

Health, Safety and Dignity of Sanitation Workers

An Initial Assessment



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Contents

| | |
|---|-----------|
| <i>Foreword</i> | v |
| <i>Acknowledgments</i> | vi |
| <i>Abbreviations</i> | vii |
| <i>Executive Summary</i> | ix |
| | |
| Chapter 1 Introduction | 1 |
| Context and Rationale | 1 |
| Objectives and Scope | 3 |
| Notes | 4 |
| | |
| Chapter 2 Main Findings | 7 |
| Key Challenges and Risks | 7 |
| Good Practices | 10 |
| Gaps in Knowledge | 14 |
| Note | 15 |
| | |
| Chapter 3 Areas for Action | 17 |
| Reform Policy, Legislation and Regulation | 17 |
| Develop and Adopt Operational Guidelines | 19 |
| Advocate for Sanitation Workers and Promote their Empowerment | 19 |
| Build the Evidence Base | 19 |
| Notes | 20 |
| | |
| Chapter 4 Next Steps | 23 |
| Note | 24 |
| | |
| Bibliography | 25 |
| | |
| Appendix A Sanitation Worker Case Studies | 29 |
| | |
| Appendix B Areas for Future Study | 45 |

Boxes

| | |
|---|----|
| 1.1. Sanitation Workers and the 2030 Development Agenda | 2 |
| 2.1. Regulations That Protect Workers | 9 |
| 2.2. Occupational Safety and Health Guidelines for Fecal Sludge Management for Bangladesh | 13 |
| 2.3. The Memphis Sanitation Workers' Strike | 14 |

Figures

| | |
|---|----|
| ES.1. Key Challenges, Identified Good Practices, and Areas for Action | ix |
| 1.1. Types of Sanitation Work | 3 |

Tables

| | |
|--|----|
| 2.1. Comparative Table of Sanitation Worker Conditions | 11 |
| A.1. Bangladesh | 30 |
| A.2. Bolivia | 32 |
| A.3. Burkina Faso | 33 |
| A.4. Haiti | 34 |
| A.5. India | 35 |
| A.6. Kenya | 37 |
| A.7. Senegal | 38 |
| A.8. South Africa | 40 |
| A.9. Uganda | 42 |

Foreword

Sanitation workers provide an invaluable service that many of us notice only when confronted with locked, blocked, or filthy toilets; overflowing septic tanks; or beaches contaminated with sewage. These workers are vital to the proper functioning of the sanitation systems that underpin daily life, and we need many more of them to achieve the ambitious agenda of Sustainable Development Goal (SDG) 6.

Yet sanitation workers are often invisible and too often subject to conditions that expose them to the worst consequences of poor sanitation: debilitating infections, injuries, social stigma, and even death in their daily work. Workers' rights need to be recognized; workers need freedom and support to

organize as a labor force; and their working conditions need to be improved and progressively formalized to safeguard health and labor rights to ensure decent working conditions, as called for by SDG 8.

The World Bank, World Health Organization (WHO), International Labour Organization (ILO), and WaterAid have joined forces in the year of “no one left behind” to shed light on this neglected issue. In this report, the most extensive global exploration of the topic to date, we analyze the problems, explore good practices, and challenge ourselves, countries, and development partners to act so that we can improve the health, safety and dignity of sanitation workers.



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Acknowledgments

The report was prepared by Ndeye Awa Diagne (World Bank) with the support and guidance of a working group from WaterAid, the World Health Organization (WHO), the International Labour Organization (ILO), and the World Bank, which included Andrés Hueso (WaterAid), Kate Medlicott (WHO), Carlos Carrion-Crespo (ILO), Martin Gambrill (World Bank), Seema Thomas (World Bank), and Ruth Kennedy-Walker (World Bank). The report was finalized with the support of Pippa Scott (independent consultant).

The preparation of the case studies would not have been possible without the following people who took the time to speak with the team: Antoinette Kome (SNV), Neil Macleod (independent consultant), Sharada Prasad (Azim Premji University), Jennifer Barr (Emory University), Sally Cawood (University of Leeds), Maryam Zaqout (University of Leeds), Kathy Eales (iafrica), Rachel Sklar (University of California, Berkeley), Ibra Sow (VICAS SARL/Association des Acteurs de l'Assainissement du Sénégal [AAAS]/Association Panafricaine des Acteurs de l'Assainissement Autonome [APAA]), Yaye Sphiétou Diop (Speak Up Africa), Raj Bhushan Roy (WaterAid), Suman Kanti Nath (WaterAid), Léocadie Bouda (WaterAid), Kuilga Marc Yameogo (WaterAid), Alfonso

Alvéstegui (World Bank), and Srinivasa Rao Podipireddy (World Bank).

The team is also grateful to the numerous colleagues and peer reviewers from the four partnering organizations for their valuable comments and support during the preparation of this report: Halshka Graczyk (ILO consultant), Avinash Kumar (WaterAid), Rémi Kaupp (WaterAid), Henry Northover (WaterAid), Sophie Boisson (WHO), Bruce Allan (WHO), Maria Angelica Sotomayor (World Bank), Richard Damania (World Bank), Luis Andres (World Bank), Gustavo Saltiel (World Bank), Soma Ghosh (World Bank), Dan Owen (World Bank), Odete Duarte Muximpua (World Bank), Silpa Kaza (World Bank), Kamila Galeza (World Bank), Ayumi Koyama (World Bank), and Nandita Kotwal (World Bank).

Disclaimer

The report is a first attempt by the four global development partners to together understand the challenges faced by sanitation workers. It does not seek to make specific conclusions or detailed recommendations on how to improve the working conditions of sanitation workers. Moreover, unless stated otherwise, claims from the case studies stem from key informant interviews.

Abbreviations

| | |
|--------|---|
| ABASE | Association of Manual Emptiers of Burkina Faso |
| BMC | Brihanmumbai Municipal Corporation |
| ESF | Environmental and Social Framework |
| ESS | Environmental and Social Standards |
| FDIS | Final Draft International Standard |
| FSM | fecal sludge management |
| ISO | International Standards Organization |
| ILO | International Labour Organization |
| KCCA | Kampala Capital City Authority |
| LGD | Local Government Division |
| NGO | nongovernmental organization |
| OHS | occupational health and safety |
| ONAS | National Sanitation Office of Senegal |
| ONEA | National Office of Water and Sanitation |
| OSHE | Bangladesh Occupational Safety, Health and Environment Foundation |
| PPE | personal protective equipment |
| SDG | Sustainable Development Goal |
| SSP | Sanitation Safety Plan |
| SuSanA | Sustainable Sanitation Alliance |
| UBSUP | Up-scaling Basic Sanitation for the Urban Poor |
| UDDT | urine-diverting dry toilet |
| UN | United Nations |
| WHO | World Health Organization |
| WSP | water service providers |
| WSUP | Water & Sanitation for the Urban Poor |





Executive Summary

The global sanitation workforce bridges the gap between sanitation infrastructure and the provision of sanitation services. Sanitation workers provide an essential public service but often at the cost of their dignity, safety, health, and living conditions. They are some of the most vulnerable workers. They are far too often invisible, unquantified, and ostracized, and many of the challenges they face stem from this fundamental lack of acknowledgment. Sanitation workers are exposed to serious occupational and environmental health hazards risking illness, injury, and death.

This report presents the findings of a study that examined nine case studies of sanitation workers in low- and middle-income countries, predominantly

focusing on emptying pits and tanks, providing transportation of fecal sludge, and performing sewer maintenance. It is an initial analysis into a growing body of work on sanitation workers, but already the findings highlight several action areas to ensure that efforts in reaching Sustainable Development Goals (SDG) 6.2 and 6.3 do not compromise the dignity, health, and rights of the workforce. Collecting data from literature and key informant interviews, the nine cases provide an overview of the key challenges sanitation workers face. The report also addresses good practices and suggests areas for action (figure ES.1).

Sanitation workers range from permanent public or private employees with health benefits, pensions,

FIGURE ES.1. Key Challenges, Identified Good Practices, and Areas for Action





and clear legal protections to some of the most marginalized, poor, and abused members of society who take on low-grade, labor intensive, and dangerous work. For those employed informally, their work is financially precarious, with poor pay and few benefits. Sanitation workers often suffer weak legal protection, missing or weak standard operating procedures and weak enforcement and oversight of laws and policies protecting their rights and health.

A comparative analysis of the cases highlights that mitigating the occupational health and safety hazards along the sanitation service chain (whether manual or mechanized) needs to be addressed systematically. This work informs future initiatives on sanitation workers to be undertaken by WaterAid, the World Health Organization (WHO), the International Labour Organization (ILO), and the World Bank. It highlights four areas of action for actors to address the situation of sanitation workers:

- **Reform policy, legislation and regulation** to acknowledge and professionalize the sanitation workforce along the sanitation service chain.
- **Develop and adopt operational guidelines** to assess and mitigate the occupational risks of all types of

sanitation work, including national and local level standard operating procedures; municipal-level oversight and enforcement of laws regarding sanitation service providers (both public and private); and training, technology, and personal protective equipment (PPE) for all aspects of sanitation work.

- **Advocate for sanitation workers and promote their empowerment** to protect worker rights and amplify worker voices through unions and associations.
- **Build the evidence base** to address the issues of quantification of the sanitation workforce and documentation of challenges workers face.

This assessment shows there is evidence of good practices and a growing body of actors working to improve sanitation workers' conditions and rights, although the efforts are ad hoc and fragmented. There needs to be much more concerted and comprehensive efforts. Key knowledge gaps need to be addressed. WaterAid, the WHO, the ILO and the World Bank are committed to continued collaboration and to engaging other development partners to raise awareness and move forward each action area that will improve the health, safety and dignity of the sanitation workforce needed to achieve SDG 6.2 and 6.3.



Joseph Yameogo, 55, manual emptier, attends Olivier Batoro, 37, manual emptier, who has just come out of the pit and is having vertigo, Ouagadougou, Burkina Faso, July 2019. © WaterAid / Basile Ouedraogo. Used with permission. Permission required for reuse.



CHAPTER 1

Introduction

Context and Rationale

The sanitation workforce—those behind the provision and maintenance of sanitation systems—provides an essential public service. Nevertheless, global efforts to improve the health and quality of life of people around the world seldom consider the working conditions of those providing sanitation services, even though they are essential to achieve the ambitious global targets for safely managed sanitation services. The size of the sanitation workforce is unknown, and sanitation workers are among the most invisible and neglected in society. It is only when those critical services fail, when society is confronted with fecal waste in ditches, streets, rivers, and beaches or occasional media reports of sanitation worker deaths, that the daily practice and plight of sanitation workers come to light.

Beyond operational health and safety risks of working in direct contact with hazardous biological and chemical agents in dangerous environments, sanitation workers also face stigma and social discrimination resulting from the nature of their work. Their dignity and labor rights may be violated, and few countries have any guidelines that explicitly protect sanitation workers. They remain invisible to many (Corteel and Le Lay 2012; Day 2019; Espinosa, Saffron, and Abizaid 2018; Nagle 2013), and despite carrying a disproportionate burden of health risks common to many workers of the informal economy, sanitation workers often do not have affordable and proper access to preventive and remedial health care or social protection (ILO 2013).

There are few international standards that could apply to sanitation workers (examples include the World Bank Environmental and Social Standards [ESS]¹ and the International Standards Organization [ISO] Sanitation Standards²). In general terms, sanitation workers should typically be governed broadly under occupational health and safety (OHS) or occupational safety at work legislation, but because of the particularity of the work, guidelines articulating safeguarding sanitation workers are not widespread. However, in many countries, specific guidelines and the legal framework that articulate the risks,

mitigation measures, and responsibilities related to the occupational health of the workers are lacking. Even where occupational health legal frameworks exist, these do not necessarily cover the range of sanitation activities that are practiced. Furthermore, many sanitation workers operate in the informal economy and cannot benefit from any protections that may exist. This is an issue that is gaining attention. The World Health Organization (WHO) *Guidelines on Sanitation and Health* (2018) explicitly include a recommendation regarding sanitation workers for implementing safe management of excreta along the whole sanitation service chain:

Recommendation 2.c): Sanitation workers should be protected from occupational exposure through adequate health and safety measures.

The WHO guidelines also provide more detailed guidance on safety measures for workers and at each step of the sanitation chain (chapter 3) and guidance on including worker considerations in the enabling environment for service delivery (chapter 4).

In a year when the world is highlighting “no one left behind” and as we progress toward the 2030 development agenda (box 1.1), it becomes paramount to provide safely managed sanitation services for all while ensuring the protection of labor rights and providing safe and secure work environments to those who will deliver those services. This is not only

a matter of rights, health, and dignity of the workers themselves, but it also is key to ensuring a sufficiently large, formalized, and protected workforce to deliver and sustain safely managed sanitation services with dignity, as has been called for under the Sustainable Development Goals (SDGs).

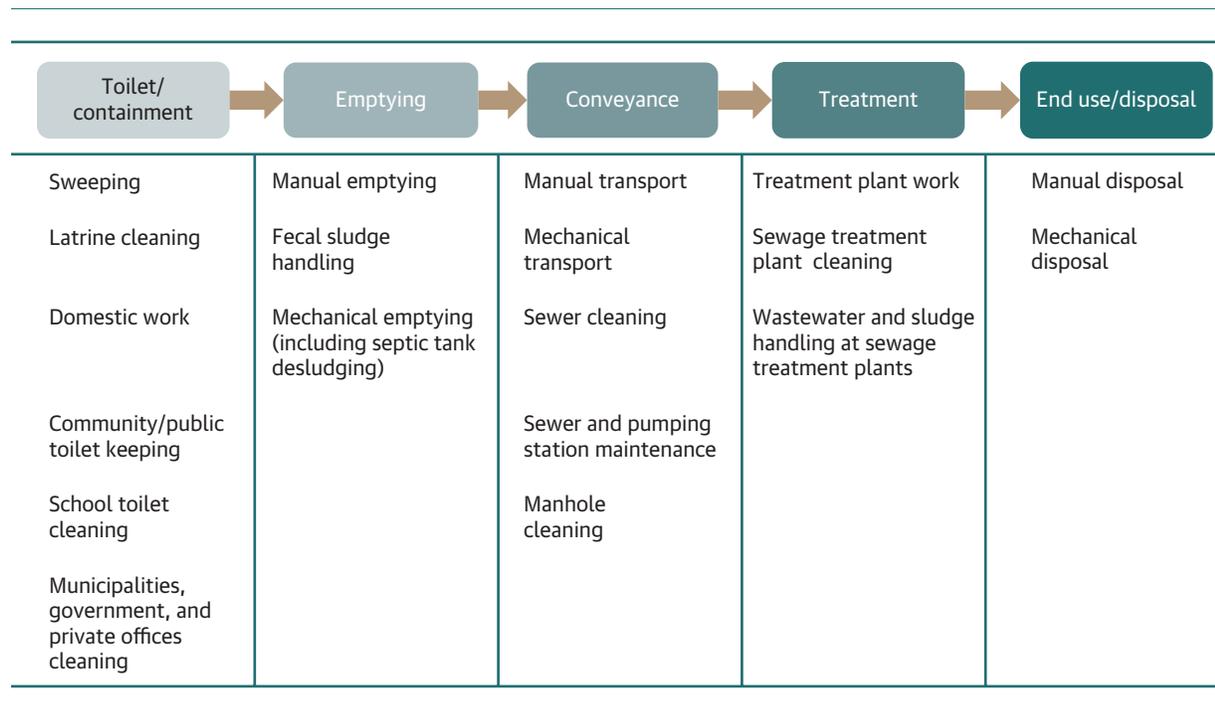
Against this backdrop, this report is a first step toward understanding the realities of the sanitation workers and the ways to move the agenda of safeguarding them forward. It has been developed by WaterAid, the WHO, the International Labour Organization (ILO), and the World Bank.

Who Are Sanitation Workers? The term *sanitation workers* refers to all people—employed or otherwise—responsible for cleaning, maintaining, operating, or emptying a sanitation technology at any step of the sanitation chain (figure 1.1). This includes toilet cleaners and caretakers in domestic, public, and institutional settings; those who empty pits and septic tanks once full and other fecal sludge handlers; those who clean sewers and manholes; and those who work at sewage and fecal waste treatment and disposal sites (Dalberg Advisors 2017; WHO 2018). Many of these jobs exist in the informal economy, and these workers are not recognized for the work that they do, nor are they protected by basic labor rights. Recurrent news items about sewer deaths, pit collapses, and illnesses are often dismissed as isolated incidents rather than part of a systemic issue.

BOX 1.1. Sanitation Workers and the 2030 Development Agenda

Improving the working conditions of sanitation workers would contribute to four of the 17 Sustainable Development Goals (SDGs), to name a few: end poverty in all its forms everywhere (SDG 1) by promoting access of the poor to basic services; ensure healthy lives and promote well-being for all at all ages (SDG 3) by reducing exposure to unsafe chemicals on the job; ensure availability and sustainable management of water and sanitation for all (SDG 6); and focus on decent work (SDG 8). The SDG framework offers an opportunity to revert and improve the situation of sanitation workers.

FIGURE 1.1. Types of Sanitation Work



Source: Adapted from Dalberg Advisors 2017.

Objectives and Scope

This report presents findings of a review of sanitation worker conditions as a step toward understanding the challenges faced by sanitation workers and evidence-based initiatives to improve their conditions. Its specific objectives were

- To understand the challenges faced by sanitation workers;
- To present examples that highlight good practices, approaches, policies, standards, and regulations aimed at improving the working conditions of sanitation workers;
- To determine existing evidence gaps; and
- To identify areas of action for building a concerted effort to improve the conditions of sanitation workers.

The information presented in this report is compiled from a desk review² and key informant

interviews focusing on nine countries spanning different regions and representing different levels of service standards. The case studies presented in appendix A were selected based on the literature available and suggestions from key informants. The cases presented are not intended to be representative nationally or of the sector as a whole due to the many data gaps. Instead, the case studies give an overview of issues and highlight some of the common challenges of sanitation workers as well as good practices that can inform future initiatives.

This review focuses on sanitation workers involved in the collection, transport and treatment of fecal waste to capture the situation of some of the more vulnerable workers. The study does not include (a) workers involved in the construction of sanitation-related infrastructure, (b) those involved in solid-waste management, or (c) those involved in use of wastewater and sludge (for example,

agricultural workers). The areas for action outlined in the report are specific to this subsection of the sanitation workforce and may not universally apply to all sanitation workers.

This work is intended to inform future initiatives related to this topic to be undertaken by WaterAid, the WHO, the ILO, and the World Bank and identifies areas of action for other actors involved in the sanitation sector to address the situation of sanitation workers.

Notes

1. Notably, ESS2: Labor and working conditions; ESS3: Resource efficiency and pollution prevention, and management; and ESS4: Community health and safety.
2. ISO/FDIS 30500 (2018): Non-sewered sanitation systems—Prefabricated integrated treatment units—General safety and performance requirements for design and testing
 - ISO 24521 (2016): Activities relating to drinking water and wastewater services—Guidelines for the management of basic on-site domestic wastewater service
 - ISO 24510 (2007): Activities relating to drinking water and wastewater services—Guidelines for the assessment and for the improvement of the service to users
 - ISO 24511 (2007): Activities relating to drinking water and wastewater services—Guidelines for the management of wastewater utilities and for the assessment of wastewater services
3. Documents collated from a preliminary review conducted by WaterAid; review of documents shared by the World Bank, the ILO, the WHO, and WaterAid staff as well as interviewees; intranet searches of internal World Bank documents; Internet searches of academic papers, doctoral theses, government policies and initiatives, practitioners' websites (Sustainable Sanitation Alliance [SuSanA], SNV, Water & Sanitation for the Urban Poor [WSUP], and so on); and newspaper articles, from English, French, and Spanish sources.



Wendgoundi Sawadogo, 45, manual emptier, entering the pit of a latrine with a rope, Ouagadougou, Burkina Faso, July 2019. © WaterAid / Basile Ouedraogo. Used with permission. Permission required for reuse.



CHAPTER 2

Main Findings

These findings draw on evidence of sanitation working conditions in nine countries: Bangladesh, Bolivia, Burkina Faso, Haiti, India, Kenya, Senegal, South Africa, and Uganda. This section summarizes the main findings, and the case studies themselves are presented in appendix A. The working conditions of the sanitation workforce depend heavily on the wider sanitation and urban landscape, but there are commonalities, particularly in the challenges some of the most vulnerable sanitation workers face.

This chapter first presents key challenges and risks, followed by good practices and then gaps in knowledge.

Key Challenges and Risks

- **Occupational and environmental health and safety** is important because sanitation workers are exposed to multiple occupational and environmental hazards.
- **Weak legal protection** results from working informally, lack of occupational and health standards, and weak agency to demand their rights.
- **Financial insecurity** is a great concern because typically, informal and temporary sanitation workers are poorly paid, and income can be unpredictable.
- **Social stigma and discrimination** exist, and in some cases, are experienced as total and intergenerational exclusion.

The challenges and risks faced by sanitation workers can be categorized in four dimensions: occupational and environmental health and safety, legal and institutional issues, financial insecurity, and social issues.

Occupational and Environmental Health and Safety

Sanitation workers are exposed to multiple occupational and environmental hazards, such as coming into direct or close contact with fecal sludge and wastewater; operating equipment used in emptying, conveyance, and

Inoussa Ouedraogo (right), 48, Manual Emptier, Burkina Faso



What I personally experienced as a problem is that once I had an accident at work. A slab caught my finger, and I had to treat the wound for 11 months. In total, the care cost me about 60,000 CFA francs. But I must say that I continued to work while caring for the injury. In the meantime, my mother told me to stop the painful work to take care of my hand, but I made her understand that if I did not juggle work while looking after it, I do not know what other problems it could bring. So, I continued to work with the hand while looking after the wound until it was healed.

Source: WaterAid / Basile Ouedraogo. Used with permission. Permission required for reuse.

treatment of fecal sludge and wastewater; and working in confined and often dangerous spaces. They are exposed to hazardous gases and biological and chemical agents in septic tanks, sewers, pumping stations, and treatment plants (WHO 2018). Manual sanitation work poses great risk to sanitation workers;¹ it is physically demanding and several of the case studies of manual pit emptying report compelling similarities between the practice that cross countries and continents.

Sanitation workers who are not protected by adequate health and safety measures risk injury, infection, disease, mental health issues, and death. Specifically, the reported physical and medical conditions directly associated with sanitation work include headaches, dizziness, fever, fatigue, asthma, gastroenteritis, cholera, typhoid, hepatitis, polio, cryptosporidiosis, schistosomiasis, eye and skin burn and other skin irritation, musculoskeletal disorders (including back pain), puncture wounds and cuts, blunt force

trauma, and fatality (CSFE n.d.; WHO 2018). Common accidents reported include losing consciousness and death by asphyxiation resulting from the noxious gases in both septic tanks and sewers, pit collapse or falling masonry, and wounds from sharp detritus. Several manual pit emptiers report working at night to avoid neighbor objections and sanctions, as well as being under the influence of alcohol and drugs, factors that further exacerbate the risk of accidents.

It is not uncommon for sanitation workers of all kinds to work without any form of personal protective equipment (PPE). Many informal and temporary sanitation workers operate with little to no formal training on the occupational risks of their work. Multiple factors cause poor occupational health and safety (OHS). It is clear that mitigating the OHS hazards along the sanitation service chain (whether manual or mechanized) needs to be addressed systematically (SNV 2017).

Where sanitation workers are predominantly from lower-income segments of society, their occupational hazards tend to be compounded by living in overcrowded, low-income settlements, with poor water and sanitation and, many times, in flood-prone environments. These conditions increase the environmental health risks.

Legal and Institutional Challenges

Sanitation workers often suffer because of weak legal protection and lack of enforcement of existing rules. The numerous operational activities along the sanitation chain—emptying and conveyance of fecal sludge, sewer maintenance, treatment, and end use/disposal (WHO 2018)—have often been invisible or at least disregarded in regulatory frameworks. Many countries either lack laws and regulations that protect sanitation workers, or the laws in place are not enforced or are not enforceable in practical terms. Manual emptying, often the riskiest sanitation work, is often characterized by informality. Efforts to prohibit manual emptying (for example, in India and Senegal), have not necessarily curtailed the practice but instead have forced it underground. By contrast, in Bangladesh and South Africa, manual work is formally recognized as part of the sanitation services package, with workers being provided training and occupational health mitigation measures being in place (box 2.1).

Financial Insecurity

Sanitation workers, especially those employed on temporary or informal terms, are poorly and irregularly paid. The extent to which sanitation markets are formal or informal varies significantly between countries.

BOX 2.1. Regulations That Protect Workers

In South Africa, since the 1994 political transition from apartheid, new labor laws have been established to protect vulnerable workers. Three main regulations governing sanitation work attribute responsibilities to both the employer and the employee. The Basic Conditions of Employment Act (1997) offers protections to workers. The National Occupational Health and Safety Act (1993) puts employers in charge of protecting worker health and safety by minimizing and mitigating risks in the working environment, as well as providing training and precautionary measures to protect the health and safety of their workers. The Regulations for Hazardous Biological Agents (2001) mandate that any person who may be exposed to a biohazard must comply with the employer's instructions, such as wearing personal protective equipment, reporting accidents, and completing training or medical examinations.

My family supports me, and they say at the end of the day I am getting money. The community and friends will criticize me because I'm dealing with sludge, so sometimes I feel bad, sometimes I feel good because my family is supporting me.

—Mthobisi Maseko, 19,
South Africa

In South Africa, sanitation work is predominantly in the formal economy; public sanitation workers are responsible for sewer maintenance, and pit emptying is contracted out to the private sector. In Burkina Faso,

sanitation work is predominantly informal.

In Kenya, the water service providers (WSP) have the mandate, but much of the market is served by large numbers of informal operators and formal small operators. As is common in other sectors, the financial situation of such workers is precarious. Pay for low-grade, temporary, or informal work tends to be low, income is irregular, and workers are vulnerable to extortion.

In India, some manual workers reported that they have been paid in food rather than money. Manual emptiers in Senegal and Haiti reported low-income households failing to pay the agreed-on fee once they had completed the work.

Tight financial margins in the formal private sector can also compromise the conditions for workers; the investment and maintenance of PPE, mechanization, or both may not be considered financially viable.

Social Challenges

Low-grade, unskilled sanitation workers often face social stigma and discrimination. This is especially true when sanitation is linked to a caste-based structure and often allocated to castes perceived to be lower in the caste hierarchy, such as in India and Bangladesh, where sanitation work is perceived to

belong to the Dalit caste. This stigma compounds the social ostracizing and limitations on social mobility that workers face and often results in intergenerational discrimination, where children of sanitation workers often struggle to escape the vicious cycle of limited opportunities and sanitation work.

More generally, however, low income, financial stress, informality and the social stigma attached to handling feces can form a multigenerational poverty trap for many low-grade sanitation workers. These factors manifest in implicit or explicit discrimination, which hinders workers' social inclusion, their opportunities to shift careers, and social mobility. Furthermore, alcoholism and drug addiction to evade the working conditions are common among some sanitation workers. To protect their families' safety and well-being, several of the case examples found reports of sanitation workers maintaining a low profile and hiding their occupation from their communities.

Good Practices

- Providing acknowledgment and formalization to sanitation workforce (including legal protections)
- Mitigating occupational health risks for sanitation workers
- Delivering health services to sanitation workers
- Establishing standard operating procedures and guidelines
- Promoting workers' empowerment through unions and associations

The case studies highlight several examples of good practice, as presented in the next sections.

Table 2.1 includes an indication of where, based on the cases reviewed, a good practice was adopted at a national/strategic scale, where there are examples of good practice, and where there is evidence that the

TABLE 2.1. Comparative Table of Sanitation Worker Conditions

| | Bangladesh | Bolivia | Burkina Faso | Haiti | India | Kenya | Senegal | South Africa | Uganda |
|---|------------|---------|--------------|-------|-------|-------|---------|--------------|--------|
| <i>Manual sanitation work acknowledged in policies/strategies</i> | ● | – | ● | ○ | ○ | ● | ○ | ● | – |
| <i>Occupational health of sanitation workers^a protected by law</i> | ● | – | – | ○ | ● | – | – | ● | – |
| <i>Legal protection carries through subcontracting</i> | – | – | – | – | ○ | – | – | ● | – |
| <i>Training on sanitation worker occupational health and hazards is provided</i> | ● | ● | ● | ● | ● | ● | ● | ● | – |
| <i>Standard operating procedures or guidelines exist specific to sanitation^a</i> | ● | ● | – | ● | – | ● | – | ● | – |
| <i>Safeguarding of sanitation worker health is done^a</i> | ● | – | ● | ● | ● | ● | ● | ● | – |
| <i>Sanitation workers belong to unions or associations^a</i> | ● | – | ● | ● | ● | ● | ● | ● | ● |
| <i>Initiatives specifically advocating for sanitation worker rights exist</i> | – | – | ● | – | ● | – | – | – | – |

Note: Sanitation worker protections in place:

- = yes, at a national level and part of national strategy;
- = limited, either to a local level or otherwise specific intervention;
- = no;
- = evidence not identified at this stage.

This table is not intended to be exhaustive and will be populated further during subsequent work.

a. May only relate to formal workers, which precludes significant numbers from much of the above if manual workers are not recognized.

practice does not take place. Blanks indicate data gaps to be filled.

Providing Acknowledgment and Formalization to Sanitation Workforce (Including Legal Protections)

The plight of urban sanitation workers is often invisible and, in some contexts, largely informal. A common best practice across all the case studies is acknowledging the workforce and creating sanitation work opportunities in the formal markets. Selected cases reveal that sanitation workers employed on a permanent basis, either through public offices (for example, in India and Bangladesh) or private companies (for example, in Senegal, Kenya, and Haiti), enjoy a more stable income, often better pay, and, in some cases, other benefits such as union membership, housing, or health insurance (for

example, in Bangladesh). In India, permanent workers are typically better paid than their informal counterparts (receiving three times the salary of an informal sanitation worker). In South Africa, formal private-sector employees are likely on a minimum wage, whereas public-sector sanitation workers are paid almost double with public health benefits.

Examples of mechanisms that acknowledge and formalize the sanitation workforce in the selected case studies include acknowledging manual sanitation workers in the formal workforce (for example, in Bangladesh and South Africa); developing sanitation worker registries (for example, in India and Bangladesh); introducing new social enterprise models, which safeguard workers and create sanitation jobs in the formal economy (for example, in Kenya and Haiti); and, to a lesser extent, the formation of unions or associations (for example, in India,

Bangladesh, Burkina Faso, Senegal, and South Africa). Acknowledgment is the first step for the occupational health of sanitation worker rights to be recognized by law.

On the other hand, when regulation has gone to the length of prohibition of manual sanitation work, it has often failed to protect the workers because there are context-specific reasons why manual emptying prevails such as inaccessibility for motorized services, and pumpability of drier, typically older sludge (WHO 2018). If this work is prohibited, local authorities may deny the practice, thus further increasing the lack of visibility and voice of sanitation workers.

Mitigating Occupational Health Risks for Sanitation Workers

The first step in mitigating occupational risks for sanitation risks is understanding what they are. These risks may vary between contexts, but at the most fundamental level, they are about avoiding direct exposure to the risks previously mentioned, through adequate health and safety measures. Local-level risk assessment of sanitation work can identify the priority risks at each step of the service chain. Mechanisms to reduce exposure will include a combination, of improvements to management practice, technology and workers behavior. Examples include appropriate use of PPE such as gloves, full-body suits, boots, glasses, gas detectors. They also include technologies to eliminate the need for sanitation workers to enter pits or sewers, including pumping mechanisms such as the e-Vac (developed in partnership with eThekwini) and robotic devices being tested in India to clear sewers. Some examples show the municipality lending or renting safety equipment (for example, in Bangladesh and Burkina Faso); others describe initiatives to provide credit to sanitation business opportunities to buy equipment (for example, in

India). Regardless of technologies used, workers need to be trained in their use according to standard operating procedures and mechanisms to ensure they are being followed need to be in place to ensure risks are mitigated.

Delivering Health Services to Sanitation Workers

Receiving vaccines and regular health checkups and having health insurance were observed in the case studies as mechanisms intended to safeguard sanitation workers' health. In the case examples of India and Bangladesh, permanent municipal sanitation workers have health insurance. Employees of the company running the fecal sludge treatment plant in Dakar, Senegal, and a container-based sanitation company in Haiti are given regular health checkups and vaccinations.

Vaccinations, health insurance, and regular health checks are also included in the standards and guidelines for sanitation workers developed in Bangladesh and Kenya.

Establishing Standard Operating Procedures and Guidelines

Standard operating procedures and local-level guidelines for sanitation work have been developed in Bangladesh (box 2.2) and Kisumu, Kenya, and have been adopted at the city level. They specify training on occupational hazards and the use of PPE as well as mechanisms to protect workers' health and livelihoods. Regular monitoring of work and behavior of sanitation workers is needed to support the implementation of standard operating procedures.

Standard operating procedures and guidelines that include manual emptying practices offer a more inclusive mechanism to protect the most vulnerable sanitation workers. However, compliance with the procedures is likely to be especially low among informal, unlicensed, and temporary workers.

Promoting Workers' Empowerment through Unions and Associations

Trade and worker unions for sanitation workers play an important role in advocating for workers and improving their working conditions (box 2.3). They exist in parts of India, Bangladesh, and South Africa. With the support of these unions, permanent sanitation workers have experienced formalization and improvements of basic working conditions (such as employment contracts and terms, regular pay, paid leave, and health insurance), which are protected by law.

In the cases of Burkina Faso and Senegal, although the emptiers' associations do not provide legal protection to their members, they do provide a

mechanism for the emptiers to organize and demand acknowledgment by the utility and municipalities. The associations' mechanism has emboldened mechanical emptiers to advocate for municipal

contracts and more favorable contract terms. Typically, low-grade temporary and informal workers enjoy none of these rights, they frequently find

The best thing about my job is making the consumers happy, I feel happy making the consumers happy.

*—Christopher Magubane, 36,
South Africa*

BOX 2.2. Occupational Safety and Health Guidelines for Fecal Sludge Management for Bangladesh

The guidelines highlight the following moral and legal obligations of local government bodies:

- To take necessary action in line with the Health and Safety Guidelines in the Bangladesh Labor Act 2006, National Occupational Health and Safety Policy 2013, and related international conventions ratified by the government of Bangladesh
- To identify risks to OHS in FSM
- To organize awareness-raising sessions on OHS in FSM for emptiers in both the formal and informal sector
- To organize training courses on proper technology, environmentally friendly emptying, transportation and disposal procedures, and use of appropriate protective equipment
- To ensure the highest safety levels in chemical use and other risk factors related to fecal sludge emptying and transportation
- To keep records of occupational accidents, including number of casualties, status of compensation claims, and related legal proceedings
- To develop a pool of experts and trainers on OHS in FSM
- To identify the occupational disease experts in local hospitals and medical colleges and develop institutional linkages with them to ensure access to emergency medical support
- To include OHS issues in the agenda of local government authorities (city corporations and Paurashavas)

The guidelines also suggest responsibilities of other stakeholders including the service recipient, civil society organizations, and relevant ministries.

Source: SNV 2017.

Note: FSM = fecal sludge management; OHS = occupational health and safety.

BOX 2.3. The Memphis Sanitation Workers' Strike

The Memphis sanitation workers' strike of 1968 involved 1,100 of 1,300 of the city's solid waste collectors supported by Dr. Martin Luther King Jr., a leading civil rights activist in the United States. The strike was triggered by the accidental deaths of two sanitation workers and by a separate incident on the same day in which 22 low-grade sewer workers were sent home without pay. The events revealed ongoing racial segregation in the city, and the strike served as a catalyst for both the civil rights movement and public service unions across the United States. The Memphis strike offers an example of a familiar plight of sanitation workers worldwide and how sanitation workers can have a pivotal role in transformational events.

their rights violated, and they have no legal protection. Encouraging licensed service providers to employ the historically lower-grade sanitation workers, provided they can conform to standards of behavior and safety, is a mechanism to bring them into the formal sanitation system (WHO 2018).

Although the unions and associations are good mechanisms for professionalizing the sanitation workforce, successful experiences are often localized to a town or district and may associate only a subset of sanitation workers, such as the permanent employees or vacuum tank owners. Mechanisms that improve conditions of some of the sanitation workers can compound the exclusion of the most vulnerable sanitation workers, such as those working manually, informally, and without the ability to associate.

Moreover, sanitation workers' unions are not necessarily recognized or given freedom to associate. If they do associate in larger unions, they may have weak capacity and limited agency.

In other cases, particularly for low-grade workers, association may not be desirable for the workers themselves.

Gaps in Knowledge

Although significant advances have been made in the past decade in understanding urban sanitation technical systems, there is a dearth of good-quality information about the workers who underpin

those systems and about their working conditions. The extent of the challenges these workers face is not well-known or well-documented. This assessment showed that there is some information about sanitation workers' challenges, some evidence of good practices, and a growing body of evidence and actors working to improve sanitation workers' conditions and rights, but this progress is still ad hoc and fragmented. Key gaps include the following:

- **Quantifying and profiling the global sanitation workforce:** The number of existing sanitation workers overall is unclear, and estimates are often contested. Numbers are typically not disaggregated to specify the type of work. For example, municipal workers may also be grouped with solid-waste management workers, which can obscure accurate quantification of the workforce. Also, existing data sources tend to be incomplete, covering only part of a city or parts of a year. The most vulnerable sanitation workers, those working informally or temporarily in the lowest grade positions, are difficult to quantify for multiple reasons. For example, those working in the informal market may be difficult to locate; they may not want to be acknowledged because of social stigma; and low-grade, unskilled day laborers may work as general manual laborers, may take on multiple roles, and

may not necessarily identify as a sanitation worker. These challenges are true of both simple quantification and work-related incidents reporting. Estimates of deaths may be conservative because accidents and incidents often go unreported. Furthermore, there are scant empirical data on the risks and human costs associated with providing sanitation services; the data tend to be anecdotal. Also, not enough evidence is available to confirm or reject the idea that child labor is used for sanitation work. If it is, this situation is devastating because there are lifelong consequences, and this is an important issue that warrants more attention. Data related to women sanitation workers are also limited. The gender dimension should be further investigated.

- **Policy (regulatory and legal):** Relevant policies, regulations, standards, and legislation that would systematically govern sanitation workers need to be identified. Where such policies are available, the extent to which they are appropriate or effective or are being enforced to protect sanitation workers needs to be better understood.
- **Institutional arrangements:** Optimal institutional arrangements models that safeguard sanitation workers across different dimensions need to be studied and documented.

- **Impact of interventions:** The impact and determinants of different interventions for the sanitation workforce is not well-known and needs to be evaluated. These interventions include improving working conditions and professionalization or creating entrepreneur and exit strategies for sanitation workers and their children, among others.
- **Parallels with other sectors:** Capturing lessons learned and successes that allowed for progress and professionalization in other sectors could inform any future development toward improving the working conditions of sanitation workers.
- **Allies and stakeholders:** Identifying the different actors supporting this work at the local, national, and international levels can be useful to create opportunities and build synergies to move this agenda forward.

Many more concerted and comprehensive efforts in this area are needed across all actors. The previously mentioned knowledge gaps could be addressed in a future study, a proposal for which is detailed in appendix B.

Note

1. *Manual sanitation work* refers to nonmotorized or nonmechanical sanitation work where workers use their bare hands or basic equipment such as buckets, ropes, shovels, and so on to undertake their tasks.



Prakash, sewage worker in Hyderabad, works in the sewer without any protection—no gloves, no suit, no boots. He uses his hands and feet to scrape and clean out the sewage pipes. India, M. Crozet, 2002. © ILO. Used with permission. Permission required for reuse.



CHAPTER 3

Areas for Action

- **Reform policy, legislation and regulation** that acknowledges and professionalizes the sanitation workforce along the sanitation service chain
- **Develop and adopt operational guidelines** to assess and mitigate the occupational risks of all types of sanitation work, including national standard operating procedures, municipal-level oversight of sanitation service providers (both public and private), training, technology, and personal protective equipment for all aspects of sanitation work
- **Advocate for sanitation workers and promote their empowerment** to protect worker rights and amplify workers' voices through unions and associations
- **Build the evidence base** to address the issues of quantification of the sanitation workforce and documentation of challenges that workers face and good practice in improving working conditions.

Four main areas for action have emerged from this review. These align with the recognize-formalize-organize mandate (WaterAid, ILO, and WHO 2019), the principles and recommendations within the United Nations Human Rights Framework, the World Health Organization *Guidelines on Sanitation and Health* (2018), and established recommendations on labor protection, sanitation, and health. Action areas are identified for focused, coordinated, and reflective efforts and then combined with future research, which could move the agenda to improve the working conditions of sanitation workers forward.

Reform Policy, Legislation and Regulation

A pivotal action to safeguard sanitation workers would be for national governments to reform policy, legislative, and regulatory mechanisms, as well as provisions written into national and international labor, occupational health and safety (OHS) norms, and standards for protection and empowerment of workers.

Development partners and external agencies have a role to play in prioritizing this issue and supporting the reform agenda, which would likely need to cover three fundamental areas (WHO 2018):

- First, **recognize all types of sanitation work** and provide the frameworks that enable the organization and empowerment of sanitation workers; workers' right to organize needs to be protected. The right to organize is one of the eight fundamental conventions of the International Labour Organization (ILO). It relates to all workers, formal or informal. The workers' right to organize is beyond simply a legal right; it is the ability to exercise voice to address the imbalances of power. The challenge of sanitation workers is that they are affected by stigma, and although they may have the right to organize in theory, their social stigma may prevent them from being able to exercise that right.

- Second, promote the **gradual formalization and mechanization of the work**⁴ while acknowledging the challenges of formalization. The policy and regulatory reform should adopt a do-no-harm principle,

which would avoid further marginalization of sanitation workers where no viable alternatives exist and the criminalization and prohibition of manual work that can drive it underground. It would also help workers avoid punitive measures that target workers themselves (rather than employers, clients, and authorities).

The reform needs to

I was doing all kinds of jobs here. Every day on different tasks and at the same time I was beginning to learn. What I have learnt here, makes me not sorry about my job here, I am very happy about my job.

—Sunil Seeram, 55, South Africa

Senzi Dumakude, 32, Sewage Blockage Crew Member, South Africa



The things I like most about my job, I enjoy serving the community, making sure that our city is clean because when there is sewage obviously the community becomes so uncomfortable, so we are making sure it is safe.

Source: WaterAid / Nyani Quarmyne. Used with permission. Permission required for reuse.

adopt the 2015 ILO recommendation on the transition from the informal to the formal economy (No. 204), as well as other international instruments.

- Third, articulate **protection mechanisms, including legislation and standard operating procedures**, covering measures such as personal protective equipment (PPE), training, regular health checks, insurance, and treatment for workers to mitigate their occupational risks across the sanitation chain.

In the more immediate term, steps could be taken to enforce existing national and international labor laws and regulations (national, subnational, and municipal/city authorities) and strengthen the role of labor inspectorates regarding sanitation work. Financial implications and budget should be considered accordingly.

Develop and Adopt Operational Guidelines

A second area for action is the development and adoption of **operational guidance, codes of practice, and standard operating procedures for sanitation work**. Such guidelines would stipulate criteria for employer and contracting responsibilities to workers and mitigation measures, such as personal protective wear and equipment, training, and measures to safeguard workers' health. These would need to consider both public- and private-sector service provision and permanent and temporary workers, providing a tried and tested framework toward compliance.

Local governments have an important role in developing and (leading by example) **ensuring compliance of operational guidance, codes of practice, and standard operating procedures** for sanitation work. Municipal-level oversight and enforcement of sanitation service providers (both public and private) have an important role in the adoption of standard operating procedures, including assessing whether their subcontracting partner assesses and manages risk for workers. Multilateral and bilateral organizations, nongovernmental organizations (NGOs), and other development agencies have an important role in supporting authorities in **developing, providing operational guidance, and advocating for their adoption** at the municipal level.

Development partners, NGOs, and civil society have an important role in developing

evidence-based global guidance on incorporating protections for sanitation workers at the policy and program levels to inform national implementation of Sustainable Development Goals (SDGs) 6.2 and 6.3, as well as integrating **safeguarding sanitation workers' rights into their own sanitation program design, monitoring, and evaluation frameworks**.

Advocate for Sanitation Workers and Promote their Empowerment

All stakeholders have a role in safeguarding the dignity, health, and lives of sanitation workers as national governments and development partners alike work toward achieving safely managed sanitation for all (SDG 6.2). There is an important role for advocacy and awareness regarding this issue, specifically to address the following:

- Development partners, NGOs, and civil society can raise awareness about the public service and plight of sanitation workers and advocate for their health, safety, dignity, and rights at global, national, and subnational levels.
- Continuous advocacy from all stakeholders can target users, workers, employers, and governments to acknowledge the sanitation workforce and their role along the service chain in order to break taboos and debunk myths.
- Development partners, NGOs, and civil society can support efforts of sanitation workers to claim their rights by supporting worker unions and professional associations.

Build the Evidence Base

The limited will to address the issues of quantification of the sanitation workforce and documentation of challenges that workers face has caused the dearth of good-quality data. Making concerted efforts to

quantify the workforce and document the different challenges is important in understanding how best to address these issues when planning the activities and supporting mechanisms across the board of actors working toward SDGs 6.2 and 6.3.

Research institutions, universities, and development partners could collaborate in addressing the key knowledge gaps in the sector, notably quantification of the sanitation workforce, effectiveness, and impact of different interventions and drivers of change.

Institutions involved in this work area could further support this work by investing in building the evidence base, identifying indicators to inform their own programs, and analyzing the enabling factors that allow for progress, the effectiveness of different

interventions for different profiles of sanitation workers,² and the lessons for improvement.

National and municipal governments could undertake surveys or assessments to understand the sanitation service provision in their areas, quantifying the numbers of workers involved (including informal ones) and analyzing their profile and their working conditions, as a first step toward improving the situation.

Notes

1. Transition support for informal workers into the formal market or to other sectors (rehabilitation) would be required. Equally, a long-term plan would be needed to gradually replace manual sanitation work with mechanized systems.
2. For example, see Dalberg Advisors 2017.



Mthobisi Maseko, 19, taking a break while surrounded by barrels of fecal sludge as he and his colleagues empty a household pit latrine in Inanda, a township in eastern KwaZulu-Natal, South Africa that is part of eThekweni municipality which encompasses the Greater Durban metropolitan area, March 2019. © WaterAid / Nyani Quarmyne. Used with permission. Permission required for reuse.



CHAPTER 4

Next Steps

On the basis of this initial assessment, the four organizations authoring this report are committed to continuing to collaborate with one another and with other development partners to raise awareness about the plight of sanitation workers and make progress on these action areas (see potential follow-up work details in appendix B). More specifically, they have made the following commitments:

- **WaterAid** is considering how to expand its focus on sanitation workers beyond the current handful of country teams with projects and advocacy on this area. Moreover, in its Quality Programme Standards, it will integrate standards referring to the health, safety, and dignity of sanitation workers.
- The **World Health Organization (WHO)** will strengthen national capacities through implementation of the *Guidelines on Sanitation and Health*, focusing on inclusion of protections of sanitation workers in national sanitation policies and in local-level sanitation risk assessment and management. The WHO will also work with United Nations (UN) agencies and academic partners to quantify the global sanitation workforce and, if feasible, estimate the burden of disease for sanitation workers.
- The **International Labour Organization (ILO)** will monitor progress toward the achievement of target 8.8 of the Sustainable Development Goals (SDGs) to protect labor rights and promote safe and secure working environments for all workers. To assist member states to achieve this, the ILO will promote the effective application of several conventions related to occupational health and safety (OHS), freedom of association and informal work-related codes of practice; conventions No. 87, No. 155, and No. 187; and recommendations No. 164, No. 197, and No. 204. After the adoption of the ILO centenary declaration in the 108th session of the International Labour Conference, all members have an obligation arising from the very fact of membership in the organization to respect, promote, and realize the principles concerning safe and healthy working conditions for all workers, including sanitation workers. In addition, the ILO will promote the strengthening of workers' organizations.

- The **Water Global Practice at the World Bank** will leverage the newly developed Environmental and Social Standards (ESS)¹ to prepare a guidance note for World Bank task teams on how to safeguard sanitation workers after investment projects are completed. ESS are designed to help governments manage project risks and impacts and improve environmental and social performance consistent with good international practice and national and

international obligations. The Water Practice will collaborate with the new Environmental and Social Framework (ESF) unit at the World Bank, which has a mandate to fill knowledge gaps.

Note

1. When considering sanitation workers, the following World Bank Environmental and Social Standards are relevant: ESS2: Labor and working conditions; ESS3: Resource efficiency and pollution prevention and Management; and ESS4: Community Health and Safety.

Bibliography

Ahsan, Tanveer, Imtiaz Uddin Ahmad, M. Alamgir, and Mahbub Hassan. 2014. *Review of Legal and Other Governing Factors Related to Faecal Sludge Management in Bangladesh*. SNV, Khulna, Bangladesh.

Anand, S. 2007. "Life inside a Black Hole." *Tehelka Magazine*, December 1. http://el.doccentre.info/eldoc1/116_/08dec07teh1.html.

Bangladesh FSM Network (Faecal Sludge Management Network). 2016. "FSM Convention Workshop Proceedings." FSM Convention, Dhaka, Bangladesh, December 8.

BBC (British Broadcasting Corporation). 2018. "Indian Sewers: Dalits or 'Untouchables' Unblock Sewers by Hand." *BBC News*, October 11. <https://www.bbc.com/news/av/world-asia-india-45814938/indian-sewers-dalits-or-untouchables-unblock-sewers-by-hand>.

Beukes, L., and D. Naidoo. 2015. "Understanding and Addressing the Exposure of Workers, the Public and the Environment to Pathogens during Pit Emptying." Water Research Commission Project 2134, Water Research Commission.

Blackett, Isabel, and Peter Hawkins. 2017. *FSM Innovation Case Studies—Case Studies on the Business, Policy and Technology of Faecal Sludge Management*. 2nd ed. Seattle, WA: Bill & Melinda Gates Foundation.

Blackett, Isabel C., Peter Hawkins, and Christian Heymans. 2014. "The Missing Link in Sanitation Service Delivery—A Review of Fecal Sludge Management in 12 Cities." Water and Sanitation Program Research Brief, World Bank, Washington, DC.

Brown, N. J. 1997. *Health Hazard Manual: Wastewater Treatment Plant and Sewer Workers*. Ithaca, NY: Cornell University.

Bwengye-Kahororo, E. "How to Strengthen Community Operation and Maintenance of Human Excreta Disposal Facilities in Busia Town, Tororo District, Uganda." Unpublished thesis, Royal Tropical Institute, 1997.

CDC (Centers for Disease Control and Prevention). 2015. *Guidance for Reducing Health Risks to Workers Handling Human Waste or Sewage*. National Institutes for Occupational Safety and Health. https://www.cdc.gov/healthywater/global/sanitation/workers_handlingwaste.html.

Corteel, Delphine, and Stéphane Le Lay. 2012. *Les Travailleurs des déchets*. Toulouse: Érès Clinique du Travail.

CSFE (Center for Seabees and Facilities Engineering). n.d. "Sewage Disposal, Field Sanitation, and Water Treatment." Chap. 8 in *Utilitiesman Basic*. Port Hueneme, CA: CSFE.

Dalberg Advisors. 2017. *Sanitation Worker Safety and Livelihoods in India: A Blueprint for Action—Phase 1: Understanding the Problem*. Dalberg Advisors, New Delhi, India.

—. 2018. "Sanitation Workers Innovation Summit." New Delhi, India.

Day, Meagan. 2019. "An Ode to Sanitation Workers." *Jacobin*, April 22. <https://www.jacobinmag.com/2019/04/an-ode-to-sanitation-workers>.

- Doron, Assa, and Robin Jeffrey. 2018. "Death by Sewage: Clean-ups, Caste and Contracts in India." *New Mandala*, November 15. <https://www.newmandala.org/death-by-sewage-clean-ups-caste-and-contracts-in-india/>.
- Eales, Kathy. 2005. *Bringing Pit Emptying out of the Darkness: A Comparison of Approaches in Durban, South Africa, and Kibera, Kenya*. London, UK: Building Partnerships for Development in Water & Sanitation.
- Espinosa, Tania, Dean Saffron, and Olga Abizaid. 2018. *Trabajadores invisibles dentro del servicio de limpia de la Ciudad de México*. Women in Informal Employment: Globalizing and Organizing, Manchester, UK. http://www.wiego.org/sites/default/files/publications/files/WIEGO_Booklet_Tabajadores_invisibles_dentro_del_servicio_de_limpia_de_la_CDMX.pdf.
- Gupta, Aashish, Diane Coffey, and Dean Spears. 2016. "Purity, Pollution, and Untouchability: Challenges Affecting the Adoption, Use, and Sustainability of Sanitation Programmes in Rural India." Chap. 17 in *Sustainable Sanitation for All: Experiences, Challenges, and Innovations*, edited by Petra Bongartz, Naomi Vernon, and John Fox. Warwickshire, UK: Practical Action Publishing Ltd.
- Hersher, Rebecca. 2017. "You Probably Don't Want to Know about Haiti's Sewage Problems." *NPR (National Public Radio)*, July 29. <https://www.npr.org/sections/goatsandsoda/2017/07/29/537945957/you-probably-dont-want-to-know-about-haitis-sewage-problems>.
- HSE (Health and Safety Executive). 2003. "Controlling Risks to Sewage Workers." <http://www.hse.gov.uk/biosafety/blood-borne-viruses/controlling-risks-sewage-workers.htm>.
- . 1996. *Working with Sewage: The Health Hazards: A Guide for Employers*. UK: HSE. <http://www.hse.gov.uk/pubns/indg198.pdf>.
- Human Rights Watch. 2014. *Cleaning Human Waste—"Manual Scavenging," Caste, and Discrimination in India*. US: Human Rights Watch.
- ILO (International Labour Organization). 2012a. "Advocacy Meeting with Trade Unions on Manual Scavenging." New Delhi, India, August 23. https://www.ilo.org/newdelhi/whatwedo/eventsandmeetings/WCMS_186253/lang-en/index.htm.
- . 2012b. "National Workshop on Decent Work for Sanitation Workers and Workers in Manual Scavenging." Bhopal, Madhya Pradesh, India, October 31–November 1.
- . 2013. "The Health of Workers in Selected Sectors of the Urban Economy: Challenges and Perspectives." Working Paper 288, ILO, Geneva, Switzerland.
- . 2016. "ILO Director-General Calls for Improved Conditions for Water Workers." ILO video, 3:15. March 22. https://www.ilo.org/global/about-the-ilo/multimedia/video/institutional-videos/WCMS_460936/lang-en/index.htm. video.
- ISF-UTS (Institute for Sustainable Futures) and SNV. 2019. "Scheduled Emptying Services as an Entry Point for Change." Learning Paper, SNV, The Hague, Netherlands.
- Kamble, V. "Steps Towards the Elimination and Eradication of Manual Scavenging Practice: Advocacy Manual for the NGO's, CBO's and Other Related Organization." Unpublished manuscript.
- Katz, Jonathan M. 2014. "Haiti's Shadow Sanitation System." *The New Yorker*, March 12. <https://www.newyorker.com/tech/annals-of-technology/haitis-shadow-sanitation-system>.
- KWWA (Korea Water and Wastewater Works Association). 2016. *Transformation of the Water Sector (1960–2012)*. KWWA, Seoul, Korea.
- Mbalo, Doreen. 2017. *Integrating the Sanitation Teams in the UBSUP Programme*. Water Sector Trust Fund, Nairobi, Kenya.
- Ministry of Local Government, Rural Development and Co-operatives, Government of the People's Republic of Bangladesh. 2017. *Institutional and Regulatory Framework for Faecal Sludge Management*. Dhaka, Bangladesh: Government of the People's Republic of Bangladesh.
- Nagle, Robin. 2013. *Picking up: On the Streets and behind the Trucks with the Sanitation Workers of New York City*. New York: Farrar, Straus and Giroux.
- Navsarjan Trust. n.d. <https://navsarjantrust.org/>.
- ONAS (National Sanitation Office of Senegal). 2017. "Orientations stratégiques : L'ONAS sur les rails de la performance." November 17.
- Parth, M. N. 2014. "India's Sewer Cleaners Keep Working Despite Ban on Job." *Los Angeles Times*, July 4. <http://www.latimes.com/world/asia/la-fg-india-sewers-20140704-story.html>.
- pS-Eau (Programme Solidarité Eau). 2018. https://www.pseau.org/outils/organismes/organisme_detail.php?org.organisme_id=22847&l=fr.
- Repon, A. R. C., O. Faruq, and R. Mamtaz. 2015a. *Occupational Safety and Health Guidelines for Faecal Sludge Management*. Bangladesh Occupational Safety, Health and Environment Foundation, Khulna, Bangladesh. http://www.snv.org/public/cms/sites/default/files/explore/download/guideline-occupational_safety_and_health_guidelines_for_fsm_o.pdf.
- . 2015b. *Participation-Oriented Safety Training for the Faecal Sludge Emptiers: Action Manual on Occupational Safety and Health*. Bangladesh Occupational Safety, Health and Environment Foundation, Khulna, Bangladesh. http://www.snv.org/public/cms/sites/default/files/explore/download/action_manual-participation-oriented_safety_training_fsm.pdf.
- Réseau de professionnels juniors. 2017. "Les vidangeurs manuels de l'ABASE récompensés par le Ministre burkinabé de l'Eau et de l'Assainissement !" December 29. <https://www.reseauprojection.org/2017/les-vidangeurs-manuels-de-labase-recompenses-par-le-ministre-burkinabe-de-leau-et-de-l-assainissement.html>.
- Schuen, R. K. H., and K. Musabe. 2015. *Framework Conditions for Private Service Delivery in Faecal Sludge Management in Kampala*. Kampala Capital City Authority, Kampala, Uganda.
- SNV. 2016. "Paying Tribute to Septic Tank & Pit Emptiers." December. <http://www.snv.org/update/paying-tribute-septic-tank-pit-emptiers>.

- . 2017. “Urban Sanitation in Bangladesh—Component 2: Safe and Affordable Sanitation Services.” *Component 2: Safe and affordable sanitation services* (blog), December. <http://www.snv.org/update/urban-sanitation-bangladesh-component-2-safe-and-affordable-sanitation-services>.
- Soju, A., P. Trivedi, and D. Purohit. 2015. *Occupational Health Issues of Sewage and Sanitary Workers*. ENVIS NIOH, National Institute of Occupational Health, India.
- Strande, L., M. Ronteltap, and D. Brdjanovic, eds. 2014. *Faecal Sludge Management: Systems Approach for Implementation and Operation*. London: IWA Publishing.
- SuSanA (Sustainable Sanitation Alliance). 2011. “Health Guidelines and Standards for Pit Emptiers and Exhauster Operators.” <https://forum.susana.org/99-faecal-sludge-transport-including-emptying-of-pits-and-septic-tanks/776-health-guidelines-and-standards-for-pit-emptiers-and-exhauster-operators>.
- . 2015. “Working Directly with Manual Emptiers—Any Experience?” <https://forum.susana.org/161-sanitation-as-a-business-and-business-models/15307-working-directly-with-manual-emptiers-any-experience>.
- Tiwari, R. R. 2008. “Occupational Health Hazards in Sewage and Sanitary Workers.” *Indian Journal of Occupational and Environmental Medicine* 12: 112-15.
- UNICEF (United Nations Children’s Fund) and WHO (World Health Organization). 2015. *Progress on Sanitation and Drinking Water—2015 Update and MDG Assessment*. US: UNICEF and WHO.
- WASH United. 2012. *Stigmatization in the Realisation of the Right to Water and Sanitation: Submission for the Report of the Special Rapporteur on the Human Right to Safe Drinking Water and Sanitation*. WASH United
- WRC (Water Research Commission). 2015. *South Africa’s Water Research, Development, and Innovation (RDI) Roadmap: 2015-2025*. WRC
- WaterAid. 2018. “Les Vidangeurs Manuels: Quels rôles dans l’Assainissement des quartiers périphériques et non lotis de Ouagadougou?”
- WaterAid, ILO (International Labour Organization), and WHO (World Health Organization). 2019. *Policy Brief for the 2019 High Level Political Forum*.
- Water and Sanitation Program. 2000. “The Pick and Shovel Men or Baye Pelle of Dakar.” <http://web.mit.edu/urbanupgrading/waterandsanitation/resources/examples-pdf/Pick-ShovelMen-Senegal.pdf>.
- WHO (World Health Organization). 2016. *Sanitation Safety Planning: Manual for Safe Use and Disposal of Wastewater, Greywater and Excreta*. France: WHO.
- . 2018. *Guidelines on Sanitation and Health*. Switzerland: WHO.
- World Bank. 2017a. *Looking Beyond Government-led Delivery of Water Supply and Sanitation Services: The Market Choices and Practices of Haiti’s Most Vulnerable People*. WASH Poverty Diagnostic. World Bank, Washington, DC.
- . 2017b. *Reducing Inequalities in Water Supply, Sanitation, and Hygiene in the Era of the Sustainable Development Goals: Synthesis Report of the WASH Poverty Diagnostic Initiative*. WASH Synthesis Report. World Bank, Washington, DC.
- . 2018. “Iniciativa Piloto para la Gestión de Lodos Fecales Domiciliarios en Áreas Periurbanas de la Ciudad de Santa Cruz—Bolivia.” World Bank, Washington, DC.
- WSUP (Water & Sanitation for the Urban Poor). 2016. “Dignity for Pit and Septic Tank Emptiers: WSUP Co-convenes Dhaka Conference to Highlight Need for Improved Working Conditions.” December 14. <https://www.wsup.com/blog/dignity-for-pit-and-septic-tank-emptiers/>.
- . 2018. “Regulatory Reform: Raising the Standard of Pit-emptying Services in Kisumu.” WSUP.
- Zaqout, Mariam. “Informal Sanitation Jobs: The Prospects of Enhancing the Status of Pit-emptiers in Bangladesh.” PhD diss., University of Leeds, 2018.



Christopher Magubane (left), 36, and Senzi Dumakude (right), 32, members of an eThekweni Municipality sewage blockage crew at work in Durban. Their team uses flexible rods to clear blockages in pipes leading to the main sewer lines in South Africa, March 2019. © WaterAid / Nyani Quarmyne. Used with permission. Permission required for reuse.



APPENDIX A

Sanitation Worker Case Studies

Nine case studies are presented. They focus on sanitation workers involved in the operation and maintenance of sanitation systems, predominantly in urban areas, such as emptying on-site sanitation systems, transporting fecal sludge, and performing sewer maintenance. Each case presents current aspects of sanitation work in addition to, where available, progressive actions aimed at improving sanitation working conditions. Evident knowledge gaps remain.

Wendgoundi Sawadogo, 45, Manual Emptier, Burkina Faso



There are risks and health problems that we run into while doing this work. Sometimes people throw syringes or shards of glass bottles in the pit. We have to spend money on tetanus vaccines, but if we have no money, what can we do? ... One time, I went to empty a pit and a rock fell on my head and I had wounds. ... Many of my colleagues have had broken fingers and broken feet from doing this job. Some even died and stayed in pits because an accident occurred while they were trying to remove the slabs. But as far as I'm concerned, I'm lucky. The slab is really dangerous.

Source: WaterAid / Basile Ouedraogo. Used with permission. Permission required for reuse.

TABLE A.1. Bangladesh

| | Formal sanitation workers | Informal sanitation workers |
|--|---|---|
| Overview of current practice | <p>Sanitation work in Bangladesh is composed of mechanical and manual emptying of latrines, where both subgroups form part of the formal public workforce as well as some operating informally. Where the informal “sweepers” in Bangladesh face financial and job insecurities, discrimination, and stigmatization, permanent workers providing the same services enjoy more secure positions with a guaranteed income and other benefits, including partial health insurance from the city corporation and a membership in the government emptiers’ union (Zaqout 2018). Nonetheless, permanent workers still face some challenges, such as the risk of losing housing in the government colony for sweepers if they seek alternative occupations—and this affects their social mobility.</p> <p>In Khulna, the mechanical emptiers are registered with the city corporation, who provide them with PPE. Nevertheless, they have not seen progress in their livelihoods, as shown by the lack of access to physical, financial, social, and human capital. They face discrimination when seeking loans or alternative occupations. Many times, children do not approve of their parents’ occupation, which is another reason for them to contemplate alternative livelihoods.</p> | |
| Types of work/customers | Mechanical and manual sanitation workers offer emptying services to both households and institutions. | The manual emptiers (or sweepers) provide emptying services to both households and institutions. |
| Typical contracting modes | Permanent government employees or private service providers registered with their relevant city corporations | Informal |
| Equipment | Mechanized equipment or basic tools; PPE and vacuum tankers are sometimes provided or leased to sanitation workers by the city corporation. ^a | Basic tools, often without PPE |
| Occupational health and hazards | Some formal manual emptiers have been trained and certified on occupational health risks. ^b | <p>Manual work involves repeated direct contact with human excreta and operating in enclosed spaces that have noxious gases (Doron and Jeffrey 2018).</p> <p>Typically, workers work at nighttime and sometimes under the influence of alcohol, factors that exacerbate their risk of injury and accidents.</p> |
| Financial status and benefits | Guaranteed income and partial health insurance (for permanent government employees); increased income; improved opportunities of land acquisition; and financial support (for private formal manual sanitation workers) (Zaqout 2018) | Low pay and financial and job insecurities |
| Social status | Improved social status compared with informal sanitation workers, but the social stigma and discrimination still limits social mobility. | <p>Social discrimination and stigmatization. Many live in segregated sweeper colonies, which are unhygienic slumlike areas offering poor and overcrowded living conditions.</p> <p>Dalits (low-caste Hindus) and Christian and Muslim Bengalis</p> |

table continues next page

TABLE A.1. continued

| | Formal sanitation workers | Informal sanitation workers |
|--|--|-----------------------------|
| Rights and protections | Occupational safety and health guidelines for pit emptying exist ^c and can be found in the Bangladesh Labor Act (2006) and the National Occupational Health and Safety Policy (2013). The Dhaka Institutional and Regulatory Framework for Fecal Sludge Management (2017) includes a clause on appropriate health and safety guidelines for emptying services. ^d Government employees are members of the government emptiers' union (Zaqout 2018). | |
| Quantifying the problem | There are an estimated 5 million to 6 million sweepers in Bangladesh. | |
| Overview of known progressive actions | <p>In Bangladesh, the Occupational Safety and Health Guidelines for Fecal Sludge Management (2015) was published by the OSHE with NGO support. These have been adopted by the Khulna city corporation and Jhenaidah and Kushtia Paurashavas. The Khulna city corporation then trained more than 40 private manual pit emptiers and certified them as safe service providers (ISF-UTS and SNV 2019). The Dhaka Institutional and Regulatory Framework for Fecal Sludge Management (2017) includes the clause: "The process of pit emptying involves significant hazard, and the City Corporations shall follow/enforce appropriate health and safety guidelines for emptying services. Until such a health and safety guideline is prepared and approved (by the LGD), the City Corporations shall follow available similar guidelines being practiced/promoted elsewhere."</p> <p>In Faridpur, a joint NGO-municipality initiative to improve the livelihood outcome of manual emptiers has provided training and capacity building and physical assets (they can lease a vacuum tanker from the municipality) to a group of manual emptiers (Zaqout 2018). As such, these emptiers enjoy a better social status, reduced vulnerability, and overall well-being. They do, however, continue to have financial burdens related to seasonal demand and the operation and maintenance costs of the vacuum tanker. Another group that registered as municipal workers now enjoys further benefits such as increased income, land acquisition, and financial support (Zaqout 2018).</p> | |

Notes: LGD = Local Government Division; NGO = nongovernmental organization; OSHE = Bangladesh Occupational Safety, Health and Environment Foundation; PPE = personal protective equipment.

a. In Khulna, for example.

b. For example, in Khulna, the city corporation then trained more than 40 private manual pit emptiers and certified them as safe service providers (ISF-UTS and SNV 2019).

c. In Bangladesh, the Occupational Safety and Health Guidelines for Faecal Sludge Management (2015) were published by the OSHE, with NGO support. These have been adopted by the Khulna City Corporation and Jhenaidah and Kushtia Paurashavas.

d. The Dhaka Institutional and Regulatory Framework for Fecal Sludge Management (2017) includes the clause: "The process of pit emptying involves significant hazard, and the City Corporations shall follow/enforce appropriate health and safety guidelines for emptying services. Until such a health and safety guideline is prepared and approved (by the LGD), the City Corporations shall follow available similar guidelines being practiced/promoted elsewhere."

TABLE A.2. Bolivia

| | Formal sanitation workers | Informal sanitation workers |
|--|---|------------------------------------|
| Overview of current practice | In Bolivia, on-site sanitation solutions are meeting the sanitation need in response to an otherwise low access rate to sanitation, rapid population growth, and high investment costs for conventional sewers and wastewater treatment plants. Consequently, small and medium private vacuum truck companies have emerged to meet the demand to empty pits and septic tanks. In cities such as Santa Cruz, emptying companies have been operating for more than 30 years without any official control or regulation (World Bank 2018). The services, therefore, need to be better regulated by the relevant sectoral actors. Workers display risky and unsafe behavior and practices during handling, transport, and disposal of fecal sludge. They do not wear PPE even if it is provided. Standards related to the collection and transport of fecal sludge have to be established and enforced. | |
| Types of work/ customers | Small and medium private vacuum truck companies serving public and domestic markets | |
| Typical contracting modes | Informal, unregulated | |
| Equipment | Mechanical exhauster vehicles used, PPE not typically used | |
| Occupational health and hazards | Risk of incidents and direct contact with fecal matter | |
| Financial status and benefits | | |
| Social status | | |
| Rights and protections | National OHS standards and standard operating procedures are under development. | |
| Quantifying the problem | | |
| Overview of known progressive actions | Some solutions that are being implemented in Santa Cruz include the use of a toilet technology that limits workers' exposure to fecal matter; the application of national OHS standards for sanitation workers; the standardization of procedures for collection, transport, and discharge of household fecal sludge focused on industrial safety and environmental protection; and training modules developed in partnership with universities. | |

Notes: OHS = occupational health and safety; PPE = personal protective equipment.

TABLE A.3. Burkina Faso

| | Formal sanitation workers | Informal sanitation workers |
|--|---|---|
| Overview of Current practice | Pits and septic tanks are emptied by mechanical and manual emptiers. This activity is not regulated and is highly informal. Manual emptiers in Burkina Faso are recruited either to fully empty the pits or to empty the thicker sludge once the liquid portion has been removed mechanically. They discard the waste in nearby open land or open drains (WaterAid 2018). Poorer households who cannot afford the services of manual emptiers may empty their latrines themselves. Manual emptiers in Burkina Faso are typically men older than 40 years old but sometimes are unemployed younger males looking for seasonal work. | |
| Types of work/ customers | Private service providers for domestic and institutions | Mechanical and manual emptiers serving domestic and institutions |
| Typical contracting modes | Registered with their relevant city administrations | Operating informally |
| Equipment | Mechanized vacuum trucks, often more than 20 years old, are used. | Manual emptiers typically use buckets, ropes, and shovels for emptying. They report consuming traditional medicine and applying a barrier product to their skin. They are unlikely to be equipped with protective clothing. Mechanized vacuum trucks, often more than 20 years old, are used. |
| Occupational health and hazards | Mostly untrained, sanitation workers repeatedly come into direct contact with human excreta. | Mostly untrained, sanitation workers repeatedly come into direct contact with human excreta. Manual emptiers typically enter the pits and tanks operating in enclosed spaces with noxious gases and no protective clothing. The consumption of drugs and alcohol by sanitation workers is not uncommon. |
| Financial status and benefits | | |
| Social status | Manual emptiers are often marginalized and work in neighborhoods/cities where they would not be recognized. | |
| Rights and protections | In 2017, the ABASE received a ceremonial honor from the Ministry of Water and Sanitation for its work in improving living conditions of sanitation workers in Ouagadougou (Réseau de professionnels juniors 2017). The ABASE provides a mechanism to organize and advocate for manual emptiers, as well as training and capacity building, and it helps in obtaining vaccines and equipment for the emptiers (pS-Eau 2018). It is not a formal union and does not offer any legal protection to the sanitation workers. | |
| Quantifying the problem | The number of mechanical emptiers is unknown. | There are 25 identified manual emptiers in Ouagadougou. |
| Overview of known progressive actions | In 2017, the ABASE received a ceremonial honor from the Ministry of Water and Sanitation for its work in improving living conditions of sanitation workers in Ouagadougou (Réseau de professionnels juniors 2017). This was a cumulative outcome of several activities supporting the manual emptiers and achieving recognition by the authorities. The ABASE provides a mechanism to organize and advocate for manual emptiers. It provides training and capacity building to make their work more hygienic and economically profitable, and it helps in obtaining vaccines and equipment for the emptiers (pS-Eau 2018). A joint NGO-municipality-utility effort in Ouagadougou sought to professionalize 25 manual emptiers there via training on health, hygiene, and safety. This initiative enabled them to dispose of the waste at the treatment plants, prepare business plans, and loan dedicated equipment for improved manual emptying from the municipality. The ABASE is currently lobbying the municipality to request ONEA, the utility, to provide transfer stations for the manual emptiers because the treatment plants are located far outside town. | |

Notes: ABASE = Association of Manual Emptiers of Burkina Faso; ONEA = National Office of Water and Sanitation; NGO = nongovernmental organization.

TABLE A.4. Haiti

| | Formal sanitation workers | Informal sanitation workers |
|--|---|--|
| Overview of current practice | <p>Vacuum truck companies service high-end customers and government offices (Hersher 2017). However, most sanitation work in Haiti is performed by the informal manual pit emptiers known as <i>bayakous</i>. Bayakous serve households as well as larger institutions such as schools, churches, and prisons. They are sometimes subcontracted by the mechanical emptying companies to perform the work. The bayakous of Haiti operate informally, typically in teams of three to four people (known as <i>bases</i>). The association of manual emptiers suggests that about 20 teams operate in the Port-au-Prince metropolitan area (World Bank 2017a). Pit emptying is done at nighttime, and if the work runs into another day, it will pause till the next nightfall. The bayakous use bleach and water for disinfectant and pit additives. They often work naked or with only rubber boots—because this facilitates cleansing after each job—using basic tools such as a bucket and a shovel. Even if protective gear is made available, workers rarely wear it because they deem it useless and cumbersome (Hersher 2017).</p> <p>In addition to the pathogenic contamination of direct contact with fecal matter, the occupational hazards include noxious gases, injuries, and infection from sharp objects such as razors, broken glass, or syringes, and injury or death from partial or full wall collapse.</p> <p>Workers are stigmatized and are forced to change their names to protect themselves and their families from further discrimination. Some households believe such workers to be mythical creatures. Financially, the bayakous' work offers a low and irregular income, and many seek alternative manual labor to support their families. However, their employment opportunities are limited because the stigma and ostracization can prevent social mobility.</p> | |
| Types of work/ customers | Vacuum truck companies service high-end customers and government offices (Hersher 2017). | Most sanitation work in Haiti is performed by the bayakous. |
| Typical contracting modes | Direct public or private | Direct informal or subcontracted manual labor to mechanical firms |
| Equipment | Mechanical exhauster vehicles | Basic equipment, rubber boots, and other PPE are uncommon. |
| Occupational health and hazards | | In addition to direct contact with fecal matter, occupational hazards include noxious gases, injuries, infection from sharp objects, and injury or death from wall collapse. Hazards are exacerbated by working in the dark. |
| Financial status and benefits | | Low and irregular income, seek other labor |
| Social status | | Social stigma and discrimination; some taboos |
| Rights and protections | | |
| Quantifying the problem | <p>A small number (about five) mechanical emptying enterprises work in Haiti, concentrated around the Port-au-Prince metropolitan area. These are largely absent from other cities. The association of manual emptiers suggests that about 20 teams operate in the Port-au-Prince metropolitan area (World Bank 2017a).</p> | |
| Overview of known progressive actions | <p>One social enterprise in Haiti has introduced a container-based toilet service in Port-au-Prince and Cap-Haitien, which covers the entire sanitation service delivery chain from collection through to treatment and reuse. Container-based systems mean there is no need for sanitation workers to enter pits, and the waste is contained and sealed in small containers at the household and then transported away by the sanitation workers for stabilization and safe disposal. The enterprise is implementing an SSP to manage risk along the sanitation chain. Sanitation workers are trained in standard operating procedures and given vaccinations and regular health checks to safeguard them while they are at work.</p> | |

Notes: PPE = personal protective equipment; SSP = Sanitation Safety Plan.

TABLE A.5. India

| | Formal sanitation workers | Informal sanitation workers |
|--|--|--|
| Overview of current practice | <p>A substantial formal and permanent sanitation workforce is now in India, with basic working conditions protected by law. However, undesirable and high-risk jobs are typically subcontracted to temporary informal workers. Manual sanitation work includes daily cleaning, carrying, disposing of, or otherwise handling untreated human excreta from latrines, open drains, pits, or railway tracks. Sewer workers and drain cleaners enter sewers and manholes to manually remove solid waste and other debris blocking the sewerage system. An estimated one manhole worker dies unblocking sewers by hand every five days in India (BBC 2018). This number may actually be larger because many deaths are underreported.</p> <p>Low-grade manual sanitation work is poorly paid. Workers most likely do not have fixed wages and are often victims of extortion—some workers report getting paid in leftover or basic food items (Human Rights Watch 2014). Both men and women work as manual sanitation workers. Those perceived to be of a lower caste suffer discrimination in health care, education, employment, access to land, and employment and wages. Human and employment rights are often violated because there are few real opportunities to move away from traditional low-grade occupations. Their occupation has a negative impact on their families' lifestyles and on their children's schooling and job aspirations because of stigma. Manual scavenging is prohibited by law. However, challenges remain regarding the systemic discrimination of groups perceived as being of a lower caste and the multiple layers of subcontracting the high-risk jobs to temporary and informal workers, for which oversight and enforcement of laws by local authorities are weak (Human Rights Watch 2014).</p> | |
| Types of work/customers | <p>Households, public and private institutions</p> <p>Women typically work the domestic areas and in schools, and men work on railways and in drains and sewers.</p> | |
| Typical contracting modes | Permanent government employees or private service providers registered with their relevant city corporations | Subcontracted manual labor by civil servants, public or private agencies, or individuals |
| Equipment | Equipped with technology: Some technological and robotic innovations to replace manual tasks are used (for example, robotic sewer cleaner tested in Delhi). | Workers use basic tools or bare hands; they are mostly untrained and ill-equipped. |
| Occupational health and hazards | | Direct contact with human excreta, with workers often operating in enclosed spaces that have noxious gases (Doron and Jeffrey 2018) |
| Financial status and benefits | Permanent wage, three times that of informal workers (Dalberg Advisors 2018) | Poorly paid; vulnerable to extortion |
| Social status | Those perceived to be of lower caste suffer widespread social discrimination. | |
| Rights and protections | Basic working conditions are protected by law. | Many of the most high-risk jobs are subcontracted to the most vulnerable informal and temporary workers, who have weak to no legal protection. |
| Quantifying the problem | <p>In Mumbai alone, the reported figures collected under the Right to Information Act (2006) showed an average of 25 sanitation worker deaths per month between 2002 and 2005. These figures are likely to be conservative because of unreported incidents and the figures relating to 14/24 BMC wards (Anand 2007). An estimated 5 million full-time sanitation workers are in India, with 2 million working in high-risk conditions (Dalberg Advisors 2017; Soju, Trivedi, and Purohit 2015). Despite prohibition of manual scavenging, 20,596 people identified as manual scavengers in 163 (of the 700) Indian districts.^a Other estimates suggest this number should be more than 70,000 (Dalberg Advisors 2017).^b Sixty to 70 percent of workers are located in urban areas, and 50 percent of these workers are women (Dalberg Advisors 2017).</p> | |

table continues next page

TABLE A.5. continued

| | Formal sanitation workers | Informal sanitation workers |
|--|---|------------------------------------|
| Overview of known progressive actions | <p>Manual scavenging was prohibited in India by the Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act (1993). In 2013, the law was extended and clarified to include insanitary latrines, ditches, pits, railway tracks, sewers, and septic tanks in the Prohibition of Employment as Manual Scavengers and Their Rehabilitation Act. This law calls for rehabilitation of manual scavengers and provides support for alternative employment and entrepreneurship opportunities. In practice, however, there remain several challenges to the implementation of the laws and emancipation of sanitation workers in India, such as the denial of authorities of the practice since the prohibition. Other challenges include combating the systemic discrimination Dalits face, which affects their education and real opportunities to become entrepreneurs, and the multiple layers of subcontracting that enable manual scavenging to continue without oversight or enforcement of laws by local authorities (Human Rights Watch 2014).</p> <p>Progress has been made in advocating for sanitation workers' rights and identifying appropriate solutions. Many local and international organizations (for example, Safai Karmachari Andolan, Navsarjan Trust in Gujarat and so on) continue to raise awareness and empower sanitation workers through capacity building and guidance and supporting leveraging trade union mechanisms to support sanitation workers. Standard operating procedures for cleaning sewers and septic tanks have been developed by the Ministry of Housing and Urban Affairs to eliminate hazardous cleaning, prevent accidents and casualties, and limit the risk of diseases resulting from improper practice of cleaning of sewers or emptying of septic tanks.</p> | |

Notes: BMC = Brihanmumbai Municipal Corporation.

a. A survey for the Indian Ministry of Social Justice and Empowerment.

b. The National Safai Karamcharis Finance and Development Corporation, which represents the manual emptiers.

TABLE A.6. Kenya

| | Formal sanitation workers | Informal sanitation workers |
|--|---|---|
| Overview of current practice | Emptying of pit latrines and septic tanks in Kenya is done by many small enterprises and individual manual and mechanical emptiers. Typically, the formal and mechanized exhauster services serve the middle- to high-income households, offices, and institutions, and manual emptiers operate in the lower-income-dense settlements because of cost (mechanical is more expensive) and vehicle accessibility of the plot (Eales 2005). In Kibera, a vast, informal settlement in Nairobi, 28 percent of households use manual emptying services (Blackett and Hawkins 2017). | |
| Type of work/customers | Mechanized exhauster services serving the middle- to high-income households, offices, and institutions | Informal manual emptiers serving the lower-income-dense settlements. Using teams of two to four men, contents are transferred to a 100-liter drum, which is placed on a handcart and wheeled to a nearby disposal site, typically a nearby ditch, stream, or wasteland. |
| Typical contracting modes | Formal public and private direct (theoretically, if not in practice, via the WSP) | Informal direct business |
| Equipment | Mechanical exhauster vehicles. Use of PPE is uncommon. | Manual emptiers' tools are a bucket on a rope and a shovel (sometimes rented) or sometimes plastic bags over their hands (Eales 2005). Emptiers typically pour paraffin in the pit before entering to mask the smell of the excreta. |
| Occupational health and hazards | Manual emptying is physically demanding work often done at night by torchlight, often without protective clothing such as boots, gloves, or masks. | |
| Financial status and benefits | Informal sanitation workers are poorly paid and are vulnerable to extortion. | |
| Social status | Manual emptiers are often subject to abuse by local residents and stigmatization. | |
| Rights and protections | | |
| Quantifying the problem | | |
| Overview of known progressive actions | <p>The UBSUP initiative targets 400,000 people in small and medium towns using on-site sanitation. It aims to formulate a national FSM approach, including new laws to prioritize on-site sanitation based on the principles of complete sanitation service delivery (Mballo 2017). By law, fecal sludge treatment services are to be provided by WSPs, but they have typically failed in this duty. The UBSUP provides a mechanism for the WSP to grow its own FSM knowledge and skills and in turn train, equip, and monitor manual emptiers and UDDT container teams to perform the essential sanitation services.</p> <p>In Kisumu, standard operating procedures and specific guidelines to explicitly protect sanitation workers' rights, including manual emptiers, have been developed and adopted at the city level (WSUP 2018). These specify that all employees must be immunized against typhoid, hepatitis B, and cholera; have health insurance; and receive training from the county public health office. The standard operating procedures also specify personal safety and emptying equipment, best practices for transporting and disposing of waste, and customer relations guidelines.</p> | |

Notes: FSM = fecal sludge management; PPE = personal protective equipment; UBSUP = Up-scaling Basic Sanitation for the Urban Poor; UDDT = urine-diverting dry toilet; WSP = water service provider.

TABLE A.7. Senegal

| | Formal sanitation workers | Informal sanitation workers |
|--|---|--|
| Overview of current practice | <p>In Dakar, 75 percent of the town's population using on-site sanitation systems rely on a combination of formal and informal mechanical and manual emptiers to service their tanks. As in Kenya, the formal and mechanized exhauster services serve the middle- to high-income households, offices, and institutions, and manual emptiers, known as <i>baye pelle</i>³, operate in the lower-income-dense settlements, predicated on the cost and vehicle accessibility. As in Burkina Faso, the exhauster trucks typically do not fully empty the tank, so manual emptiers are often called to complete the job. In Pikine and Guédiawaye, suburbs of Dakar, 52 percent of the population use manual emptiers.</p> <p>The baye pelle of Dakar work across the metropolitan area—they gain business by either walking through the neighborhood with the equipment they carry, signaling their occupation—or by occupying a location in the city where customers know they can find them. Their equipment includes a bucket, a shovel, and a long wire that allows them to judge the depth of the pit. In addition, they may use a mask or boots, and if they need to remove rocks (such as in a soakaway), gloves are useful. They take paracetamol before and after the work and drink milk after they have finished “to cleanse.” They typically add petrol to the pit before entering “to kill bacteria,” and they use cleaning products such as soap and bleach to cleanse themselves and their equipment after they have finished work. Their work is dangerous; wall collapse occurs in the baye pelle community, on average, once per month, with the frequency increasing in the rainy season. The work is physically demanding (emptying and carrying from one pit to another), and the gases are often overpowering. Furthermore, some customers add calcium carbide to the pits, known locally as “gaz,” which has a vigorous reaction when in contact with water. This is believed to facilitate emptying, but the emptiers do not like this because the acetylene gas that is produced is noxious. The baye pelle's main priority for improving their working conditions would be to not enter the pit. Occasionally, they rent a trash pump to remove the waste from one pit to another, but the rental cost and fuel cuts into an already narrow profit margin. Working in the informal sector and serving some of the poorest neighborhoods, their income is not high or stable; households often try to negotiate the price or even fail to pay the agreed-on fee. Workers usually work in other sectors—for instance, construction—to seek additional income (Water and Sanitation Program 2000).</p> <p>Manual emptying is sanctioned in Senegal by the National Code of Sanitation with a risk of criminal prosecution. Vacuum trucks are then required to transport the collected sludge to designated treatment plants (figure A.1). Enforcement relies on local hygiene officers with competing priorities and pressures and limited budgets (ONAS 2017).</p> | |
| Types of work/ customers | The formal and mechanized exhauster services serve the middle- to high-income households, offices, and institutions. | Informal mechanized and manual emptiers typically serve domestic customers. Manual emptiers operate in low-income-dense neighborhoods but also in higher-income areas to remove sludge that the vehicles cannot. |
| Typical contracting modes | Formal private—typically in teams of two to three people | Informal private |
| Equipment | Mechanical exhauster vehicles. Use of PPE is uncommon. | Mechanical exhauster vehicles. Manual emptiers use basic tools. Use of PPE is uncommon. |
| Occupational health and hazards | There is a high risk of contact with fecal matter. Mechanical emptiers typically do not wear PPE; it is not uncommon for a mechanical emptier to enter the chamber to complete the job. | Manual work is physically demanding and dangerous, and pit wall collapse is common. Workers have direct contact with biological and chemical agents and work in confined spaces. |
| Financial status and benefits | Unstable income; before recent project, difficulties to mobilize financial resources for truck operation and maintenance costs | Low and unstable income; day laborers |
| Social status | | |

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TABLE A.7. continued

| | Formal sanitation workers | Informal sanitation workers |
|--|--|------------------------------------|
| Rights and protections | Employees of the largest private-sector players benefit from regular health checkups, vaccines, and training on OHS. | Manual emptying is prohibited. |
| Quantifying the problem | | |
| Overview of known progressive actions | <p>The Association of Emptiers of Senegal has emerged as a best-practice case of formalization and professionalization of pit emptiers. Formed over the past 10 years, it provides a mechanism for the emptiers to organize in a context where many emptiers continue to operate informally. The association provides an interface for the utility and municipalities to be able to acknowledge and engage with one another.</p> <p>In 2012, the ONAS, which is responsible for urban sanitation, launched a program to improve the living conditions of low-income people living in periurban areas in the Dakar region, with activities to improve overall FSM in the city and make mechanical emptying more affordable. The program focused on professionalizing sanitation workers and included market restructuring, access to credit and parts for the mechanical emptiers, and building the capacity of public institutional actors. ONAS also delegated the management of fecal sludge treatment plants to the private sector. Employees of the largest private-sector players in the sanitation subsector benefit from regular health checkups, vaccines, and training on occupational health and safety.</p> | |

Notes: FSM = fecal sludge management; OHS = occupational health and safety; ONAS = National Sanitation Office of Senegal; PPE = personal protective equipment.

a. Literally means *father shovel* in Wolof.

TABLE A.8. South Africa

| | Formal sanitation workers | Informal sanitation workers |
|--|---|------------------------------------|
| Overview of current practice | <p>In South Africa, sanitation work is mostly formalized, with public and private employers following national labor standards. Public-sector sanitation workers include those who clean sewers and private contractors manage the pit emptying.</p> <p>Many of the on-site sanitation systems in South Africa are dry pits with compacted dry sludge, which is difficult to empty mechanically. Therefore, these operations include manual emptying. In partnership with eThekweni utility, appropriate emptying technologies have also been developed, such as the e-Vac, a portable pump, to reduce the need for manual emptiers to enter the pits.</p> <p>Manual emptying presents multiple microbial and physical hazards to the sanitation worker. All sanitation workers are made aware of the hazards, are provided with PPE, and work in daylight.</p> | |
| Type of work/ customers | <p>The sector is mostly formalized, with public and private employers. Sewer cleaning is done by public workers; pit emptying is done through large private contractors.</p> | |
| Typical contracting modes | <p>Pit emptying services provided under large annual or multiyear contracts issued by municipality to private contractors. Contractors hire unskilled laborers on a minimum wage. Municipal workers (sewer maintenance) are employees with long-term employment contracts.</p> | |
| Equipment | <p>Vacuum tankers are not suitable for compacted dry sludge; emptiers use shovels as well as technological innovations to avoid having workers enter pits.</p> | |
| Occupational health and hazards | <p>Sanitation workers are made aware of potential risks and provided with PPE. Reported accidents are those in which PPE has not been used.</p> | |
| Financial status and benefits | <p>Unskilled sanitation workers are typically paid minimum wage by contractors. Municipal workers are paid almost double, with additional benefits (13th-month salary).</p> | |
| Social status | <p>Municipal sanitation workers are considered to have a formalized occupation and are "eligible bachelors" (those who have a good, stable income, and so on). Contractor employees may be unskilled temporary labor (sometimes migrant workers).</p> | |
| Rights and protections | <p>Worker conditions are regulated by the Basic Conditions of Employment Act (1997), the National Occupational Health and Safety Act (1993), and the Regulations for Hazardous Biological Agents (2001). Municipal workers are union members.</p> | |
| Quantifying the problem | <p>In eThekweni, there are approximately 100 pit emptiers on any given day through 15 private contractors, plus 800 municipal sanitation workers. Accidents are reported under the National Occupational Safety Association, but it is difficult to disaggregate data.</p> | |

table continues next page

TABLE A.8. continued

| | Formal sanitation workers | Informal sanitation workers |
|--|---|------------------------------------|
| Overview of known progressive actions | <p>In South Africa, there has been a policy shift toward acknowledging on-site sanitation systems as a viable sanitation option, spearheaded by municipalities such as eThekweni and Cape Town (Blackett and Hawkins 2017). eThekweni municipality is a well-known example of strong leadership from the utility and technological innovation to achieve the national goal of providing sanitation services to everyone in a sustainable manner while respecting labor and OHS laws and mitigating occupational risks for the sanitation workers (WRC 2015). In South Africa, sanitation work is regulated by the Basic Conditions of Employment Act (1997); the National Occupational Health and Safety Act (1993), which charges employers with protecting worker health and safety; and the Regulations for Hazardous Biological Agents (2001), which mandate that any person who may be exposed to a biohazard must comply with the employer's instructions, such as wearing PPE, reporting accidents, and completing training or medical examinations. Strong trade unions have also had a great impact on such formalization and improvements of working conditions.</p> <p>The municipality has worked with large contractors, under large annual or multiyear contracts. The regulatory framework in South Africa protects workers' right. Contractors have a duty to provide their employees with PPE and will check compliance of workers when on-site. The health and safety inspectorate also performs a spot-check of contractors.</p> | |

Notes: OHS = occupational health and safety; PPE = personal protective equipment.

TABLE A.9. Uganda

| | Formal sanitation workers | Informal sanitation workers |
|--|---|---|
| Overview of current practice | In Kampala, fecal sludge is collected and transported by the KCCA and by a large network of informal and unregulated private operators. Most vacuum trucks operate informally without a certificate of incorporation, trading license, environmental license, or a formal office. Manual emptiers work in an unhygienic setting, generally using a broken jerry can and a rope to empty pit latrines. Pits are used to bury the waste locally, or a new pit is dug alongside the original pit, allowing the contents to flow into the new pit. The latter situation carries a high risk of wall collapse (Bwengye-Kahororo 1997). Chemical additives are also marketed to "catalyze the biological process" and "reduce volumes." The chemical composition of these products is not well-documented, and emptiers report that these additives make their work more difficult and pit walls are being corroded by the practice (Bwengye-Kahororo 1997). | |
| Types of work/ customers | KCCA provides mechanized emptying services. | A large network of informal and unregulated private operators; mechanical emptiers serving the middle- to high-income areas; manual emptiers serving the lower-income areas (burying the waste locally or a digging a new pit alongside the original, which allows the contents to flow into the new pit) |
| Typical contracting modes | | Direct, informal, unregulated |
| Equipment | Mechanical exhauster vehicles | Mechanical emptiers work with exhauster trucks; manual emptiers use basic equipment. PPE use is rare. A broken jerry can and rope are used to empty pit latrines. |
| Occupational health and hazards | | Manual work is unsafe, time-consuming, and labor-intensive; pit wall collapse is common. Hazards include direct contact with biological and chemical agents and working in confined spaces. |
| Financial status and benefits | | |
| Social status | | |
| Rights and protections | | The private emptying operators organized in two associations effectively help organize the informal private vacuum truck operators but offer no legal status. |
| Quantifying the problem | The association membership is more than 100 service providers. | |
| Overview of known progressive actions | Small FSM enterprises testing purpose-built technology to assist manual emptiers and reduce their contamination risk include Forever Sanitation, which uses a Gulper technology to remove the bulk of the waste from the pit. Their business includes standard operating procedures for workers, where health and safety are important and the workers wear rubber boots, gloves, and protective clothing and clean up any spillages as they work (Blackett and Hawkins 2017). | |

Notes: FSM = fecal sludge management; KCCA = Kampala Capital City Authority; PPE = personal protective equipment.



Julius Chisengo, 49, sanitation worker, looking on as a colleague switches on a pump to start emptying the latrine, Dar es Salaam, Tanzania, June 2019. © WaterAid / James Kiyimba. Used with permission. Permission required for reuse.



APPENDIX B

Areas for Future Study

The aim of future work in this topic would be to build the body of knowledge on sanitation workers to identify evidence-based practical next steps, notably as follows:

- Clear actions for improving occupational health and safety (OHS) for sanitation workers in the context of sanitation development and service improvements
- Evidence-based policy and regulatory recommendations
- Guidance for development partners for integrating (and piloting) these actions into organizations' own performance measures, sanitation operations, and projects

These steps would likely fall under the following lines of inquiry:

- **Quantification and profiling the sanitation workforce¹ (where feasible):** This step would include researching the number of workers (formal and informal, public or private, permanent or temporary) and the segment of the service chain in which they work. Research would include the type of work done, social status, and economic conditions of the workforce (particularly if the workers remain informal). It would specifically include low-grade, manual, and informal laborers as much as possible and those in low- and middle-income countries. If feasible, it would also quantify the disease burden of the sanitation workforce. Issues related to gender and child labor also need to be investigated.
- **Policy, regulatory, and legal issues:** Relevant legislation might include international human rights and employment conditions; basic terms of employment (for both permanent employees and fixed-term and temporary workers); health and safety at work and related to specific hazards; and freedom of assembly. The following questions should be answered: What are the global, sector-specific, and national norms, regulations, policies, standards, and laws that govern workers in this sphere? Which International Labour

Organization (ILO) standards are relevant and have been ratified? Is there a natural cascade from the ILO and human rights conventions through national labor and OHS law, through sector provisions and requirements? Where are the gaps? Which are the concerned agencies? Who is responsible for what? Is there policy research to improve compliance and enforcement appropriate to the protection of sanitation workers? What are the financial implications of the reform and formalization of the sanitation workforce to ensure demand for unsafe low-cost informal services by both households and public and private sectors does not perpetuate the practice?

- **Institutional arrangements, with a focus on contracting modes and management:** The following questions should be answered: Who is responsible for what? Where does the optimal locus of responsibility for safeguarding sanitation workers lie? Who is responsible for contractor management? What does a contract management model look like for the deployment of a temporary and informal workforce and their contractual terms and conditions? Where would codes of conduct best be inserted in a contracting chain (for formal workers)? What does an effective enforcement and inspection look like?
- **Impact of interventions:** Evaluating the impact and determinants of different interventions for sanitation workforce (that is, improving working conditions and professionalization or creating entrepreneur and exit strategies for sanitation workers and their children) is important. The following question could be investigated: What are effective methods for mitigating occupational

risks of sanitation work, particularly in low- and middle-income countries? Best-practice and enabling factors that allowed for progress in the professionalization of sanitation work and the eradication of manual sanitation work or empowerment of sanitation workers should be documented.

- **Parallels with other sectors:** What lessons and best practices can be learned from other sectors (specifically, related to reframing the issue to generate a positive attitude toward sanitation work)? What are relevant models of professionalizing and monetizing formal and informal sectors?² Special attention should be given to temporary or informal or otherwise vulnerable groups (such as what happens to informal workers when the sector is formalized). What retraining or redeployment mechanisms have worked? What are the enabling factors?
- **Allies and stakeholders:** Who is supporting work in this sector around the globe (both internationally, nationally, and locally)? Where are the entry points for policy influence? What set of requirements come into force with donor-financed interventions? What opportunities exist to build on the outreach and grassroots presence of local civil society organizations?

Notes

1. Noting there are significant difficulties in collecting data at the lower-grade level because workers may be elusive to find, unwilling to identify themselves, or identify under multiple trades (or all of these).
2. Specifically, the solid waste management sector—for example, there is a web platform in India called I Got Garbage to connect informal workers with services needed in the waste management sector.

