhoid fever, and malaria, trouble the rural villages, which often lack a stable infrastructure for sanitation and potable water.<sup>2</sup> These diseases stem from a variety of factors, ranging from a contaminated water supply to an inefficient system of human waste disposal. Despite India's significant progress towards fulfilling Millennium Development Goals in other sectors, sanitation has been labeled the "Orphan MDG", due to international neglect of this health crisis.<sup>3</sup> According to the World Health Organization, only 21 percent of the rural population has access to improved sanitation facilities, promoting unhealthy practices such as open defecation.<sup>4</sup> Some rural communities, far from any medical professional, are dominated by superstition and gross ignorance regarding common illnesses, allowing simple infections to become deadly<sup>5</sup>.

These waterborne illnesses, though currently virulent in rural areas, can be widely combated through basic improvements in local health practices and sanitation infrastructure.

Although the initial government efforts met slow progress with their broad sanitation programmes, recent government and NGO efforts have focused on a community-driven approach towards combating waterborne illness and improving community sanitation. These initiatives empower and involve the local communities in improving their own public health, creating visible and sustainable changes in public health.

While many national and state-level reforms in water and sanitation have been recently implemented, they may not have reached many rural communities, especially in remote regions that are distant from any major city. This independent study analyzes the efforts of the Comprehensive Rural Health Project in conjunction with the government sanitation and water programs in rural villages within the state of Maharashtra. Specifically, it compares two villages with very different exposures to the CRHP model. The study uses the official government guidelines for its national water and sanitation programs, such as the Total Sanitation Campaign (TSC), as a standard to compare with the local initiatives seen and described in the two villages.

## **Methodology**

To accurately analyze and study CRHP's influence on the efficacy of the GOI's water and sanitation programs in rural Maharashtra, a variety of different methods were utilized to collect primary and secondary data. A broad range of perspectives were collected to provide a holistic view of the issue.

To define the policies of the various water and sanitation programs initiated by the GOI and the GOM, such as the Total Sanitation Campaign (TSC), the current government policy

documents and guidelines are analyzed as primary sources. This study assumes that these official government documents delineate the ideal methods of improving rural sanitation and water supply. Many of these documents apply to the entire nation or the entire state of Maharashtra, thus not all of the programs may be applicable to the two villages which are studied.

In order to study the village-level implementation, impact, and reception of the various government water and sanitation programs, two distinct villages are studied in detail: labeled Village A and Village B. Both villages are located near the town of Jamkhed and have some varying associations with CRHP. These two villages are compared through qualitative and quantitative studies to show the differing impact of CRHP and government sanitation programs. The qualitative aspect involves personal interviews with the various stakeholders in the village's sanitation. For the government perspective, members of the Gram Panchayat (GP), government schools, Anganwadi workers, and ASHAs are interviewed regarding the currently available programs to improve village sanitation and water. Additionally, CRHP-associated health professionals, such as the Village Health Workers and CRHP social workers, are also interviewed regarding the government programs and the state of the village's water supply and sanitation. Lastly, various residents of both villages are interviewed to gauge both their awareness of good sanitation practices and their reactions to local government and CRHP efforts in sanitation. In all interviews, a CRHP social worker functioned as a translator from Marathi to English. Additionally, every interviewee has been issued a pseudonym, maintaining anonymity for the purposes of this study.

A multiple-choice survey, translated into Marathi and given out to 50 households in each village, is used both as qualitative and quantitative data. Because the surveys cover a significant portion of the village population and covered most sectors of the villages, the people surveyed can be assumed to be an accurate representation of the village's hygiene habits and views on sanitation. All of this quantitative and qualitative data is complemented by field observations of hygiene habits and sanitation infrastructure from multiple excursions into both villages.

Although the GOI and GOM have sanitation and water programs for the entire state, only two villages near the town of Jamkhed are studied in detail. While the villages face many of the archetypal health problems common to rural Maharashtra, the results from this study cannot be broadly applied to the entirety of rural India without further study.

### **Waterborne Disease and Sanitation-related Illness**

To give context to the issue, waterborne illnesses include cholera, typhoid fever, diarrhea, skin diseases, and malaria<sup>6</sup>. These diseases utilize local water sources as a vector for their transmission, most often through infectious microorganisms such as bacteria. These infections frequently manifest themselves in the form of diarrhea, which can cause the rapid loss of essential fluids and nutrients in the body. While diarrhea presents only a mild health concern for most adults, it is the 2<sup>nd</sup> largest cause of young child mortality worldwide.<sup>7</sup> Poor sanitation plays a significant role in the transmission of waterborne disease with 88% of global diarrhea cases being attributed to “unsafe water, inadequate sanitation, and poor hygiene.”<sup>8</sup> Due to a combination of unsafe sanitary practices, such as open defecation, and inadequate



facilities in rural areas, human waste comes into constant contact with the environment, contaminating the local water supply with dangerous pathogens. Additionally, stagnant bodies of water, created from poor drainage, promote local mosquito populations, which carry dangerous diseases such as malaria.<sup>9</sup> Other infections occur due to poor bathing habits, especially among women. Lacking a closed bathroom, many women bathe in their clothes to preserve their modesty, severely impeding their personal hygiene. These poor hygiene habits often lead to complications such as cervical cancer.<sup>10</sup>

### **Previous Government Efforts in Water and Sanitation**

Although the Government of India, through the various state governments, has attempted numerous programmes and schemes to improve rural sanitation, many of these early attempts in the past half-century have been unsuccessful or grossly inefficient. In 1983, the Government of India began the Central Rural Sanitation Program (CRSP). This program and the various projects underneath it initially functioned in a centralized and supply-driven manner. Even minor proposals and changes to local programs depended on direct oversight and approval from the bureaucracy in the state governments, causing gross inefficiency and extended delays. These programs would place a heavy emphasis on the construction of infrastructure, such as open pit latrines or cesspools, to solve the sanitation crisis, leaving a large gap in community health education. There were no major education or awareness campaigns regarding solid waste disposal, food hygiene, and environmental sanitation.

Additionally, the programs under CRSP would frequently install sanitation infrastructure in a village without any local collaboration, ignoring the influence of Gram

Panchayat institutions and the specific demands of the community<sup>11</sup>. The lack of village-level education regarding infrastructure regulation and repair put the entire burden of regulation on the Block-level and District-level governments. Confronted with hundreds of villages, these governments could not possibly micro-manage the individual sanitation efforts. This clumsy and broad policy, combined with the lack of regulation and maintenance from the villages, led to the rapid decay of many government-constructed infrastructure. The government efforts also neglected to view water-supply and sanitation as deeply interconnected issues, often focusing on one issue while neglecting the other. For example, an employee at CRHP recalled numerous examples of villages where the government constructed toilet systems without providing a stable supply of water, preventing their long-term utilization by village residents. This effectively neutralized any impact of the toilets on the village's sanitation and health.<sup>12</sup> The sanitation structures were also heavily subsidized, costing the local community almost nothing for their construction. However, a Baseline Survey on Knowledge, Attitudes, and Practices in rural water supply and sanitation showed that only 2% of residents cited the subsidies as the primary motivating factor.<sup>13</sup> On the other hand, more than 50% cited privacy and convenience as the motivating factor. Furthermore, the CRHP employee noted that many of these heavily subsidized latrines fall quickly into disrepair and disuse due to the lack of community investment in the projects. He stated that "people will not value anything that they receive free of cost."<sup>14</sup> One Village Health Worker in Jamkhed noted that people would commonly request government subsidies without actually constructing their individual latrine, pocketing the money for other purposes.<sup>15</sup>

Also, the practice of open defecation stands as an ancient tradition that remains firmly ingrained throughout rural India. Farmers frequently defecate in the relative seclusion of their open fields, away from village centers. To maintain their modesty, women often wait until the late hours of the night to defecate in the open fields, exposing the women to dangerous insects, snakes, or sexual assault. Additionally, most of these individuals do not practice adequate hygienic practices after defecation, often washing their hands with only water or ash before going back to work. Many families are aware of the connection between health and hygiene, but believe that they lack the resources and time to really pursue it. They do not see their environment as a health factor nor do they see themselves as influencing factors within their own environment.<sup>16</sup> Some families in villages openly refuse to use toilet facilities, regardless of their quality or availability, preferring their traditional methods of waste disposal.<sup>17</sup> If built improperly or irregularly maintained, toilets will grow dirty and smell increasingly filthy, causing families to abandon toilets that are located close to their homes. Many rural residents lack awareness about the health benefits of hygienic and sanitary practices, preferring the convenience of open defecation.<sup>18</sup> Others view the construction of toilets and latrines as an excessively expensive financial burden.<sup>19</sup> Additionally, some public schools lack adequate toilets or latrines, inadvertently promoting traditional methods of waste disposal among the young students. Overall, villages often fail to generate a demand for improved latrines and toilets due to a lack of health education within the community. This lack of awareness and community participation in sanitation stymied the early efforts of CRSP.

## **Current Government Efforts**

### *Total Sanitation Campaign*

Faced with the disappointing results from the CRSP's initial efforts, the Ministry of Water and Sanitation started a large-scale revision of its rural sanitation programs. In 1999, these policy revisions culminated in a programme titled "Total Sanitation Campaign (TSC)". The TSC represents a major shift towards the decentralization of sanitation programs, working with local governments and institutions to fit specific needs of the community. Additionally, the Total Sanitation Campaign places far more emphasis on raising health awareness in villages, which results in greater demand and maintenance for improved sanitation facilities.

As its goals, the TSC focuses on accelerating sanitation coverage, using Panchayat Raj Institutions, and covering schools with sanitation facilities. Additionally, it emphasizes cost-effective and appropriate sanitation technologies for sustainable improvements, as well as developing community-managed systems of waste management. The TSC functions through individual projects, which are proposed by the individual districts and supervised by the respective state government. Once approved for a district, the TSC is implemented in several distinct phases.

The first major component of the TSC is the utilization of Baseline Surveys to attain important information about the availability and demand for improved community sanitation among villages. Additionally, this phase initiates the training and orientation of key officials at the district-level, to prepare them for management of the sanitation project. The next major facet brings forth Information, Education, and Communication (IEC) activities. Under IEC

activities, government efforts are combined with local institutions, like the Gram Panchayat and Village Water and Sanitation Committees (VWSC), to create a demand for improved sanitation within villages, a critical step in creating sustainable improvements. IEC strategies include a wide range of continuous activities, including the use of mass media, such as television or radio ads, by national and state governments. At the village level, the Gram Panchayat and local sanitation committees can run awareness campaigns, making announcements at village meetings, painting promotional signs on walls, and going door-to-door to promote good hygiene and sanitation. Ideally, IEC activities should not only generate demand for improved sanitation systems, but also foster the capacity to maintain these systems. IEC programs aim to transform good hygiene and sanitation into an integral part of life in rural India. Additionally, some IEC efforts focus on public schools and Anganwadi facilities to teach the young kids about proper sanitation before they become ingrained in traditional open defecation habits.

Another important component of TSC revolves around the creation and maintenance of Rural Sanitary Marts (RSMs). These RSMs function as a local outlet for villages to obtain the necessary supplies for the construction of latrines and other sanitation structures. The RSM can also provide limited guidance in the construction of sanitation facilities that suit the local environment. These supply outlets are commercial ventures that can be started by various groups in villages, like the Gram Panchayat, NGOs, or private entrepreneurs.<sup>20</sup> Production Centers complement RSMs and aim to provide cheap production of sanitation materials.

Additionally, the TSC offers significant incentives for the construction of Individual Household Latrines (IHHL) for each family, especially those below the poverty line. Currently,

the maximum incentive offered to BPL families is Rs. 2200 per IHHL. The BPL families receive this incentive after the construction and use of their toilet. However, the program does not provide any of the labor and expects households above the poverty line (APL) to finance their own personal latrines. The TSC also aims to replace older bucket latrines with the approved sanitary models, which minimize contact with feces. The toilets promoted by the TSC typically empty out into a sealed pit, which allows liquid waste to percolate in the surrounding soil. These designs only require a small amount of water, if any at all, to flush waste down into the pit. It is common to sprinkle ash or other powders into the toilet after defecation, to help dry the waste and eliminate foul odors. When a village lacks the space for every home to build their own latrine, the TSC promotes the construction of a Community Sanitary Complex. These facilities are organized and maintained by the community through the Gram Panchayat and provide a sufficient number of toilets and wash basins in a publically accessible location. In order to help fund the facility's maintenance, the families that utilize the complex may pay a regular charge to the Gram Panchayat.

The TSC also places a strong focus on ecological sanitation and waste management. To minimize the contamination of local water sources with waste water, the programme promotes the construction of sealed pits where solid waste can dried and be utilized as a fertilizer for agricultural purposes. Additionally, the guidelines emphasize the importance of local systems of waste management, through GP and VWSC institutions. Through the construction of drainage lines, compost pits, soakage channels, water logging and garbage-buildup can be avoided. However, this concept requires continuous community participation in segregating and properly disposing of household garbage.

The School Hygiene and Sanitation Education programme (SSHE), under the TSC, heavily promotes hygiene education and the construction of toilets in all public educational institutions. Schools should have separate toilet facilities for both boys and girls, ensuring the young girls will not be discouraged from utilizing the latrine. The daily availability of toilets to children, combined with a continuous education on hygiene and sanitation, helps create a mindset that moves away from open defecation. As with the individual latrines, the state government offers some partial funding for the construction of these toilets. Also under the TSC, the government provides every Anganwadi facility with proper toilets, which can be utilized by small children. As with the SSHE, early exposure to toilets and healthy hygiene education can help create healthy behavior in the small children.

In the state of Maharashtra, the state government has partnered with UNICEF's Child Environment Project (CEP) to enhance the SSHE through the "Swachhata Doots" programme. This programme utilizes schoolchildren as sanitation messengers, promoting a healthy clean environment and good hygiene habits both at school and within their communities. Ideally, these children could potentially influence their parents to construct and utilize sanitary latrines as well adopt other hygienic practices

### *Swajaldhara*

In the field of water supply, the community-driven approach of the TSC has also been implemented in the past decade through the Swajaldhara scheme. Launched in 2002, the scheme utilizes local GP and VWSC institutions to plan, implement, and manage village-level drinking water schemes. This contrasts with previous efforts in which the government played

the role of direct service delivery with little village-level collaboration. In Swajaldhara schemes, the community must provide a portion of the funding and labor to construct the improved water source. Every community must supply at least 10 percent of the funding, the rest of which will be covered by the GOI. As with the TSC, the scheme depends on generating local demand for water supply developments and fostering a sense of local ownership over the scheme. After the implementation of the scheme, the burden of management and maintenance of the water supply will lie solely on the community, through institutions like the GP and VWSCs.<sup>21</sup>

#### *ASHA System*

A program completely apart from the Total Sanitation Campaign, the ASHA, Accredited Social Health Activist, system also deals with sanitation issues in the villages. The ASHA system, formed under the National Rural Health Mission (NRHM), aims to create a bridge between villages and India's public health system.<sup>22</sup> Ideally, the NRHM plans to have an ASHA in every village with a population of one thousand or more. Local communities elect a female resident who is at least 25 years of age and has had a formal education up to class eight. These women undergo a period of training regarding basic health issues within villages, though training will continue as they begin working within their communities. As accepted members of the community, their advice can have a significant sway on public opinion regarding common health issues. While the ASHA system places a heavy focus on maternal and infant health, an ASHA also offers basic information about proper nutrition, sanitation practices, and healthy living conditions. The ASHA's also receive various performance-based monetary incentives for



their promotional work, such as immunizations, referrals to other health programmes, and the construction of IHHLs.<sup>23</sup> These payments provide extra motivation to the ASHA to promote toilet construction. An ASHA's promotional work can help raise awareness about poor sanitation conditions and generate a demand for improvement. Additionally, the ASHA raises the community's awareness about the available government water and sanitation schemes, allowing the village to utilize these resources

### *Water and Sanitation in Maharashtra*

The state of Maharashtra implements its water and sanitation program through various departments and programmes. In 1996, the Government of Maharashtra (GOM) launched the Ministry of Water Supply and Sanitation and the Department of Water Supply and Sanitation with the intent of focusing on poor access to improved water supplies and sanitation facilities. The Ministry is responsible for setting the policies of the state in this sector. The Department of Water Supply and Sanitation (WSSD) is supported by two smaller departments, the Groundwater and Survey Development Agency (GSDA) and Maharashtra Jeevan Pradhikaran (MJP). The water and sanitation schemes are proposed by the village GP or VWSC and brought to the Block Development Officer, who in turn reports to the Chief Executive Official of the entire district.

A key facet of the sanitation programs are the Village Water and Sanitation Committees. The committee is formed during the gram sabha, a meeting that includes the majority of a village's residents. The members of the community delegate the responsibility of rural water management and sanitation programs to the VWSC, which varies in size depending on the

population of the village. It is mandatory for every VWSC to have representatives from every sector in the village, including the farming hamlets. Additionally, at least 30 percent of the members should come from the backward classes and half of the members should be women. Ideally, the committee should convene on a monthly basis to discuss and propose projects for sanitation and water supply. The committee often implements and regulates the water and sanitation projects within the village, in conjunction with the government Village-level officer. These projects range from the construction of infrastructure, like a bore well or drainage canals, to awareness campaigns regarding the benefits of good hygiene and sanitation.

Another facet of the state sanitation programs utilizes inter-village competition and cash prizes to provide incentives for community involvement in sanitation. Every year, the Nirmal Gram Puraskar (NGP) scheme selects and awards villages, blocks, and districts that have achieved an exemplary state of sanitation. For individual villages, these awards range from half a lakh to five lakhs, depending on the population of the village. These locations must also be completely open-defecation free, meaning that all the residents only utilize toilets for defecation. The monetary awards given to the village Gram Panchayat should be spent on maintaining or improving the sanitation systems within the community. The award-winning villages are then utilized as models for the surrounding villages to emulate. To discourage relapse into open defecation, monitoring indicators, such as incidence of waterborne illness and cleanliness of water sources, are used to judge the sustainability of the sanitation efforts. If a village slips back into widespread open defecation, then the NGP award may be withdrawn and the withdrawal shall be publically announced, shaming the community. By tapping into communal pride, the NGP scheme helps motivate village residents to vie for the award by

improving their overall sanitation, constructing toilets and maintaining a clean environment.<sup>24</sup>

Within Maharashtra, another scheme called “Sant Gadge Baba Swachata Abhiyan (SGBSA) Puraskar” rewards GPs for achieving certain milestones in sanitation, likewise fostering constructive competition between neighboring villages. An estimated Rs 500 crores worth of personal sanitation infrastructure, constructed since July 2000, has been largely attributed to the impact of the SGBSA scheme.<sup>25</sup>

### **Criticism and Analysis of Government Efforts**

In terms of policy, the GOI’s shift to a demand-driven approach promises more sustainable and effective change in terms of rural water and sanitation. Improved sanitation has grown significantly due the launch of TSC and NGPs. However, there are many problems in the implementation of these reformed programmes. For example, the decentralization of government efforts can only be effective when local governments and communities are adequately prepared to take on a decision-making role. The Mid-term Appraisal for the 11<sup>th</sup> Five Year Plan states that “paucity of local capacity for decentralized planning and decision making” hinders the impact of campaigns like the TSC.<sup>26</sup> Furthermore, many villages lack sufficient involvement from the Gram Panchayat, depending on Block-level governments to make changes. In many villages, Village Health and Sanitation Committees are unknown, despite funding from the state governments. IEC activities, an integral facet of the TSC’s strategy, have been ineffectually implemented in many communities through a top-down approach.<sup>27</sup> Instead of viewing awareness programs as a rigid one-time activity, IEC efforts

should be a continuous qualitative affair that actually aims to change perceptions and behaviors.

Unstable water supplies are also a big problem confronting government efforts. Without a constant source of water, regular toilet use cannot be sustained within a community. In fact, many NGP villages have regressed back to open defecation due to poor water supplies. Government sanitation must view water supply and sanitation as deeply intertwined issues, otherwise “failure is inbuilt into the effort”.<sup>28</sup> Additionally, only a small minority of villages have successfully implemented management systems for both solid and liquid waste. More emphasis should be placed on raising awareness in local governments regarding the proper technologies and methods to manage waste appropriately.

Another difficulty lies with the competitive sanitation schemes such as the NGP. While these schemes spur local governments to build toilets and promote sanitation, they also undermine the underlying purpose of the TSC. A 2008 study conducted in several states, including Maharashtra, showed that only 4% of NGP villages were actually open-defecation free. In fact, one third of the NGP villages still have over 40% open defecation, despite toilet construction.<sup>29</sup> Another study in 2005 showed that only 57% of latrines constructed in Maharashtra are regularly used for defecation.<sup>30</sup> Much of this can be attributed to an absence of behavioral change and poor construction of the latrine facilities. The competitive motivation that NGP awards provide may actually cause a shift away from a demand-driven approach to a target-driven strategy, repeating the mistakes of previous government programs.

## **Comprehensive Rural Health Project**

### *Background*

Although many organizations have launched programs to improve health and sanitation in rural India, the Comprehensive Rural Health Project (CRHP) in Jamkhed has achieved remarkable success, working with villages in rural Maharashtra to improve their public health for over 40 years. The organization was founded by two doctors, Raj and Mabelle Arole, in 1970 to improve the dire health conditions of the rural poor. Situated in a relatively remote region of Maharashtra, the villages in the area were often neglected by government programs and contained some of the poorest communities in the state. CRHP initially offered healthcare to the rural communities through mobile clinics and a hospital, yet gradually shifted to a more holistic approach in public health. Working with over 300 villages since its inception, CRHP currently utilizes a unique model of sustainable community-based primary healthcare, which has been successfully emulated in other rural locations. Their work in public health has been recognized by the World Health Organization and UNICEF, also winning the Times of India Social Impact Award in Health.<sup>31</sup> Through their community-driven strategies, CRHP has helped numerous villages create sustainable and effective improvements in sanitation and hygiene.

### *Jamkhed Model*

CRHP utilizes a three-tier approach towards health and development within villages, putting a specific focus on the empowerment of women. The first tier, by far the largest aspect of CRHP, involves community-based programs for improving public health. One of the main components of this tier is the Village Health Worker (VHW). The VHW system, which served as

the inspiration for the government's ASHA system, involves a similar nomination of female residents to receive extensive training from CRHP. Their training covers topics such as health, communication skills, and development. Although they share many similarities, VHWs differ from ASHA in regards to their voluntary status, receiving no payment nor any performance-based incentives, and their frequent recruitment from uneducated or Dalit communities.<sup>32</sup> Ideally, the lack of a performance-based system of incentives helps ensure that the VHWs will aim for the best public health outcome, rather than the most profitable one.<sup>33</sup> The Village Health Worker disseminates and teaches basic health information to the village, covering topics such as immunizations, maternal and infant health, nutrition, hygiene, and sanitation. The VHW functions as a grass-roots health activist, demystifying medicine, pushing people away from superstition, and changing community habits to minimize illness and mortality. She also works to organize and empower the women and poor within her community, helping give voice to their needs.

Another important facet of the first tier is organization of rural communities into various social groups, such as a Women's Group and the Young Farmers Club. Formed through the interventions of the VHW and CRHP social workers, these Women's Groups organize the often disenfranchised women and give them an outlet for the expression of their views, helping to diminish gender inequality in the village. Likewise, other groups like the Farmer's Clubs and the Adolescent Girls' Groups bring together different sectors of the village, offering education and discussion of local issues. This frequent interaction not only allows health information to be easily disseminated, but also reduces caste barriers and opens up discussion regarding communal problems, like poor sanitation.

The second tier of the Jamkhed Model uses Mobile Health Teams (MHT), containing healthcare professionals and social workers, as a bridge between the villages and the CRHP hospital. The teams provide basic treatment for illnesses, otherwise referring serious cases to the hospital. The MHTs also offer continuous support and monitoring over the various groups and projects within a village. The third tier is within the CRHP hospital and training station. Patients with severe illnesses or injuries may be brought to the non-profit hospital, which provides care at a minimal cost to the patient. The CRHP compound also serves as a regular training center for local, national, and international healthcare workers, teaching the workings of community-based primary healthcare.

Unlike many older government schemes and programmes, CRHP has a firm commitment to only providing aid once a village communicates a clear demand, akin to the Total Sanitation Campaign's demand-driven approach. Accordingly, CRHP has offered extensive aid in water and sanitation infrastructure, provided that the community supplied some of the funding and labor. Through the efforts of VHWs and the mobile health teams, many Project villages have grown increasingly aware of their sanitation problems and the available government schemes, reducing the rate of waterborne illness. Despite recent progress, sanitation remains a critical issue in the villages of Jamkhed, as one VHW called her village's lack of toilets her "biggest failure"<sup>34</sup>.

#### *Watershed Development and Appropriate Technology*

CRHP places a heavy emphasis on water conservation and sustainable appropriate technology within the villages. In the region of Jamkhed, the land is semi-arid and prone to

draughts and erratic rainfall. Many of the rural communities heavily depend on groundwater sources. At least fifty percent of irrigation systems and over 80 percent of rural water supplies are sustained by groundwater.<sup>35</sup> Most dug wells dry up and are abandoned during the hot summer months. On top of this, excessive withdrawal of groundwater sources has dangerously depleted many local aquifers.<sup>36</sup> Additionally, many farmers grow cash crops like sugarcane, turmeric, and various fruits, which require a relatively large volume of water, severely depleting local water sources over time.

To address the growing rural water scarcity and the erosion of fertile farmland, CRHP's Watershed Development project has worked with government schemes, NGO's, and local farmers to improve the conservation and utilization of both surface water and groundwater. This includes the construction of various structures like dams and farm ponds, which slow the downward flow of rainwater into lower topography. Additionally, CRHP promotes the diversification of farmland and the use of draught-resistant crops to reduce the erosion of farmland. These efforts help bring fertility back to arid land and also replenish local wells and aquifers, allowing their long-term use by the community.

One of the central sanitation technologies promoted by the Comprehensive Rural Health Project is soak pits. Also known as a leach pit or a soakaway, a soak pit is a sealed chamber roughly 1 to 4 meters in depth, surrounded by porous walls that allow water to flow out and get absorbed by the ground. The pit can be left empty if the walls are sufficiently sturdy, though it is common to fill it with course rocks and gravel, preventing the chamber from collapsing inward. Additionally, a layer of fine gravel and sand is placed at the bottom of the pit



to disperse the flow of waste water. As wastewater percolates through the soak pit, many of the solid particles get caught in the gravel, sand, or soil, allowing bacteria to break it down.

Soak pits carry many advantages in a rural setting. Most rural communities in India completely lack any sort of centralized infrastructure for dealing with their wastewater. Any complex sanitation system akin to those found in cities is unfeasible, because most villages lack the ability to locally regulate and maintain such systems, making them an expensive and unsustainable venture. Soak pits can be constructed and repaired at low-cost using locally available materials. Their relatively simple structures allow village residents to easily construct their own soak pits once they are given directions. Soak pits typically last about 3 to 5 years before they need to be excavated and repaired. Furthermore, they can drastically reduce the presence of stagnant bodies of water, helping to minimize the local populations of flies and mosquitoes. These insects often serve as vectors for malaria and diarrhea, so their reduction will also diminish the incidence of these illnesses. Although, they do not provide rapid treatment of wastewater, they prevent the open exposure of human waste, are not visible, and lack any odor, making them an attractive option compared to open drainage.

### **Comparative Field Study**

The water and sanitation of two villages were studied over a period of two weeks in Jamkhed. Although both villages are “Project Villages” under CRHP, Village A has worked with the organization for much longer than Village B. Because they are located in the same region, both villages should have comparable geography, customs, and access to government programs.

### *Village A Background*

According to the VHW, this village has a population of roughly 1200 people. It has been associated with CRHP for over 25 years, working with VHWs and CRHP's numerous programs.<sup>37</sup> CRHP often utilizes the village as an exemplary model of their positive impact. The village is divided into three distinct sections, the village center and two separate farming hamlets. The village center is the most heavily populated of the three areas, with minimal space between the individual houses. The buildings in this area are sturdy, constructed of mostly concrete and brick, and many had electricity with televisions and radios. The farming hamlets, created by farmers who desired closer proximity to their farmlands, have a sparser population compared to the village center. Construction of the homes varied from simple wood and brick to concrete and marble, depending on the income of the farmer. One of the hamlets contained much of the village's Dalit population.

Due to Village A's sizeable population, two VHWs work in the community, one in the village center and the other in one of the farming hamlets. The senior VHW is also employed by the government as the village's ASHA, though she claims that training is very similar to her CRHP education. Within the village, the full array of CRHP social groups were present, such as the Farmer's groups, multiple women's groups, an Adolescent Girls' Group, and an Adolescent Boy's group. A CRHP social worker noted that this village has a particularly strong and influential women's group. Both VHWs were treated as esteemed members of the community by their neighbors during all field visits.

### *Water Supply in Village A*

In terms of water supply, Village A seemed to suffer no major problems. According to the VHW, the local water well would frequently dry up during the summer months, forcing the village to depend on other sources like water trucks. To address this issue, the government built a pipeline connecting the local well to another well. This second well is located close to a lake, so it maintains a constant water-level throughout the year. Sometime after the construction of this pipeline, the local women's group decided to construct a large water tank in the middle of the village. They went door-to-door, collecting funds for the project and approached CRHP for aid. CRHP agreed to match the raised funds and to help with the construction. With the support of CRHP, the village set up an electric motor to draw water from the local well into the water tank. Most houses in the village center also have a personal tap, which is connected to the water tank. This makes water retrieval extremely convenient for most women, who are typically responsible for retrieving water. To help maintain the motor, the village GP collects a Rs. 100-200 water tax from all households every year. Additionally, the GP pays two employees to run the motor at specified times and to maintain the well. These employees also regularly purify the water with medichlor, a local purification agent, and test its cleanliness. As indicators of quality, they use the taste and smell of the well water. They are required to perform this maintenance every 15 days.<sup>38</sup> In terms of Watershed Development, CRHP worked extensively in water conservation with Village A during the 1980's, helping to recharge local water tables.

In all interviews with residents, no one mentioned water scarcity as an issue within the village. Both VHWs heavily promote cleaning personal stores of water, either through boiling or through the addition of medichlor. Previously, most families used a simple clothe or a dash of marble power to clean their water supply. This inadequate treatment would not remove dangerous microbes from the water. All families kept their household water in large covered stone pots. In terms of the diarrhea treatment, the VHWs teach residents to give the patient ORS salts if they are available. Otherwise, they also teach how to make nimbu pani, which means lemon water. It is a simple mixture of sugar, salt, lemon, and half a liter of boiled water. Residents are told that it should taste similar to tears. This functions similarly to ORS salts, rehydrating the patient and replenishing important electrolytes that are lost during severe diarrhea. Before the introduction of CRHP, many of the villagers would turn to traditional healers for waterborne illnesses, believing the illness to be a curse or black magic. Alternatively, other residents would take the ill to a stone idol, hoping to find a cure through prayer. These actions would often cause the patient's condition to worsen and possibly lead to death, especially among smaller children. Currently, most of the residents follow the advice of the VHWs and thus experience far less waterborne illness, no longer trusting traditional healers or idols for treatment.

### *Sanitation in Village A*

In terms of sanitation, Village A experiences more problems than with their water supply. Both the government and CRHP have been proactive in promoting good hygiene and sanitation through various stakeholders and institutions. One notable effort is the drainage

system that was recently built by through a government scheme. Within the village center, concrete drainage canals ran in front of most houses, allowing easy disposal of waste water from bathing or cooking. The canals should flow downward to an area outside of the village, such as a river or lake, preventing stagnant water from accumulating. However, many of the canals were clogged with sewage and garbage, preventing wastewater from flowing freely and creating stagnant pools.<sup>39</sup> A CRHP official noted that the canals are not as effective as soak pits at reducing stagnant bodies of wastewater. Furthermore, the canals were not present in either of the two farming hamlets, which lacked any sort of waste water infrastructure.

The availability and use of toilets varied widely throughout the community. Overall, slightly more than half of the survey responses indicated regular toilet use. In the village center, the majority of households surveyed responded that they regularly use toilets. All of the toilets and some of the bathing areas in the village emptied out into sealed soak pits, constructed beneath the houses. Due to lack of space, numerous households built their latrines on the rooftops of their homes, though this was not a viable option for homes with weak rooftops. According to the survey results, the vast majority of toilets in the village were personal constructions, built without any government or CRHP aid. Many different reasons were given for building toilets. See Figure 1 in Appendix I for distribution of answers. However, most households with toilets cited convenience as the driving cause behind their toilet use, especially among the women. Because they can use their personal toilets, these women no longer have to go out into the fields at night to defecate. Other cited reasons include the danger and lack of cleanliness involved with open defecation. In these rural communities, potentially dangerous snakes and insects live in the fields, presenting a real danger when individuals go into the fields

at night. Additionally, many of the households also utilized the toilet structure as a private bathing area.

The majority of households admitting to open defecation were located in the two farming hamlets, where it is very easy to find empty fields to use. There was no major variance in responses between the castes within the village. The most commonly cited cause for open defecation was lack of funds for toilet construction. Several of the families in the Dalit hamlet utilized government BPL programs to construct their homes and/or their personal toilet. In some cases, government workers neglected to construct the toilet with the house, despite the protests of the residents.<sup>40</sup> A CRHP social worker noted that many families use lack of funds as an excuse for their open defecation habits. Accordingly, many of the families that openly defecate lived in sturdy houses, built from solid concrete or marble, indicating a significant income.

In the surveys, every response except one indicated regular hand washing with soap after defecation. Likewise, all responses indicated that everyone in the village bathes on a daily basis. The topic of sanitation and hygiene is frequently discussed in the village, through both the CRHP groups and local government efforts. The village contains an active VWSC, which meets every week. The committee has 15 members, 6 of which are women and 2 of which are from scheduled castes. The committee maintains public cleanliness and also collects the water tax for the village.<sup>41</sup> The committee members also do promotional work, running campaigns to raise awareness about water and sanitation. Two years ago, the Gram Panchayat journeyed over with the Young Farmer's Club to see an "Ideal Village" in terms of sanitation and

cleanliness. This ideal village had won the NGP award for the region. According to the GP, this inspired the group to return to their village and run their own cleanliness campaigns. Currently, they frequently run sanitation rallies, painting promotional signs and clearing foliage around the village. In the women's groups, they often discuss water and sanitation, sharing information regarding proper hygiene and cleanliness. Both VHWs regularly attend these meetings, sharing their training and knowledge. Similarly, the topic is also discussed in the Adolescent Girl's and Boy's group, helping to raise awareness among the younger generation.

The primary school within Village A currently teaches 169 students from 1<sup>st</sup> to 7<sup>th</sup> standard. As a government school, all of the facilities have been constructed through government efforts. The school contains multiple functioning toilets within its facilities. There are separate toilets for both genders, preventing any hesitation from girls about using the latrines. At the school, all students are encouraged to regularly use the toilets, as opposed to open defecation. However, the headmaster admits that many of the students have no toilets in their homes and so must defecate in open fields. In terms of sanitation and hygiene information, the school often promotes good habits, such as regular hand washing with soap, during the morning assembly when all the students are present. The school also implements the "Swachhata Doots" (SD) programme. In every class, there is one SD that teaches good hygiene to the other students. The teachers believe that it has been effective in promoting health and hygiene to the community.<sup>42</sup>

Next to the school, the local Anganwadi worker uses an empty classroom to teach the small children. While she educates the children regarding hygiene and sanitation, the official

Anganwadi building lacks a functioning toilet. Due to poor construction, the toilet blocks the door from closing, preventing children from using it. The nearby primary school does not allow the Anganwadi children to use their latrines so most of the children simply defecate in the open. During her regular immunization meetings with the children's mothers, the Anganwadi teaches the parents about health and hygiene, promoting constant bathing and hand washing.

### *Analysis of Village A*

Village A exhibits many impressive advances in water and sanitation, showing a positive interaction between CRHP efforts and government programs. In terms of water, the community has made good use of available government schemes and successfully mobilized to construct the water tank. Much of this communal demand for improvement stems from the women's group, which empowers local women to influence their community. Because most households delegate to women the arduous task of collecting water, their perspective regarding water problems may place a greater emphasis on improving the system to be more convenient. Similarly, lack of toilets affects women most negatively, so their perspective will view the construction of IHHLs much more favorably than men.

The surveys show that a majority of residents have experienced a positive change in their sanitation and hygiene habits due to the VHW. A local doctor, who has worked in the village for over 10 years, noted a significant decrease in waterborne illness through the past decade, attributing this change to the growing awareness in the village.<sup>43</sup> The regular meetings of CRHP social groups within the village, supported by the mobile health teams and the VHWs, facilitate the promotion of sanitation and cleanliness in the village, complementing the local



government's IEC efforts. The VHWs often try to shame the men of the community, asking why their mothers and wives must go out at night to defecate. This highlights the specific hardship that open defecation places on women. However, Village A still faces some serious problems regarding open defecation. Although government surveys disqualify many families from BPL programs, several of these households truly lack the funds to construct a personal latrine. While the government constructed communal toilets, no one maintained these toilets and they quickly fell into disuse. The toilets were overflowing with waste and many wild plants were sprouting within the complex. More awareness campaigns should focus on the farming hamlets, where open defecation habits still dominate. Furthermore, there is a lack of awareness regarding the purpose of the drainage canals, as many people think that they are meant for defecation or solid waste. This leads to the frequent blockages of the canals, creating dangerous pools of stagnant waste water.

### *Village B Background*

The second village in the study, Village B, has a population of roughly 800-900 people, according to the VHW. Similar to Village A, this village contains two distinct sections, the village center and the farming hamlet. Unlike the first village, this community has only worked with CRHP for roughly 7 to 8 years. As a result, many of the residents are not fully accustomed the self-help groups that CRHP promotes. For example, one woman vehemently protested against the Adolescent Girls' group because it offered no immediate financial benefit.<sup>44</sup> The Village Health Worker also works as the village's ASHA, though she finds the training to be fairly comparable.

### *Water Supply in Village B*

Water scarcity plays a very significant role in this second village, as every interview mentioned the water supply as a big problem. The residents of Village B use a variety of different water sources depending on the water's purpose. Although the village center has a centrally-located water tank, built by the government, most individuals in the village do not utilize it for drinking water. Many residents fell sick with diarrhea and other waterborne illnesses after drinking the water, causing the community to distrust the cleanliness of the water.<sup>45</sup> As a result, people in the village only use the local well for bathing and sometimes cooking. Even so, water continuously runs dry in the tank, forcing families to limit their water-usage. To fund this faulty water source, families have to pay Rs. 100 every month in water taxes. For drinking water, most residents must travel 2 to 3 kilometers to an adjacent village, which has a working hand pump.<sup>46</sup> This journey must be taken every day, often taking many hours over several trips. Other households use private wells, though these sources are often shallow and dry up during the summer months. In the farming hamlet, a separate well was constructed by the government and is used by the nearby families.

Despite this widespread discontent with the water supply, there has been little communal mobilization to improve the system. Several residents accuse the mayor and the Gram Panchayat of gross corruption and neglect. The mayor angrily refused to be interviewed due to public criticism of her work. A CRHP social worker noted that previous GP officials had used government funds to build personal wells, which they exclusively used after their term ended.

### *Sanitation in Village B*

Sanitation conditions in the village were also very poor. The GP recently built a small drainage canal, but it was very ineffective and only covered a small portion of the community. According to a CRHP official, corrupt GP officials often utilize the drainage line schemes to make a personal profit. Unlike in Village A, the GP did not run any awareness campaigns regarding sanitation and hygiene. According to the VHW, no VWSC exists in the village, despite government laws requiring every village to have an active committee.<sup>47</sup> Additionally, government efforts from outside the village have attempted some promotional work, yet failed. One team attempted to photograph of openly defecating individuals, intending to publish the photos and shaming the community into building toilets. The community reacted very negatively to this team and did not permit them to stay in the village.<sup>48</sup> Another government team attempted to fine individuals for openly defecating, yet most of the village residents did not take them seriously. Residents ignored the fines and the team found that it was too difficult to track everyone's defecation habits.

Although survey results show that more people have toilets in Village B than in Village A, far more households prefer open defecation in Village B. A majority of the toilets were constructed through previous government schemes, though many toilets were also personal constructions. See Table 1 in Appendix I for more figures. Most residents with toilets expressed knowledge regarding the benefits of toilets, but refused to use them due to lack of water. Without a stable source of water to flush the toilets, waste would build-up and the smell would permeate the homes, making the toilets very undesirable to use. However, many

of these families did make good use of these latrines as private bathing areas, allowing women to clean themselves adequately. Lack of sufficient funds was another common discouraging factor in toilet use. Other households, such as those in the hamlet, simply expressed a preference for open defecation out of habit. See Figure 2 in Appendix I for distribution of answers. One resident claimed that his open defecation was not an issue because he would walk very far before defecating.<sup>49</sup>

In terms of hygiene, the residents gave mixed answers on the surveys, especially in regards to hand washing. At least 20 percent of the households admitted to using soap irregularly, if at all. This contrasts sharply with Village A's uniform answers regarding hand washing with soap. CRHP has tried to promote good sanitation and hygiene through the VHWs and self-help groups. The VHW speaks personally with residents regarding the benefits of toilet use and regular hand washing with soap. She also regularly participates in the Women's group, spreading health information with the help of the Mobile Health Teams.<sup>50</sup> The Adolescent Boy's group also discusses issues such as the importance of improved sanitation in the village.

The village has two primary schools, both government-funded, one in the village center and another in the hamlet. In both schools, the building contained functional toilets for the students to utilize. Separate toilet facilities were available for both genders, though there were no facilities for staff members. The students regularly use the toilets at school with the encouragement of the teachers, yet many of them lack working toilets at home. Interestingly, the two schools have created their own interpretation of the "Swachhata Doots" programme. They call it the "Student Ministry" and assign different responsibilities to select students. One

of the students is the “Sanitation Minister” (SM) and responsible for keeping the school clean and for checking the cleanliness of all the students<sup>51</sup>. However, both schools doubted the influence of these SMs in their homes, because their parents will not take advice from children, regardless of its value.

### *Analysis of Village B*

Village B suffers many problems in terms of water and sanitation, highlighting flaws in the government efforts. Despite the widespread availability of latrines, the government’s failure to provide a sustainable water source cripples the impact of these toilets. Much of the blame can be attributed to the local government, which seems to be mired in corruption and inefficiency. The small and ineffective drainage canals exemplify this trend, as their shoddy construction implies that the scheme’s funds were spent elsewhere. Although the village faces severe water problems, it is actually located nearby a sizeable river, which could easily supply the community with sufficient water. However, this would require cooperation from the GP and the community, which lack awareness or interest regarding the issue. For example, the village recently spent roughly 20 lakhs on the local temple and regularly fund large feasts during festivals, according to a resident of a neighboring village.<sup>52</sup> Furthermore, several residents stated their belief that sanitation was not a significant problem in the village, despite the widespread open defecation. Improved infrastructure will not be constructed until the community generates a clear demand and confronts their local government. Yet this cannot occur with the complete lack of any IEC activities or VWSCs, which contrasts with the regular

sanitation campaigns in Village A. In fact, the only major promoters of good sanitation and hygiene seem to be the VHW, the Anganwadi, and the government schools.

## **Conclusion**

Improving water and sanitation in rural India is a tremendous task, requiring a massive investment of funds, labor, and research. In light of India's diversity, only a demand-driven communal approach to water and sanitation has sufficient flexibility to induce widespread change. While recent government efforts, such as the Total Sanitation Campaign, signify a shift away from a clumsy bureaucratic approach, the implementation of the program still requires much work to be fully effective.

The biggest problem in both villages was not the infrastructure, but the lack of awareness and communal demand. Although Village B's water infrastructure was severely lacking, the reason it has remained poor is because the community has not mobilized and confronted the local government. These remote villages have struggled with water and sanitation for generations, so awareness campaigns are necessary to change their mindset regarding the issue. The complete lack of IEC efforts leads to a community that complacently accepts poor conditions such as in Village B, instead of demanding improvement from the government. The Jamkhed model helps fill in the vacuum left by the government's poor IEC efforts. Through the VHWs persistent activism and the various CRHP social groups, the community can grow aware of local health problems and voice a demand for improvement. Additionally, CRHP's empowerment of women allows them to act as influential stakeholders within the village. Because women often suffer the greatest burden from poor water and

sanitation, elevating their influence in the village leads to greater demand for improved infrastructure. Village A best exemplified this through the actions of their women's group. These women would often spend hours every day retrieving water from the well, so an improved water supply would directly benefit them. Due to their awareness regarding water supply and their empowering knowledge about their rights, the women were able to fund the construction of the water tank that now provides for the whole village. Overall, the demand-driven approach in water and sanitation holds great promise, but the rural population must first know what they should demand and why.

### **Recommendations for Further Study**

The continued success of national water and sanitation programmes requires further research towards improvement. While both the government and CRHP have promoted the construction of water conservation infrastructure, more research should be done on the effect of this infrastructure on waterborne illness. For example, poorly managed farm ponds can quickly become large bodies of stagnant water, promoting mosquitoes and malaria within a community. Additionally, the state of water and sanitation in non-project villages nearby Jamkhed should be analyzed and compared to project villages. Both villages in this study had significant influence from CRHP, making it difficult to completely separate the effects of government programs and the effects of CRHP. Lastly, further research should be done on the impact of CRHP women's groups on the decisions of the local government, especially in regards to water and sanitation.

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**List of Ancronyms**

ASHA: Accredited Social Health Activist

APL: Above Poverty Line

BPL: Below Poverty Line

CRHP: Comprehensive Rural Health Project

CRSP: Central Rural Sanitation Programme

GOI: Government of India

GOM: Government of Maharashtra

GP: Gram Panchayat

IEC: Information, Education, and Communication

IHHL: Individual Household Latrine

MDG: Millennium Development Goal

MHT: Mobile Health Team

NGP: Nirmal Gram Puraskar Scheme

RSM: Rural Sanitation Mart

SD: Swachhata Doots

SSHE: School Hygiene and Sanitation Education programme

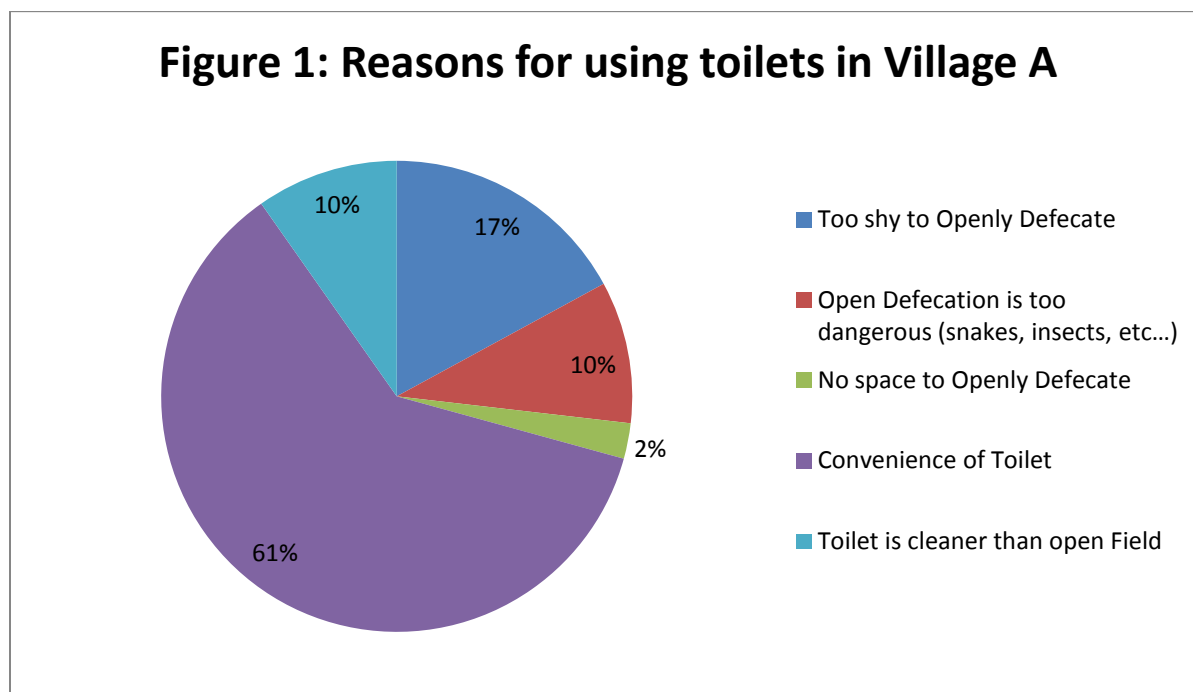
TSC: Total Sanitation Campaign

VHW: Village Health Worker

VWSC: Village Water and Sanitation Committee

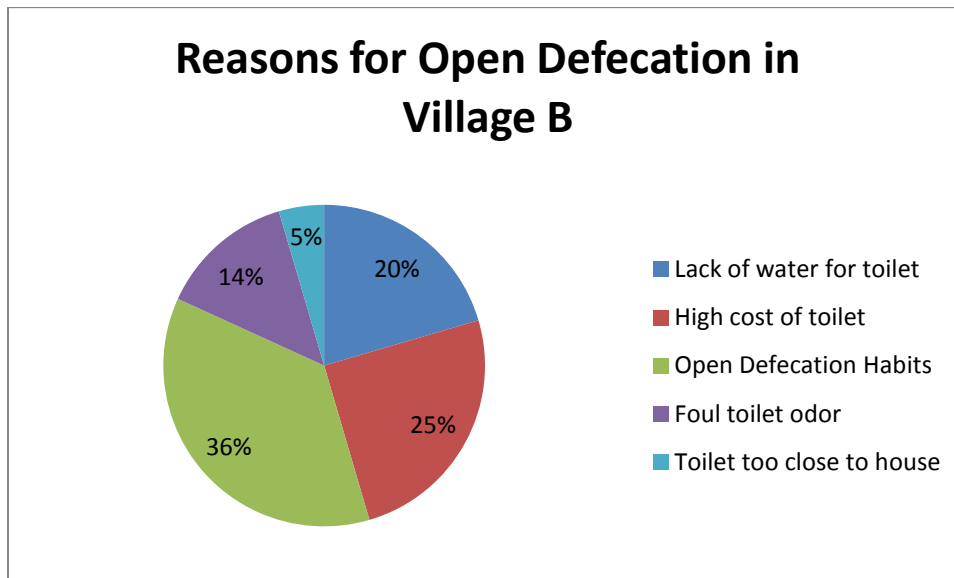
## Appendix 1: Quantitative Survey Figures

Figure 1:



**Table 1: Village B Survey Results**

Own a toilet	29
Do not own a toilet	21
Regularly use toilet	13
Regularly Defecate Openly	37
Received toilet from Government Program	17
Personally-constructed toilet	12

**Appendix I****Figure 2:**

## Appendix II: Survey Form in English

Jorge Aceves

### Quantitative Study Survey

\*Please note that all responses are anonymous\*

- 1.) I normally defecate in the \_\_\_\_\_.
- 2.) How often do you use a latrine?
  - a. Never
  - b. Sometimes
  - c. Always
- 3.) If you have a household latrine, who constructed it?
  - a. Personal Construction
  - b. Government Program
  - c. CRHP
  - d. Combination of Government Program and Personal Construction
  - e. Combination of Government Program and CRHP
  - f. Combination of CRHP and Personal Construction
  - g. I don't have a household latrine
- 4.) What factors affected your decision to use/or not use latrines? (Circle all that apply)
  - a. Cost of the latrine
  - b. Smell of the latrine
  - c. Cleanliness of the latrine
  - d. Defecation habits
  - e. Privacy
  - f. Water flow to the latrine
  - g. Convenience
  - h. Other \_\_\_\_\_
- 5.) How often do you use soap to wash your hands after defecation?
  - a. Never
  - b. Sometimes
  - c. Always
- 6.) Where do you store soap in your home? (Circle all that apply)
  - a. Outside the home
  - b. Inside the home
  - c. I do not own soap.

7.) How often do your neighbors use soap after defecation?

- a. Never
- b. Sometimes
- c. Always
- d. I do not know.

8.) In the village, soak pits are

- a. Not present
- b. Uncommon
- c. Very common
- d. I don't know what a soak pit is.

9.) What do you think of the governments' effect on sanitation?

- a. Harmful
- b. Unhelpful
- c. Helpful
- d. I don't know about government efforts.

10.) How much has the VHW affected your personal sanitation?

- a. The VHW has had no effect
- b. Small change
- c. Big change

11.) How often do you bathe?

- a. Never
- b. Sometimes
- c. Always



## Appendix III: Survey form in Marathi

जॉर्ज असेवस

### संख्यात्मक सर्वेक्षण

- कृपया यात कोठेही नावाचा उल्लेख करू नये.
- 1) मी शौचासाठी नेहमी ----- जातो.
  - 2) तुम्ही शौचालयाचा वापर किती वेळा करता?
    - अ) कधीच नाही
    - आ) कधी तरी
    - इ) नेहमी
  - 3) जर तुमच्याकडे घरगुती शौचालय आहे, तर ते कोणी बांधलेले आहे?
    - अ) वैयक्तिक बांधकाम
    - आ) सरकारी योजनेतून
    - इ) ग्रामीण आरोग्य प्रकल्पाने
    - ई) सरकारी योजना व वैयक्तिक प्रयत्न या माध्यमातून
    - उ) सरकारी योजना व ग्रामीण आरोग्य प्रकल्प यांच्या माध्यमातून
    - ऊ) ग्रामीण आरोग्य प्रकल्प व वैयक्तिक प्रयत्न या माध्यमातून
    - ए) आमच्याकडे घरगुती शौचालय नाही.
  - 4) तुमचे शौचालय वापरणे कींवा न वापरणे या गोष्टीला कोण - कोणते घटक कारणीभूत आहेत?
 

(सर्व लागू असलेल्या पर्यायांना खुण करा)

    - अ) शौचालय बांधण्यासाठी येणारा खर्च
    - आ) शौचालयाचा येणारा वास
    - इ) शौचालयाची स्वच्छता
    - ई) शौचासंबंधित सक्ती
    - उ) एकांत
    - ऊ) शौचालयासाठी लागणारे पाणी
    - ऋ) सोयीचे असल्याने
    - ल) इतर -----
  - 5) शौचाहुन आल्यावर तुम्ही हात धुण्यासाठी साबणाचा वापर किती वेळा करता?
    - अ) कधीच नाही
    - आ) कधीतरी
    - इ) नेहमी

## Appendix II

- 6) तुमच्या घरात तुम्ही साबण कुठे ठेवता? (सर्व लागू असलेल्या पर्यायांना खुण करा)
- अ) घराच्या बाहेर  
आ) घराच्या आतमध्ये  
इ) आमच्याकडे साबण नाही
- 7) तुमचे शेजारी शौचाहून आल्यावर हात धुण्यासाठी किती वेळा साबणाचा वापर करतात?
- अ) कधीच नाही  
आ) कधीतरी  
इ) नेहमी  
ई) माहित नाही
- 8) तुमच्या गावामध्ये शोषखड्डे
- अ) सध्या नाहीत  
आ) कुठे - कुठे आहेत  
इ) सगळीकडे आहेत  
ई) शोषखड्डे म्हणजे काय हे माहित नाही
- 9) सांडपाण्याची व्यवस्था करण्यासाठी सरकारने केलेल्या प्रयत्नांबाबत तुम्हाला काय वाटते?
- अ) अपायकारक  
आ) निरोपयोगी  
इ) उपयोगी  
ई) सरकारी प्रयत्नांबाबत माहिती नाही
- 10) वैयक्तिक स्वच्छतेबाबत आरोग्य रक्षिकेचा तुमच्यावर किती प्रभाव पडला आहे?
- अ) आरोग्य रक्षिकेचा काहीच प्रभाव नाही  
आ) थोडा बदल घडवला  
इ) मोठा बदल घडवला
- 11) तुम्ही किती वेळा अंघोळ करता?
- अ) कधीच नाही  
आ) आठवड्यातून एकदा  
इ) दररोज

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