

## Research Article

# Water, Sanitation, and Hygiene for Small Shopkeepers: A Perspective from Bangladesh

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Submitted: 05 March, 2017

Accepted: 21 April, 2017

Published: 24 April, 2017

ISSN: 2333-7141

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**OPEN ACCESS****Keywords**

- Small shopkeeper
- WASH
- City
- Sustainable development
- Bangladesh

**Abstract**

Water, sanitation and hygiene (WASH) facilities and programs for small shopkeepers (SSKs) in low and middle income countries have not been explored in detail in the scientific or grey-literature or developmental initiatives. This scoping study employs a structured questionnaire survey, semi-structured key informant interviews, and focus group discussions with SSKs in Dhaka City, Bangladesh, as well as interviews with officials from government and non-government groups. The study revealed that the majority of the SSKs are typically categorized as a floating population, leading them to face a range of problems associated with WASH such as absence of relevant statistical data, unhygienic sanitation technologies, insufficient public baths and toilets, unsafe drinking water, and lack of awareness of safe personal WASH behavior. All respondents experienced WASH-borne diseases such as diarrhea, stomach infections and pains at least once a month, resulting in a loss of 10% of monthly income on average. Based on these findings, it is recommended a census be conducted in order to collect proper statistics on SSKs to develop and implement both technical initiatives (e.g. safe drinking water points) and non-technical programs (e.g. awareness) to improve conditions for this marginalized population and contribute to the sustainable development goals in Bangladesh and globally.

**INTRODUCTION**

It has been recognized that global water supply and sanitation is one of the most pressing issues currently facing society. A decade ago, more than 50% of hospital beds globally were occupied by patients suffering from water- and sanitation-borne diseases such as diarrhea, intestinal helminth infections, dracunculiasis, schistosomiasis, and trachoma [1]. Today, nearly 1 billion people still practice open defecation, which significantly increases the vulnerability of poor and marginalized people to a large range of health risks [2]. This might be still happened due to various challenges in delivering the water, sanitation and hygiene (WASH) services to many unreached population or communities with complex situation in the world [3], and also may be due to lack of global and national strategies to link between WASH and neglected tropical diseases [4]. Among these marginalized people are a growing number of urban and peri-urban small shopkeepers (SSKs). Water, sanitation and hygiene (WASH),

however, is not merely isolated to the provision of clean water but also encompasses the structural nature of environmental, health, and social policy decision-making and implementation that influences vulnerability to waterborne diseases. The United Nations Sustainable Development Goals (SDGs) stipulate that by 2030 universal and equitable access to safe and affordable drinking for all should be achieved. In addition, the SDGs include the goal of access to adequate and equitable sanitation and hygiene for all, and an end to open defecation. However, without addressing the global issue of SSKs it will be challenging to achieve the UNs lofty goals for universal water and sanitation by 2030 [5], to protect human health, and to achieve the safe manage of fecal waste around the world [6].

In developed countries, a 'small shopkeeper' is defined as one who operates a business with no more than the equivalent of three full-time staff [7]. However, in developing countries, such as Bangladesh, there is little definition or recognition of small

shopkeepers and their WASH issues in the literature. In wealthy countries, shopkeepers, either small or large, generally have strong social networks with other key community members, such as customers, suppliers, employees, moneylenders, family and friends [8]. Although SSKs have significant social influence, this social group is not integrated within the general 'working class community' [9]. No global estimation of SSKs can be found in the literature, particularly in low or middle-income countries. A study conducted by the Asian Development Bank (ADB) [10], found that one fourth of respondents in the urban areas of Bangladesh have their primary job in informal enterprises (2012). In our study, a SSK is defined as an individual who manages a business that is contributing to the informal economy of the country, and doing so with no more than the equivalent of two full-time staff. Only informal SSKs, also referred to as informal enterprises, were considered for this study. These informal SSKs operate their business in external locations that are not attached to formal market places.

Floating<sup>1</sup> or homeless populations are a chronic concern in mega cities around the world, such as Dhaka City in Bangladesh [11]. A large portion of this population, namely slum dwellers and other extremely poor individuals, are engaged in small businesses such as small tea stalls, cigarettes stands, betel leaf, and small juice shops. No empirical data on the WASH habits of small shopkeepers exists in the grey or scientific literature or in development documents, specifically in low-income countries. There are also very limited studies on sanitation for floating and homeless populations [11,12]. Safe water supply, improved sanitation facilities, and appropriate hygiene practices are essential to protect these groups from WASH-borne hazards [13], and ensure hygienic services for their customers. However, these groups generally suffer from a lack of safe drinking water as well as a lack of appropriate facilities for defecation and urination. As a result, they are at greater risk of being affected by diarrhea, stomach

infection, and other WASH-borne diseases. Furthermore, SSKs may facilitate the spread of these diseases due to their lack of knowledge on proper WASH facilities. Therefore, the inclusion of SSKs in the planning and implementation processes of WASH policy is vital to achieving the SDG WASH target for 2030. However, SSKs are rarely considered in practice. Consequently, this paper argues for the greater inclusion of SSKs in the development and implementation of WASH programs by both governmental and non-governmental agencies. This study was conducted in the urban region of Dhaka City, Bangladesh, in an attempt to address the socio-economic situation of SSKs identify their major WASH related problems with the aim of developing policies and programs to improve their WASH situation and advocate for them.

## MATERIALS AND METHODS

This study employed both qualitative and quantitative methods to examine the socio-economic situation and WASH related problems facing small shopkeepers in the study area of Dhaka City, Bangladesh. These methods consisted of transect walks, semi-structured key informant interviews (15), focus

group discussions (5), and structured questionnaire surveys (n=210) with SSKs in different locations in Dhaka City (Figure 1), as well as interviews with officials from government and non-government groups.

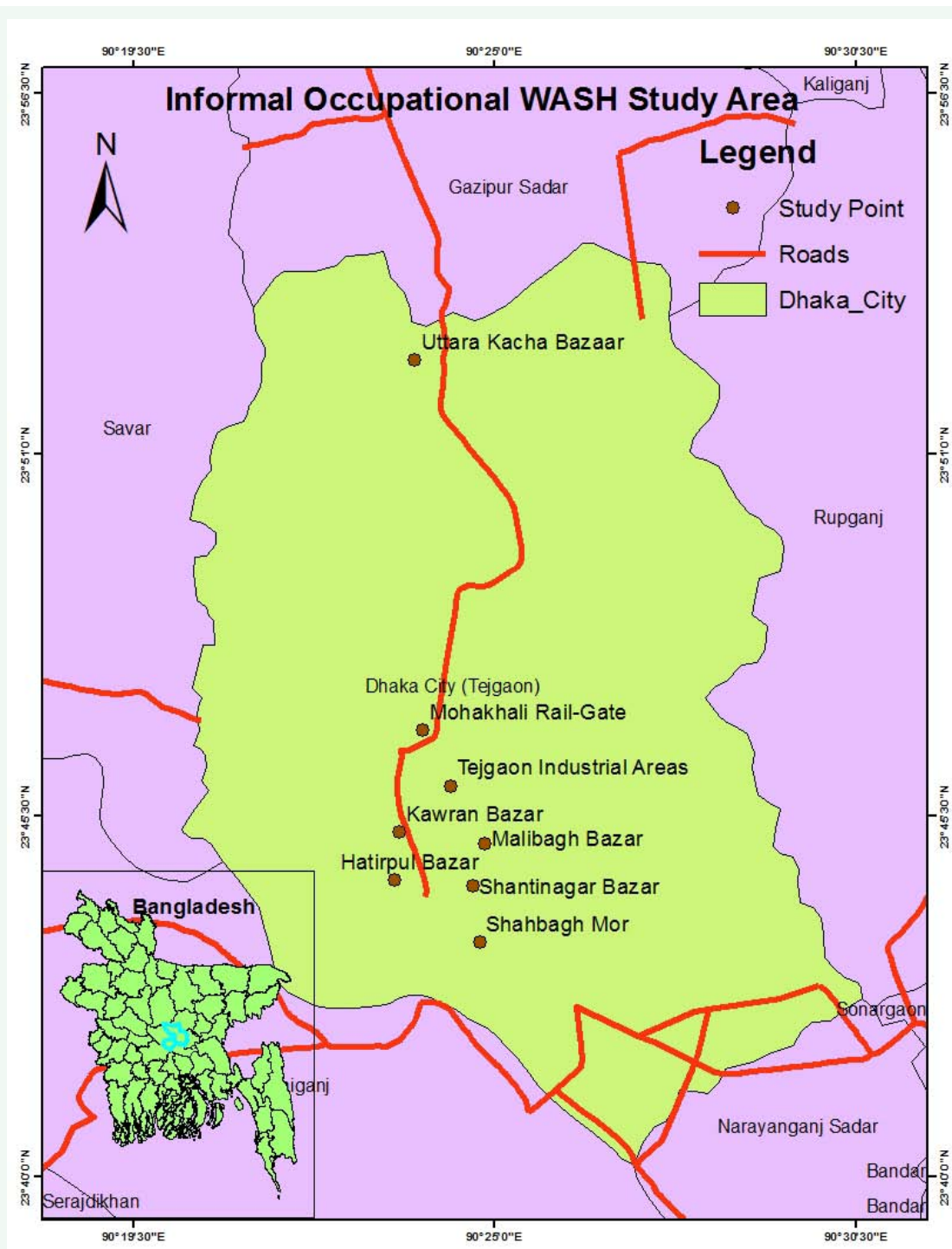
As we do not know the exact number of SSKs in the Dhaka City, 210 samples have been collected based on the quantitative methods described in Henderson & Sundaresan (1982). Seven sites/clusters have been grouped and 30 individuals have been randomly chosen from each cluster during the period of January 2013 and October 2015. Seven cluster included: 1)Kawran Bazar; 2)Malibagh Bazar; 3)Hatirpul Bazar; 4)Shantinagar Bazar; 5) Uttara Kacha Bazaar, 6)Shahbag, and 7)Mohakhali Rail-Gate and Tejgaon Industrial Areas. Secondary data were collected from books, journal articles, and papers. Statistical analysis tools (SPSS) were used for the calculation of final results and projections.

The observational method was employed during transect walks along the transects of each study location to assess the availability of WASH facilities near shops, their hygienic practices, and the availability of safe drinking water points. Transect walks also created an opportunity to discuss with target people and key informants about the existing WASH facilities in their area. Five focus group discussions (FGD) were executed in five study locations to understand the overall WASH context in the areas, assess access to safe drinking water and sanitation facilities, and help envision future steps and programs. Each FGD consisted of an average of eight individuals; the approach described by Kitzinger [14] was followed where six or more participants are grouped to discuss and allow information gathering by a facilitator/researcher either by note taking or by audio recording. The groups may be formed of people who work together or drawn together specifically for research. Fifteen key informant interviews (KII) were also conducted with key leaders of the shopkeepers and their associations as well as key government officials from the Bangladesh Bureau of Statistics (BBS). KIIs were designed based on the guidelines outlined in a study by Kumar [15]. A structured questionnaire survey was conducted among the small shopkeepers using a clustered random sampling method [13], due to the scattered natures of samples and the mobility of some shopkeepers. There was not ethical approval required for this scoping study from any Bangladesh authority. However, the importance was given to seeking the informed consent from the respondents before the interview and surveys.

## RESULTS AND DISCUSSION

### Locating SSKs and their business types

Structured questionnaire survey shown that 75% of the respondents are male shopkeepers and rests of the them are female. The results from the KII and transect walks highlighted many of the places where SSKs engage in business activities. These include places such as footpaths, footbridges, parks, streets, near railway tracks and bus terminals, as well as in proximity to markets or shopping malls. Structured questionnaire surveys revealed that 70% of people live in slums, 20% live with relatives, and 10% live in shared houses. SSKs are engaged in variety of types of business and occupations, these include fruit retailers,



**Figure 1** Study locations in Dhaka City, Bangladesh.

tea sellers, betel leaf retailers, cloth businesses (tailoring), juice sellers, vegetable retailers, newspaper sellers, cosmetics retailers, rickshaw repairing, cake/pizza and bread retailers, shoe retailers, and small floating restaurants. Most SSKs businesses were found to be unhygienic, with limited access to safe drinking water and insufficient sanitation facilities for their daily activities, such as toilets and washing/bathing facilities. Unhygienic WASH practices such as a lack of hand washing, drinking unboiled water

and open urination and defecation were very common among the SSKs. This may be due to a lack of knowledge, proper habits, and WASH initiatives. Access to a safe water supply and improved sanitation are very limited. Most of the respondents and their surroundings were affected by or highly vulnerable to various factors including infectious and waterborne diseases, pollution, unsafe water sources, unhygienic business conditions, winter cold weather, urban flooding and water logging [16-18].

## Factors behind shop keeping

Results from the questionnaire survey revealed that two thirds of respondents came from low-income regions, like the southern part of Bangladesh, and the rest migrated from other parts of Bangladesh due to several factors. These factors included riverbank erosion, natural disasters (e.g. Super Cyclone SIDR, cyclone Aila), lack of income sources, insufficient capital, local conflicts, and lack of decent jobs. The majority of respondents believed that people were migrating to the city due to several recent climatic events, particularly in the southwestern coastal region of Bangladesh (e.g. Super Cyclone SIDR (2007) and Cyclone Aila (2009)). Other reasons contributing to the migration and shopkeeping in Dhaka City include a lack of fresh drinking water in the region, the spread of disease, salinity intrusion in the coastal belt, the increasing number and frequency of natural disasters, insufficient management of polders and embankments in coastal areas, and political unrest leading to safety concerns. Additionally, there are other factors that have triggered the migration to Dhaka City, such as comparatively fewer natural disasters in the city than in coastal areas, income security, availability of food, and job security. The contribution of similar factors towards the migration of homeless people to Dhaka City is supported by a recent study conducted by Uddin et al. [10]. Among the respondents, 78% of SSKs were male and 22% were female. Average monthly income of the respondents ranged from 3000 to 10000 BDT (40-130 USD). This is a relatively small monthly income that has negative implications for livelihood. The income of SSKs varied seasonally. The best season for business was found to be winter (October-January), followed by summer (February-May). However, the rainy season (June-September) was not suitable for outdoor stands and stalls and this led to a decrease in income during this period.

## Defecation and urination

Survey results show that the majority (80%) of shopkeepers defecate in toilets located in religious centers (e.g. mosques), market places or in public toilets near their shops or high rise buildings. The remaining 20% of shopkeepers defecate in open places, particularly during the night. Urination in open spaces is a very common practice among shopkeepers due to a lack of facilities around their shops; typically solid waste dustbins are used when there is no other alternative available. The majority of the respondents (90%) said they were willing to spend a small amount of money (2-5 BDT) to have access to a better toilet system near their shop. This amount is sufficient to allow them access to existing pay-to-use public toilets. However, in the areas where market toilets do exist, they are not adequate and there are only 2 to 3 stalls for ~300 market shopkeepers. Therefore, access for small shop keepers is limited. Furthermore, these toilets are typically supervised by market authorities and access is often denied by the security guards at large markets. Additionally, the physical conditions of the toilets inside the local markets are typically unhygienic. Female SSKs are generally reluctant to use market toilets or mosque toilets due to socio-cultural barriers and a lack of security. This leaves women vulnerable and many become the victims of unwelcome interactions and physical harassment by men when they use the WASH facilities near their business or in market places. Due to this women typically go to

their homes for defecation or urination, which is time-consuming and may negatively impact their business.

## Other problems encountered by SSKs

The results from the survey and FGDs, demonstrate that the availability of safe drinking water is a major concern for SSKs. SSKs must spend 1-2 BDT for each glass of water from a shop. This translates into an expenditure of approximately 450 BDT per month to buy drinking water from shops, which may not be feasible for low-income shopkeepers. This price tag comes with no guarantee that this purchased water is safe for potable use. Sometimes drinking water vendors collect low quality water from pumps nearby their shops rather than from authorized water companies. The survey results show that 70% of shopkeepers take their daily meal inside their shop, generally located on the roadside. The remaining 30% eat their daily meal in their home, which is located near their shop. The survey also found that 75% of respondents take their bath in an open space, such as a pond or government authorized water point, during the early morning or late night, while the other 25% use bathrooms in markets and high rise buildings to bathe themselves. Finally, 80% of shopkeepers are unable to wash their hands before eating due to the shortage of water in Dhaka City.

## Informal occupational health and safety

The SSKs have no formal occupations, fixed duties, fixed place of business, business rule, occupational documentation, or records with governments and labor organizations. However, these SSKs are earning money, supporting their families, and providing a small contribution to their country's GDP. There are no health and safety considerations for these types of informal occupations. Therefore, they may be exposed to a range of health and safety hazards, such as diseases related to poor environmental health. The results from both the survey and FGDs show that almost all respondents suffer from water-borne diseases, such as diarrhea, stomach infections, and stomach pains, at least once a month. They typically lose one or two days a month to illness which decreases their monthly income, and they on average spend 300-400 BDT for medical treatment. Survey results show that 85% of SSKs wash their clothes only once a week due to the lack of available water. This may increase their exposure to hygiene-borne risks or hazards. The majority of the respondents who participated in the survey and FGDs believed that these diseases were caused by unsafe drinking water and unhygienic sanitation. However, there is no clear way to improve the situation. This is reflected by the fact that 90% of respondents said that they had never received any help from the government because they have no fixed place of work and believed nobody was concerned about them. SSKs are also vulnerable to the threat of law agencies and local political leaders. In addition to these findings, based on observations made during this study it can be suggested that SSKs who sell food and drinks may have the potential to spread WASH-borne diseases to their customers. As it has been revealed that 80% of the respondents do not practice hand washing before eating, the SSKs who are involved in food business may not practice hand washing before starting their business due to lack of water supply for hand washing. This affect may be compounded by the 20% of SSKs who practice open

defection and urination near their place of business. Further research using laboratory-based analysis is required to validate this observation.

## CONCLUSIONS AND RECOMMENDATIONS

The results of this study demonstrate that small shopkeepers face a range of problems associated with water, sanitation, and hygiene. These include exclusion from WASH related programs, unhygienic sanitation, insufficient public baths and toilets, unsafe drinking water, WASH-borne diseases, and a lack of awareness regarding safe personal WASH behavior. Small Shopkeepers are a distinct population with distinct service requirements within which changes in WASH can have significant impacts on health and income. Future study is required to collect sufficient data to compile a database of transient SSKs in Dhaka city. As the National Policy for Safe Drinking Water and Sanitation 1998 has emphasized the installation of public latrine in schools, bus stations and important public places and community latrines in densely populated poor communities, SSKs were highly ignored by the policymakers, city government and non-government organizations. However, based on these preliminary findings we recommend that future work, in Dhaka and elsewhere, carefully considers the complex context of WASH for SSKs and how to design strategies to serve this unique population. Increasing the number of public toilets and improving their management are prime examples of important strategies that should be pursued by the government of Dhaka. The results of this study also suggest the need to establish accessible sources of safe drinking water in the busiest areas of the city. Finally, it is recommended that a census be conducted on SSKs to develop and implement both technical initiatives (e.g. safe drinking water points) and non-technical programs (e.g. awareness) to improve their WASH conditions, in turn contributing to the overall goals of sustainable development in Bangladesh and globally.

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### Cite this article

Jubayer A, Nazim Uddin SM, Nasiruddin SM, Ergun D, Adamowski JF (2017) Water, Sanitation, and Hygiene for Small Shopkeepers: A Perspective from Bangladesh. *JSM Environ Sci Ecol* 5(1): 1041.