

CHAPTER 1

Introduction

Providing public services of piped water and solid waste collection in peri-urban townships should be on the government list of urgent issues to address. The basic requirements for living, unaffordable by an impoverished population, depend upon the government assuming responsibility. The newly emerged democratic government has some other issues to resolve. Yet, this empirical study wants to highlight gaps of public demand and services. It shows the actual water, sanitation and hygiene (WASH) condition of slums and the willingness to pay (WTP) of the residents. It argues that an investment in water and waste management -- not only in infrastructure but also in health education -- is a sound government investment, well worth implementing. The WTP for services is higher than the current government tax in downtown.

1.1 Rationale for the Study

The rationale for studying WASH in peri-urban slums is discussed below.

The water, sanitation and hygiene (WASH) conditions in the urban slums of Yangon poses a high risk of WASH related infectious diseases. However, no prior research and interventions of WASH in urban Yangon have been conducted. The priority for the WASH cluster of Myanmar was flood and conflicts regions, such as Sagaing Region¹, Rakhine State² and Kachin state³. The Myanmar Information Management Unit (MIMU) organised studies by International and local health NGOs (UNICEF, Save the Children, etc.). Globally, international aid for water and sanitation (1997-2008) fell from 8% to 5% of official development assistance (ODA), despite the fact that clean water is one of the Sustainable Development Goals (SDGs from UNs). Worldwide

¹ 564 kilometers away from Yangon and in Dry zone, middle Myanmar

² 401 kilometers away from Yangon and Western Coastal region

³ 1003 kilometers away from Yangon, in Northern Myanmar and with civil war with ethnic group

sanitation-related aid from The World Bank amounted to only 6% to slums and about 65% of the formal urban area (Uwemomere 2011). At the local level, some government officials in less-developed countries describe better infrastructure and education as priorities for economic development rather than WASH (Briscoe and Malik 2006). Similarly, respondents to many household surveys in developing countries reported that improved health services are not a top priority because of more pressing needs, such as food to survive and job opportunities (Whittington 2010). Benefits gained from investment in WASH preventive interventions are often under-valued or given a lower priority, which results in a significant neglecting of WASH benefits to society's well-being on numerous indices.

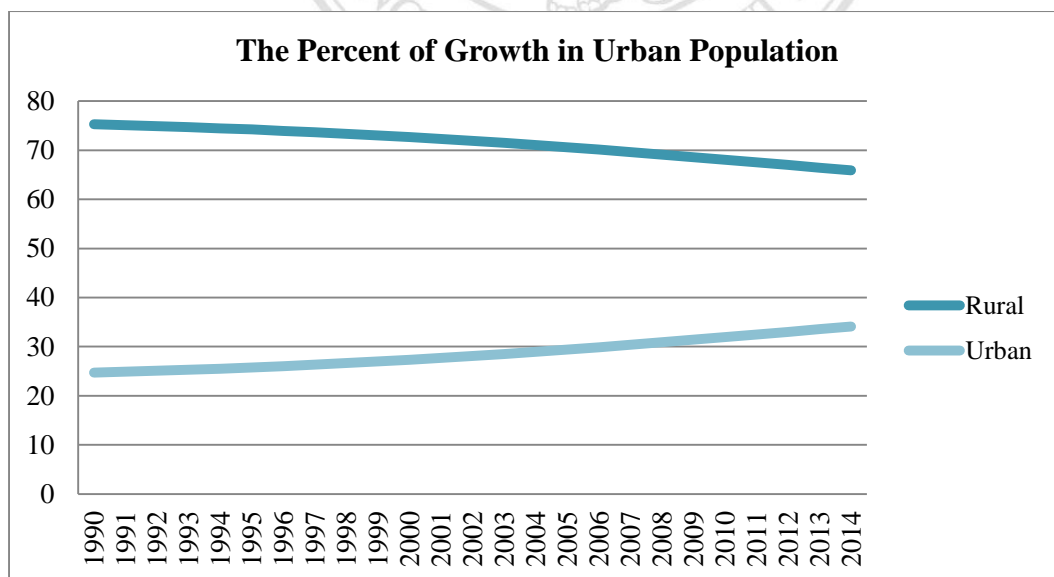
Additionally, diarrhoea, disease and cholera outbreaks pose on-going risks for Myanmar. A WHO paper demonstrated that 88% of diarrheal disease could be attributed to poor WASH. In WHO's data for Myanmar, for under-five age groups, diarrhoea runs number 6 in the top 10 causes of deaths and represents 7% of total mortality. Moreover, for all ages, diarrheal deaths reached 11,443 or 2.88% of total deaths and ran as number 9 in top 10 causes of death (WHO 2014). It ranks No. 30 in world rank.

The prevention of diarrheal disease is well defined and can be simply remediated with safe water and effective hygiene. However, low education levels and imperfect public services in less-developed countries lead to unnecessary illness and death, with consequent impacts on productivity, human resources, education and economic development, which are prone to vicious cycle or poverty trap, a self-reinforcing mechanism making poverty persist. The impact of health on income and that of income on health leads to a poverty trap in less developed worlds. To break out of the trap, improving health standards is a priority since the impact of health on income is greater than that of income on health (Bonds et.al 2009). Among health issues, clean water and sanitation are basic, but with enormous benefits to society.

Private investors and the government cooperated to develop townships such as Hlaing Tharya, Shwe PyiThar and Thilawa for industrialisation. Unstoppable urbanisation has to be accepted, and the overall growth of the economy from industrial development is desirable. The process of urbanisation includes housing by households,

private investments by firms and public goods (road, electricity, water, sanitation and waste) by the government, all of which are necessary to create a livable and well functioning city (Collier and Venables, 2017). In the case of Hlaing Tharya, the government could not yet fully provide public goods, after 30 years of urbanisation. The government can assign tax from firms for the common good and thereby indirectly benefit the industrial zone.

Urban planning is lacking in the outer ring of Yangon, and rapid urbanisation and population worsened local conditions. Population pressures, mainly in urban areas, has driven WASH- related diseases, imposing an increased burden on Myanmar. Myanmar’s population rose from 38 million in 1985, to 50 million in 2005, and over 53 million in 2014 (World Bank Data, 2016). The urban population is climbing, moving from 25 % to 35% of total population in the last 30 years, while the rural population is declining from about 75% to 65% at the same time (see figure 1). Yangon has approximately 16,000 people per square mile, and its urban population is over 5.1 million. Owing to the influx of immigrants and domestic migration into Yangon, the population density is set to rise, setting the stage for the transmission of disease, and the outbreak of WASH-related illnesses.

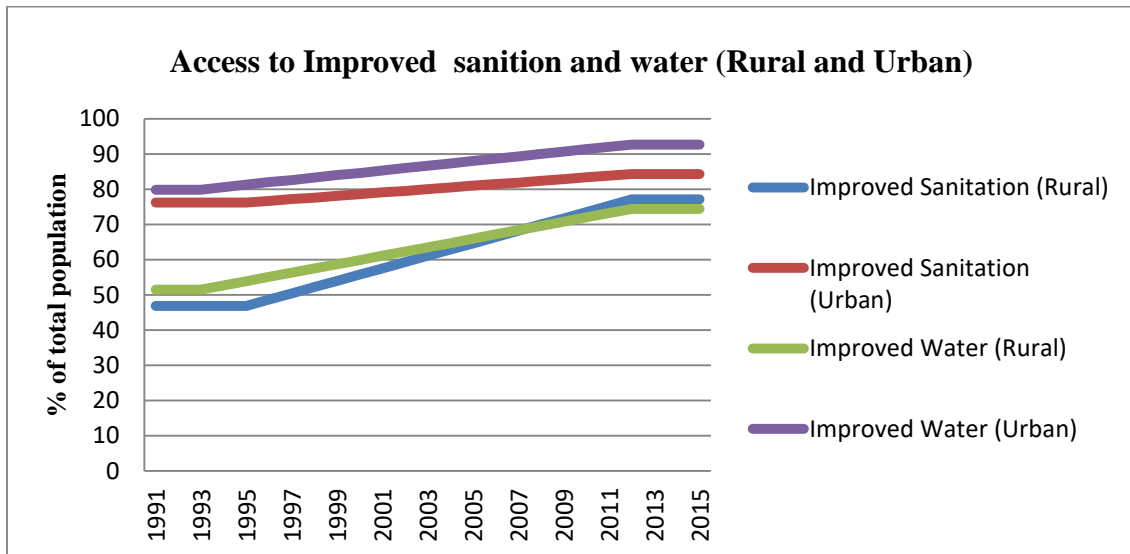


Source: World Bank, 2016

Figure 1.1: Percentage of Urban and Rural Population in Myanmar (1985-2014)

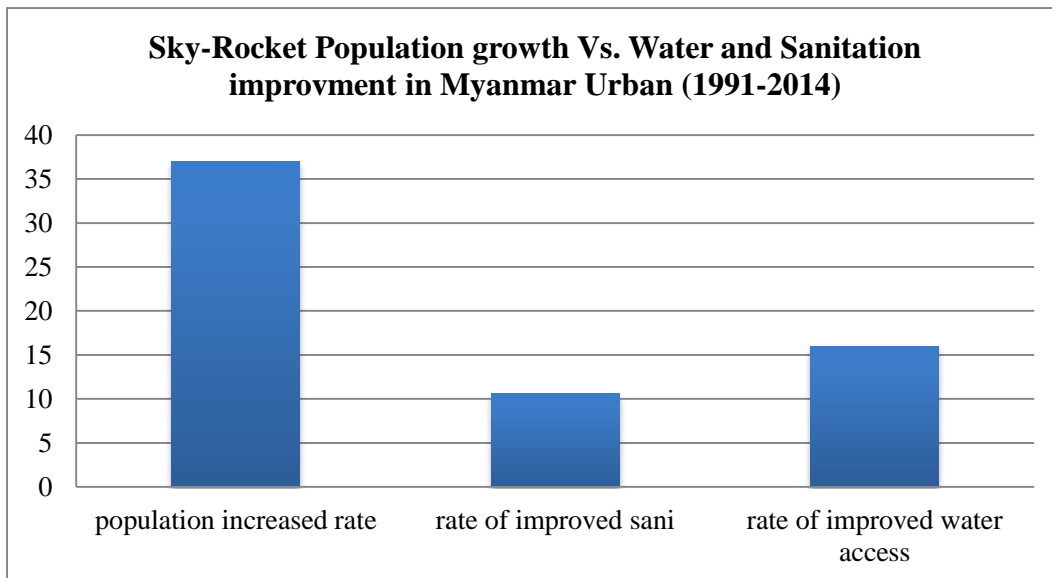
The World Bank Group data for the last 25 years in Myanmar showed improved water access and improved sanitation for both rural and urban populations. Two urban

data sets in figure (2) and (3), show the urban population increased by 37.9%, while improved water access of urban people increased by only 16.0% and improved sanitation by 10.6% during 1990-2014. The gap between population growth and water, sanitation improvement is getting bigger, especially in urban areas due to a higher population growth. The future urban population in Myanmar is estimated to exceed half of the total population by the year 2040 (Eben Forbes, 2015). Setting adequate public water and sanitation system should be a priority, particularly in urban slums.



Source: World Bank Group, 2016

Figure 1.2: Percentage of Population with Improved Water Access during 1991-2015



Source: World Bank Group, 2016

Figure 1.3: Comparing the rate of Increased population with water and Sanitation Improvement

However, the piped water system in urban cities is untreated and frequently sourced from open reservoirs, and so unlikely consistent with disinfection guidelines (ADB2013). Even Yangon and Mandalay are well below the acceptable level of sufficient water supply level, and the condition is worse in elsewhere.

Climate change is another challenging issue for the WASH sector. Global warming leads to a high demand for both drinking water and general water use. Yangon residents usually spray water over the roof, in the compound and the front road to cool the high summer temperatures. Water shortages, due to evaporation, excess usage, deforestation and so forth, can lead to poor sanitation and hygiene, and eventually outbreaks of disease. On the other hand, increasing marine temperature due to global warming contributes to increasing zooplankton, hosting of V. Cholera, and thereby increasing the chances of a cholera outbreak (Cowell et al. 2012). Thirdly, climate change leads to more frequent natural disasters (Beddington et al. 2012), which creates emergency situations and outbreaks of disease, as in Haiti after the earthquake and in war-torn Yemen. In sum, environmental concerns are one of the main challenges for safety WASH in Yangon.

Yangon and Mandalay also have a squatters problem, where WASH is a hazardous condition. The underlying reasons of growing squatters are push factors - natural disaster, unusual climate, landlessness, low wages and seasonal works in paddy fields – and pull factors – stable factory jobs, better access to health and education and better communication between native rural and urban using mobile phones (Forbes, 2015). People across the country are flocking to Yangon seeking jobs. Meanwhile, sky-high property prices have forced them to be squatters, living near rivers, creeks and alluvial areas where there is a lack of public services, notably of electricity, water and waste collection services. Squatters, about half million people, are a main challenge for the current Yangon government. The area for this study, Hlaing Thaya, is one of the most crowded of squatter townships and therefore, is at high risk for WASH-related infectious outbreaks.

Ineffective waste management is a critical issue in Hlaing Thaya, which is the outermost part of Yangon and a third class area for public waste services. Downtown Yangon rates as first class. The second class consists of ten townships at the outer-ring of downtown. Waste collection services in Hlaing Thaya could not cover the entire township, leaving some villages (but seemed already urbanised) and squatting areas without waste service. Disposing of garbage inappropriately blocks the waterways, pollutes the township, and serves as a source of mosquito breeding and potential infectious disease.

After discussing the main issues, the study addresses the information technology boom. In the case of WASH improvement, improving health knowledge and public service are essential. While the public service improvement needs considerable resources and takes time, information intervention via mobile application and social media provide a cost-effective and efficient way for health knowledge and behavioural improvement. The cell phone and the internet are among the most innovative and effective communication devices in history. The success of the mobile app and social media campaigns in public health education are promising and point to possibilities for similar interventions for WASH. The increase in mobile phone and internet usage after the privatisation reforms in telecommunication in Myanmar affords a unique and relevant opportunity for the study. This study will explore and describe the mobile

phone usage of shantytown residents and vulnerable groups regarding such issues as land ownership, income, education, and so forth.

In short, this is an interdisciplinary study which joins economics and public health. Its concern lies both with humanitarian issues and economic development. It explores the WASH status in the shanty town, and the willingness and ability of residents to pay for public piped water system, disinfected piped water and improved solid waste management, based on the land ownership type (Household type; own, rent and squatter). The study explored various factors affecting their lives. Also, it looks at the rate of mobile phone use and internet use, thus revealing potential ways of improving WASH related services, private or public. Ultimately, the study aims to contribute to the current reforms by the Yangon government.

For the sake of policy advocacy, and to understand the local context, the study employs an analytical sequential mixed method (that is, a quantitative survey followed by a qualitative study). Employing this approach permits a check and balance of the initial findings and points to opportunities -- as well as barriers -- for improving the daily WASH requirements.

1.2 Objectives of the Study

(1) To study WASH status and analyse the factors correlating safe drinking water source, cooking water, shared latrine, and appropriate waste disposal.

(2) To investigate the amount of willingness and ability to pay for public piped water, disinfection of piped water and efficient solid waste service in Hlaing Tharya Township and socioeconomic factors linking to WTP. WTP is compared to the current government tax in scenario area, downtown, to know project validity.

(3) To investigate the mobile phone use concerning the vulnerability of WASH related risks.

1.3 Research Questions

The main research question focuses on WASH conditions in Hlaing Tharya Township, and specifically on the factors affecting willingness to pay for public services, including the improvement of piped water, the disinfection of water, and solid

waste service improvement. It also examines the use of mobile phone and the internet among the vulnerable population, with the intention of using phones and social media as an effective means of intervention for health education. It seeks to answer whether a public projects extension of water and waste management in peri-urban slums is viable. Comparison between WTP and the current tax in downtown Yangon should be the determinant, as the specific costs of the projects are not in hand. The government subsidises the cost of services in the downtown area, and so should also do the same for the peri-urban areas.

1.4 Anticipated Conclusion

The research anticipated that WASH can vary depending on the wealth of the households. What is more, socioeconomic factors, education levels, income and household types, might have significant impacts on WASH practices. It is likely that the relatively poor, that is, the “squatter” and the “rent” populations, are more vulnerable.

Willingness to pay for three-service improvements is anticipated to correlate positively with higher income, education level and the current WASH practices. Such a finding would be consistent with environmental, economic theory, which claims higher income is accompanied by a higher demand for a better environment.

Owing to a dramatic increase in mobile subscription at the national level, a high level of mobile phone and Internet usage is expected to be evident at the study sites, even if educational attainment is limited.

1.5 Advantage of the study

With the comprehensive assessment for WASH and an understanding of the local context in slums and squatters, this study will help organisations and government officials see the overall picture and the urgency for improvement. The WTP measurement can be a reference for policy makers on project decisions. Mobile phone and internet literacy assessment can potentially provide effective ways and channels of intervention through social contact, information and communication technology in what is a financially-challenged and infrastructure-restricted situation.

1.6 Definition

WASH: Water Sanitation and Hygiene

WTP: Willingness to Pay, studied by contingent valuation method

Household Type: classified by type of land ownership; Own, Rent and Squatters

Sealed PDW: Sealed purified Drinking Water, a commercial product of 20 litres plastic bottle with brand name and registered No. of Food and Drug Administration, Myanmar.

Unsealed PDW: Unsealed Purified Drinking Water, so-called “Joe Phyu”, with no brand name and transferred water at the time of purchasing from water vendor’s bottle to consumer’s storage container via simple cloth filter. Produced by domestic purifiers.

Simple Pit latrine: basic type of improved safe latrine, recognised by the World Health Organization (WHO).

Pit with slab: An improved style of a pit latrine where the floor is made of concrete.