



Developing standard operating procedures for sanitation workers working with urban utilities in Pakistan

Touqeer Ahmad Abbasi and Iqbal Badruddin

Abstract: *It is now globally recognized that sanitation workers face a fatality risk that is 10 times higher than workers in all other industries, and their injury risk is 2.5 times higher than that of miners. Pakistan is the most urbanized country in South Asia and most of the urban population resides in 10 large cities of which five are in the province of Punjab. In Punjab province, these big cities are Rawalpindi, Gujranwala, Multan, Lahore, and Faisalabad. The poor use and maintenance of sanitation systems aggravate the problems of sanitation workers. There were no standard operating procedures (SOPs) for the sanitation workers and due to the absence of such SOPs, the lives of these workers was at continuous risk. WaterAid Pakistan triggered this discussion among the utility managers of the five big cities of Punjab, two large cities of Sindh, one from Balochistan, and two from Khyber Pakhtunkhwa provinces. All these utilities are members of the steering committee of the Pakistan Water Operators Network (P-WON). This triggering paved a way for the consultative process for the safety of sanitation workers in the water and sanitation agencies of these utilities. The process resulted in the formulation of precautionary measures for manual desilting of sewers by the sanitation workers.*

Keywords: sanitation workers, Pakistan Water Operators Network (P-WON), standard operating procedures (SOPs)

In most of the municipalities of Pakistan where water and sanitation agencies operate, sanitary workers are often ill-equipped and are not well-trained to adopt safer, healthy practices in their day-to-day work. These workers are exposed to life-threatening conditions because of discriminatory attitudes from the administration and poor safety equipment. The majority of the sanitation work is being done by the Christian community and to some extent by the Hindu community. The Muslim community do not undertake this job as it is not considered a decent job in their religion. The cities in Pakistan are facing huge problems with their sewage networks and this is all due to the unfavourable working conditions of sanitation workers. In most of the cases their demands are not properly addressed and this is now emerging as a major area of concern in most of the municipalities and large cities. Mostly these sanitary workers are responsible for cleaning drains, collecting garbage, and sweeping roads. These workers are highly vulnerable to harmful pathogens due to the absence of preventive measures. The workers do not receive proper treatment

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because good quality health services are not available and this results in a huge expense on health care from their monthly income. In most of the cases these workers are hired on a contractual basis and their contract is extended after completion of every contract period; they are not considered a regular employee of the organization. This creates a fragile economic environment for these workers making it difficult for them to access credit facilities. In Pakistan, women are more involved in sanitary work as cleaning is considered their domain. Lack of an administrative framework for sanitation workers leaves them in limbo.

Keeping in mind the above-mentioned conditions, a consultative process for the safety of sanitation workers in the water and sanitation agencies was triggered at a higher level by WaterAid Pakistan. The status of current health and safety measures of the sanitation workers was discussed. The discussion revealed that this was a neglected area of concern and needed special attention from the employing agencies. It was realized that this issue needed to be addressed in a consultative process so that the social will was there to address the issue in an effective and efficient manner. The consultative process was triggered by WaterAid through Pakistan Water Operators Network (P-WON), as WaterAid Pakistan is a member of the advisory committee of the network. WaterAid Pakistan played an influential role in including this important issue as an agenda item of the steering committee meeting. This issue was taken very seriously and led to the formulation of health and safety guidelines for the sanitation workers. This paper explores the health risks attached to the work and lack of occupational protection for sanitary workers, and provides recommendations for their safety, thus enabling a healthy working environment.

Method

This paper has been written based on situational analysis by the researchers, exploring the existing working environment of the sanitation workers, interaction with members of the P-WON steering committee, and qualitative information based on a number of reports.

Results and discussion

The discussion triggered by WaterAid Pakistan concluded with a fruitful document for the safety of the sanitation workers. The main purpose of the discussion was to ensure the safety of each sanitation worker while maintaining the existing sewage networks. The discussion among the steering committee members revealed that different equipment was used for specific purposes such as cleaning the sewage networks and garbage collection. While cleaning, one of the major issues was disposal of removed bed material from the sewage lanes.

The discussion revealed that it was common practice for sanitation workers to enter the manhole, and in most of the cases the manholes were more than six feet (1.8 metres) below ground level, as most of the systems were constructed

20–30 years ago. The manual scavenging of such manholes was considered the most dangerous activity and it was discussed that such manholes should be declared no-go areas for the sanitary workers. Discouraging manual desilting would mean enhancing the use of machinery for mechanized desilting. But still there were certain areas where the transportation of such machinery was very difficult as the streets were very narrow. So, it was decided that in case of manual desilting, proper precautionary measures would be taken into consideration. The precautionary measures would start from the detection of hazardous gases in the manhole that include checking for the presence of methane, ammonia, and carbon monoxide, among others. These gases were the major reason for the noxious smell that previously affected health sanitation workers. It was shared in the meeting of the steering committee that some of the sanitation workers experienced deficiency of oxygen, suffocation, nausea, dizziness, headache, unconsciousness, and even death. It was decided that to avoid severe effects, it would be better to measure the quantity of hazardous gases before the operation. Different methods for gas detection were discussed and the use of a gas detector was considered the most efficient. During the discussion it was decided that entry of sanitation workers in manholes exceeding the normal range of hazardous gases would be banned, and the heads of the water and sanitation agencies were present in that meeting. Mechanisms for exhaustion of such gases should be in place. A gas detector was considered the most suitable device as it was easy to operate and transport. Some of the technical experts shared that this device was the most efficient for detecting and monitoring gases. The harmful gases could be easily seen on the monitor and the device included features such as vibration, alarm, auto-calibration, and backlighting on a large LCD display. Different levels of gases in the manholes were discussed as indicated in Table 1.

Different methods for exhaustion of the dangerous gases present inside the manholes were discussed by the steering committee and included the following:

- The manhole should be kept open for a long time to exhaust some of the gases, but not completely.
- To extricate combustible gases from the manhole, throwing in some burning material will help.

Fatal gases must be cleared using different methods. First, displacing gases by using an air compressor and lowering the compressed air pipe into the manhole. Second, the gases present in the manhole should be blown to other manholes if

Table 1 Dangerous levels of gases

<i>Gas</i>	<i>Gas property</i>	<i>Normal level (%)</i>	<i>Dangerous level</i>
Oxygen	Essential for life	20.9	Less than 19%
Methane and hydrogen	Combustibles	0.00	20%
Carbon monoxide	Toxic and poisonous	0.00	400 ppm
Hydrogen sulphide	Poisonous and toxic	0.00	150 ppm

Source: P-WON (2016)

Note: ppm = parts per million

space is available, and if there is no space it would be discharged to the surface. Usually for a sewer worker, entering and coming out of the sewerage system was very hard and dangerous. In this process, their life was always at risk. Using proper equipment could save time and ensure the safety of these workers. During the steering committee meeting, discussion was held on how to enter the drains and the method of coming out of these drains after cleaning.

In most of the cases the sanitation workers use ropes to enter manholes which proved to be quite dangerous. The steering committee members encouraged the use of a winch-mounted tripod for entering the manhole. It was shared that use of a winch mount helped in preventing sanitary workers from falling while they entered the manhole. It also provided ample space for the sanitation workers to perform their duty. In addition to this it was realized that sanitation workers should be provided with safety helmets, head search lights, long boots, hand gloves, waterproof suits, rechargeable emergency lights, distress monitors, full face masks, gas detectors, and respiration systems. Sometimes sanitation workers are supposed to work while entering the water or sludge. In this case they must be provided with the proper equipment so that they can easily breathe and perform their duties in an effective and efficient manner.

The primary equipment was considered to be the most essential, and these were safety helmets, watertight head search lights, long boots, hand gloves, and respiratory masks. Along with all the primary equipment, some important items like full face mask, dry suit for diving in water, compressed air, oxygen cylinders, and lastly the use of an airline harness for mounting the cylinders and air regulator on the back of the worker were also considered important while working. Furthermore, a respiratory system was deemed of utmost importance during the steering committee discussion, comprising a safety helmet with full face mask, breathing hose, air regulator, waist belt, and compressed airline. A high pressure compressor was also reviewed in the P-WON steering committee meeting and its working parameters were also shared as given in Table 2.

The fresh air respirator system was discussed as a comprehensive approach to worker protection based on different comfortable-to-wear modules. It could be selected to give different types of protection from numerous hazards ranging from respiration to eye infection, thus protecting the whole body from harmful infections.

Table 2 High pressure compressor parameters

Pressure rating	300 bars
Working pressure	225 bars
Prime mover	Single phase electric motor
Power	2.2 km
rpm	2,240
Charging rates	80 litres/min
Cylinder filling time	25 minutes
At site operation possible	4 kVA generator

Source: P-WON (2016)

Challenges

Access to basic needs like safety of the sanitation worker remains a key challenge for the water and sanitation agencies and urban utilities in Pakistan. One of the main issues which is hindering the process is the cost of providing such equipment to be used by the sanitary workers. Challenges are often linked to financial stability of the service providers (Seetharam, 2015). Here the utilities are not in a financial position to bear the cost of such expensive equipment. It is also realistic to acknowledge that there may be barriers to encouraging decision makers and policy makers to pay today to protect the future of these workers. However, effective collaboration and partnership among stakeholders will be helpful in advocating the issue.

Opportunities

While being neglected from the start, it is now the right time to knock on the doors of the policy makers for advocacy. Increasing demands by sanitation workers in almost every part of the country following the establishment of solid waste management companies provides an opportunity to embed the rights of sanitation workers in their service contract. As an essential part of society, the sanitation workers are of equal importance and should be given their rights.

Conclusion

The discussions between WaterAid and P-WON have paved the way in identifying, understanding, and predicting the basic problems faced by sanitary workers in Pakistan. This was the first time utility heads discussed this issue personally and precautionary measures were taken through the experts deputed in different utilities. These health and safety guidelines were unanimously accepted by all water and sanitation agencies and they agreed to create a safer and healthy environment for the sanitation workers. The objective behind this study was to produce a clear set of standard operating procedures, so that the responsible authorities can act towards improving the livelihoods and the working conditions of the sanitation workers around the country.

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