

CHAPTER 2

Literature and Theoretical review and Background of Study Area

2.1 Literature Review

2.1.1 WASH Assessment

UNICEF (2011) conducted a 6,000 household KAP survey on WASH across 9 States and Regions in Myanmar, including both rural and urban areas. 68% of respondents reported an improved source of water and 75% an improved latrine. However, 33% had clean floors or slabs, and only 25% used hygienic defecation. Among households with children under five, 8% experienced diarrhoea during the previous two weeks.

2.1.2 Willingness to pay for Piped Water System and Solid Waste Management

Many papers, some of them described below, studied the willingness of individuals in developing countries to pay for improved water service and waste management. These studies provide in-depth, contingent valuation, but no other way of measuring the issue (except one by UN Habitat-UNICEF).

Ahuja et al. (2010) reviewed randomised trials in developing countries and concluded that better access to water is a far higher priority than cleaner water for individual households. Cleaner water can reduce the diarrheal occurrence, while better access to water does not guarantee a reduction in disease. People appear to care more about the time and energy required to fetch water, rather than health risks. They also point out the role of women and children in decision-making. Women and children

derive the most benefit from clean water, have only a slight say on water household water management.

Whittington (2010) reviewed surveys in developing countries. He concluded that willingness to pay for water and sanitation is far less than the actual cost of the projects, due to pressing needs other than health concerns. He warns that the SP researcher may draw the wrong conclusion for policy. It is essential for the researcher to develop a sophisticated way of assessing the needs of the community for health intervention.

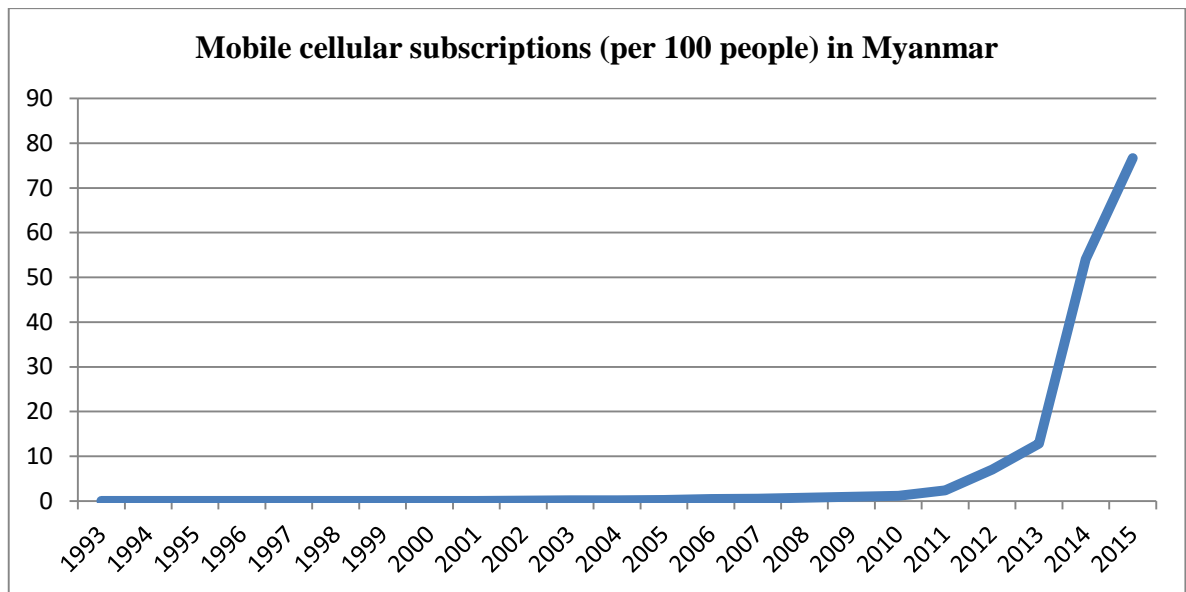
Roy and Deb (2013) did a Contingent Valuation study for willingness to pay for improved waste service in Cachar District, Assam, using open-ended questions. They reported that 63% are willing to pay for improvements to their services. The findings confirm environmental economics theory, which says that demand for improved environment increase with income. Larger families, higher levels of education and the presence of working women positively influence the willingness to pay.

UN Habitat-UNCEF (2016) conducted a systematic study on willingness to pay for an improved water system, solid waste management and sanitation service in Jacobabad city. Residents are willing to pay about 500 Rupee (mean and first quartile) because of high payment for comparatively low quality of water and acute water shortage. Half of the population agreed to pay for solid waste management (the mean is about 100 Rupee).

2.1.3 Mobile Phone

The data revolution means that data are faster, bigger and more detailed than ever (**UN, 2014**). The advantage of popular social media and increasing mobile phone use means that these tools can be used both as data collection instruments in public health study and projects. Providing health information about health risks could change behaviours to mitigate the risk.

World Bank Group Data shows Myanmar mobile phone users reached almost 30 million in **2014** (54 per 100 people), up from 0.2 million in 2006 (0.4%) and 0.6 million in 2010 (1.1%). According to November 2015 data, there are up to 36 million mobile phone subscribers. See figure (2.1).



Source: Author’s calculation from World Bank data (2016)

Figure 2.1: Cellular Mobile Subscriptions in Myanmar

GSMA’s Connected Women programme and LIRNEasia (2015) surveyed both rural and urban areas. The key findings are that 40% of Myanmar population owned a mobile phone and that women are 29% less likely to own a mobile phone than men. This is due to low household incomes and traditional gender roles. There is a traditional difference in the number of men and women who leave home for work and study. The report speaks to gender sensitivity in mobile phone ownership.

2.2 Theoretical Review

2.2.1 Stated Preference or Contingent Valuation

Contingent Valuation is widely used as a method of monetization and for measuring willingness to pay for the nonmarket, or public goods and services. It is used for project assessment, evaluation and appraisal. The residents’ willingness to pay for water and sanitation services is useful information for intervention projects.

Hypothetical bias occurs when the hypothetical question presented is not clear to the respondents. Hypothetical questions are usually designed to describe the quality and reliability of services, its timing and logistics, and the method of payment. This is intended to reduce possible bias. In this study, photos of public service in downtown Yangon were used, as well as additional explanations to reduce bias. When the

respondents are illiterate, they might want the researcher to feel pleased, and so their answer might not reflect their actual WTP (Whittington 1998).

2.2.2 Constraints to Contingent Valuation

Keynes (1925) warned that it is difficult to measure the monetary terms of nonmarket goods. Such steps should emphasise one good against other goods, instead of abstract money.

Whittington (2010) conducted a systematic and empirical review of stated preference research using SP methods, derived from the Western environment. However, we can question whether these are appropriate for less-developed countries. The hypothetical question, sometimes given to illiterate respondents, makes the respondents answer what they think the researcher wants to hear. Another drawback is that people do not always make the most effective choice at the time asking.

Due to these constraints, nonmarket valuation will not be the only interest of the study. The analysis will add a baseline assessment of WASH conditions to arrive at a more accurate picture of WASH situation in slums.

2.2.3 Regression Model

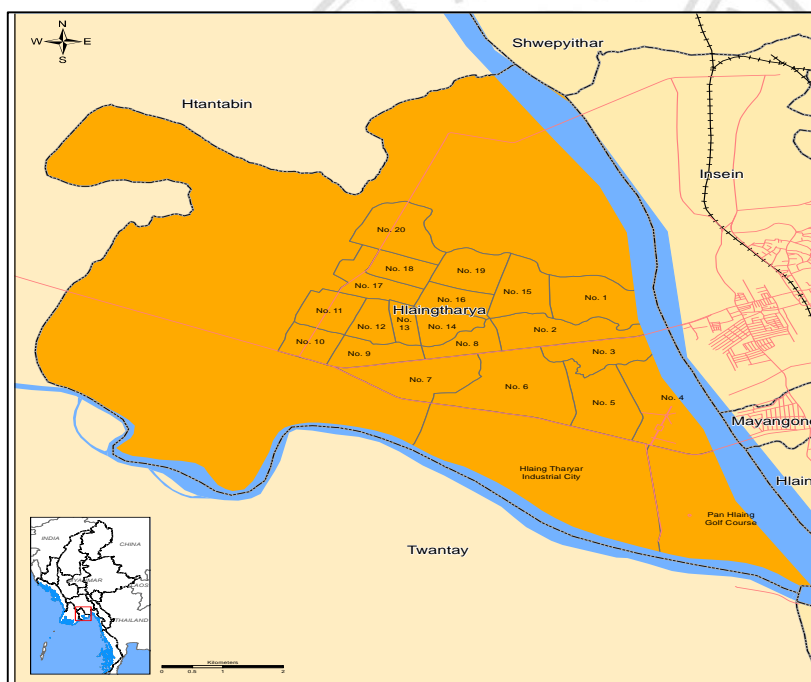
To study the correlation of safe WASH or not, mobile phone use or not (dichotomous data) against socioeconomic factors, a binary logistic model is used. The dependent variables (Y) are binomial (safe drinking water or not, share latrine or not, etc.) and the independent variables may be demographics factors such as income level, land ownership, education, occupation, and so on. It will show what types of households are left out of WASH improvement. Lower-truncated regression is used to suppress “0” WTP during regression. In the case of mobile phone, upper and lower-truncated regression is used to truncate tails at “0” and “1” of the outcome variable, the portion of cell phone users among family members, against the other corresponding factors.

2.3 Background of the study area, Hlaing Tharya

2.3.1 Location

Hlaing Tharya was established in 1985 as an industrial zone and special housing villa, but most residents moved in about 1990. Proper zoning plans and waste

waterways infrastructure were made for industrial and villa since the beginning, but not for the general resident's area, where waterways were built with the available narrow space. This is the same for another township area in new extended Thanlyin area near Thilawa industrial zone. The government provided electricity and waterways first in the industrial zone and villas; but for the basic residential area, it just created marked poles in the farms- fields for sale. The residents have to invest collectively or request help from the government for infrastructure and access to electricity. Building road and water ways later are problematic, as the residents already established small grocery shops, tea shops, etc. in the narrow spaces left. Proper zoning is essential before converting rural land to urban neighbourhoods.



Source: Myanmar Information Management Unit (www.themimu.info)

Figure 5: Map of Wards in Hlaing Tharya Township

Hlaing Tharya is located adjacent to Insein, Mayangon and Hlaing Township⁴ in the east across the Yangon River, Htantabin township in the north and west, and Twante Township⁵ in the south. Three bridges connect Hlaing Tharya and the inner townships of Yangon (Insein, Mayangon and Hlaing Township). Twante Bridge connects Hlaing Tharya and Twante township, which lies at the entrance to the

⁴ Inner ring of Yangon city

⁵ In Yangon region and adjacent to Ayeyarwady Region

Ayeyarwady Region. A highway Bus station, one of two in Yangon, is also located there. Hlaing Tharya is an entrance to Yangon city from the Ayeyarwady Region.

2.3.2 Residents

Hlaing Tharya township has different kinds of residents; industrial workers, small business owners (of consumer goods) and residents in special housing villas. It has five special types of housing, namely FMI, Nawaday, Htee Hlaing, Aung Zaya and Shwe Kann Tharyar. The quote describing these villas is “heaven in the hell”, which means outside and inside the housing, there are huge gaps in living standards. The villas have fancy restaurants, supermarkets, swimming pools and gyms, their waste disposal plans, international schools and so on. Outside the housing estate is a real shantytown, which is the habitat of industrial workers and immigrants. Huge fences and 24/7 security huts guard the villas. Real estate prices reflect the difference: in, 40’60’ area (without the house) in the villa costs MMK 2000 Lakh (USD 150,000) while about MMK 600 Lakh (USD 44,000) for 40’60’ area in a regular ward. The three-fold higher price in the same township represents hedonic pricing for a better environment and infrastructure.

Despite the low quality of life, industrial work attracts rural people as a consequence of weather-affected agriculture. Most of the immigrants to Hlaing Tharya are landless labourers and small farmers from Ayeyarwady. The pull factors are booming industries (labour intensive), unseasonal/stable job opportunity, relatively higher salary and an excellent network, and push factors included the 2008 Nargis cyclone, unsettled weather and failed paddy farming and low fish catch after Cyclone Nargis (QSEM-Qualitative Socioeconomic monitoring, World Bank Group, 2013-2015). About 700,000 people moved into Hlaing Tharya following Cyclone Nargis in 2008. The nickname of “Shwe Lin Ban” (means “golden plate”) industrial zone is “Ayeyarwady Lin Ban”. The daily wage in the village is about MMK 3500, while construction jobs in Yangon offer between MMK 5000 and 12000 (depending on the skill), or about 43% higher. The jobs are all year long and more stable than seasonal farming jobs. The migration pattern is individual migration, followed by the whole family; the youth came first to seek jobs in industry and construction and then the rest family members, parents and siblings, follow them. The girls work in factories such as garment, shoe, food, etc. while the boys work in construction, automobile services,

motorbike and car drivers and so forth. The youth work as employees, while the elders are more likely to work as security guards, or own grocery shops and diners.

The main livelihood of the common residents is industrial work. Small businesses selling consumer goods have boomed because of the high population of immigrant workers. Property prices are rising, because of profitability and strong earnings, but living condition and infrastructure are still not well functioning. Booming but dysfunctional public services-cities are usually expensive for non-tradable goods such as accommodation. On the one hand, high domestic immigration and the small business boom paint a good picture of Hlaing Tharya. On the other hand, inadequate infrastructure, high infectious disease outbreaks (tuberculosis, dengue) and lawlessness (gang culture) are harmful to the community. It has the highest TB infection rate in any township in Yangon, as well as the most criminal cases and the most squatting as well.

Among the natural residence area, which lies outside of the exclusive villas and industrial zones, land entitlement is very different. The early arrivers (more than ten years ago) and small business owners could afford to own land and houses. Nowadays, however, real estate prices are not affordable for industrial workers; MMK 300 lakh for 20'60' is equal to 300 months (25 years) salary of a basic industrial worker (1.5 lakh *200 months=300). The factories usually do not provide housing for workers. In this way, hostel and squatting have become their main housing. The hostel usually includes 10 to 24 rooms. Each room (generally 10' 13' ⁶), shares a bathroom and latrine, and rents for about MMK 50000 per month. A family or a group of friends and relatives usually share the room, with a maximum of four or six people. A family with five children could not accept overnight guests, which is Myanmar culture; people from rural areas usually stay at a relative's home during their visit to the city. Small businessmen, generally living outside Hlaing Tharya, are in general, the owners fo these hostels. Usually, one person might own 1-4 hostels and hire a guard family for each, giving them a room free of charge. The investors know Hlaing Tharya is a profitable area but don't want to live there, due to its poor living standards. They simply invest in the hostel business, which doesn't require comprehensive management. Hlaing Tharya is well known for its squatting population. Excellent job opportunities in industries

⁶ Use a single room for all-purpose; living room, bedroom and kitchen. no partition within each 10'13' room

attract people from different parts of the countryside, but inadequate housing and high real estate price force them to squat.

In short, these “rent” and “squatter” households are the area of interest for the study. These families are at risk condition for WASH. A messy environment, combined with blocked waterways, and squatters without public electricity make for parlous conditions. The law prohibits squatters from accepting public services. The regular wards also have a lower quality of public service, for example, third class waste collection service and no piped water system. Given simple humanitarian requirements, water and waste management should be available to all equally. Public service improvement is seen as a top priority for these core residents, as it could have health hazards to the society.

In Myanmar, the government has land authority and compensation is used for land concession. New urban development is relatively easy for Myanmar government than one without land authority. However, it does not invest in full infrastructure before residents move in. In China, the government plans for infrastructure investment and ensures regulation and coordination. Government’s proper urban planning is essential for long-term urban development.