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## STUDY ON

# DEVELOPING BUSINESS MODELS FOR PUBLIC TOILETS IN DHAKA AND OTHER MAJOR CITIES OF BANGLADESH



### Submitted to:

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## **Acronyms and Abbreviations**

BEP	: Break Even Point
DNCC	: Dhaka North City Corporation
DSCC	: Dhaka South City Corporation
IRR	: Internal Rate of Return
NGO	: Non-Government Organization
NPV	: Net Present Value
PT	: Public Toilet
RAJUK	: Rajdhani Unnayan Kartripakkha
SMC	: Social Marketing Company
SUNRISE	: Stimulating Urban Norms for Rigorous Improvement in the Sanitation Environment
WAB	: WaterAid Bangladesh
WASA	: Water and Sewerage Authority
WASH	: Water, Sanitation and Hygiene

## Executive Summary

WaterAid signed a memorandum of understanding (MOU) with Dhaka City Corporations and WASA, under which 30 toilets are to be constructed in urban hubs, including bus terminals, campus areas, commercial centre and tourist spots. Out of the proposed 30 public toilets, 20 are in operation now and some other toilets are in implementation stage. The toilets have been designed to make them women-friendly, with separate chambers equipped with menstrual hygiene facilities and accessible for persons with disabilities. The objective is not only to provide urban citizens and visitors with a much-needed amenity, but also to change our usual perceptions about public toilets and how we use them.

A substantial time has been passed from the start of operation of the first toilet at Gabtoli Bus Terminal and at this stage WaterAid has been contemplating to offer a business plan with alternative options to the two City Corporations, so that the toilets under the SUNRISE project can be run sustainably even after the withdrawal of continuous support from WaterAid.

This study has been commissioned with the purpose of identifying feasible business models for the operation and management of public toilet complexes in Dhaka city that would be suitable for piloting either by DNCC and DSCC, or an external agency. The study has mainly focused into a) understanding the current and projected scenario of public toilets in Dhaka city, including demand and supply levels and operational modalities; b) analysing current and projected income and expenditure of public toilets under different operational modalities; and c) proposing three business models for the operation and management of sustainable public toilet services.

The study has been conducted on the basis of data collected through public toilets user survey, interviews with different stakeholders; discussions/meetings with the project officials and management of the WaterAid. Secondary information on cost of investment, monthly operational performance and relevant papers on operation and management of the public toilets have also been studied. Besides, different web-based publications have also been consulted in different phases of the study.

SUNRISE project, from the inception of first public toilet at Gabtoli Bus Terminal, put emphasis on high quality services for the urban citizens and visitors. The project to a great extent successfully changed the perceptions of the city dwellers about public toilets and how to use them. Survey findings and the observations of key stakeholders clearly indicate the degree of satisfaction of the users. The design of these toilets was not only confined to defecation, but also included bathing, locker and drinking water within the service package. Inclusiveness is one of the key parameters of these toilets, so that women, children and disables can also avail the services with ease. Accessibility, cleanliness and safety issues were also addressed satisfactorily while designing and operating the toilets.

20 toilets have so far started operation out of which 18 are being run commercially and some other units are under implementation. Physical and financial performance of the toilets, as revealed from the survey, interview and analysis, indicate that about 3-4 toilets have been

performing quite well and can proceed sustainably and without subsidies in future. Other toilets will still require subsidy or external funding to be operated without compromising the service quality.

Altogether during 230 toilet-months 2.95 million users availed the services of SUNRISE toilets and a total revenue of BDT 15.543 million was generated up to June, 2017. Out of the 19 public toilets covered under the study, Gabtoli Bus Terminal, Farmgate, Osmani Uddyan 1 & 2, Sayedabad Bus Terminal have been performing satisfactorily with a monthly average income of more than BDT 100,000. Spot observation reveals that due to poor monitoring a significant number of uses are not being reported (68.27%) which means that actual income would be much higher than the reported ones.

Toilet (DNCC – 85.54%, DSCC 86.37%) is the most availed service and followed by bathing (DNCC – 14.09%, DSCC – 8.41%). Uses of other services have little impact on overall income of the units. Female users account for 20.34% in DNCC and 18.97% for DSCC.

The respondents of the user survey expressed their satisfaction on the service quality and other parameters. Some aspects, such as – cleanliness, availability of consumables, availability of water and attendant services need to be improved further. All the respondents found the service rate reasonable, but no one is in favour of increasing the rate from the present level. On the service facilities, they opined for keeping provision for more toilets for male use especially in the busy areas like Gabtoli, Muktangon, Usmani Uddyan and so on. Some stakeholders emphasized on increasing the number of public toilets in the city by lowering the standard to some extent, so that larger population can be benefitted from the investment made.

A financial analysis has been done in the study to assess the cost of the project, income statement, financial ratios, BEP, IRR, NPV and unit cost. Five year projection was made in the analysis basing on the performance of leading public toilets. The analysis indicates that assuming the prevailing service rate and investment size, a public toilet would be viable if the yearly income exceeds BDT 1,645,127 (Break Even Point). Estimated IRR and NPV (at 15% discount rate) would be 37.07 % and BDT 199,782 respectively.

Four alternative business models have been proposed in the study, namely – a) Private sector based operation; b) NGO based operation; c) Mix of NGO and private sector (50-50); and d) Existing arrangement with some modification. Out of the proposed options, the third option seems more feasible considering the current management and operational practice and experience gained from SUNRISE public toilets.

## 1.0 INTRODUCTION

### 1.1 Background

Public toilets are built in communities to solve problem of open defecation and prevent diseases. Its maintenance is crucial to the prevention of diseases – typhoid, cholera, salmonellosis, bacillary dysentery, tuberculosis, anthrax and parasitic worm infection. Public toilets are constructed in schools, offices, factories, and other places of work; in museums, cinemas, bars, restaurants, and other places of entertainment; in railway stations, filling stations, and on long distance public transport vehicles such as trains, ferries, and planes. Portable toilets are often available at large outdoor events and public gatherings.

The management of public toilets covers the construction, operation and maintenance, in both commercial centers and high-density, low-income residential neighborhoods. The users may either use public toilets free of charge or pay a fee. In the latter case they are also called pay toilets.

Dhaka is the capital and largest city of Bangladesh. It is one of the most populated cities in the world with a population of nearly 18 million, and on any given day, around half a million people are mobile on its streets, markets and public places. Therefore, there is an imperative need for a large number of public toilets to cater the demand of basic human amenities of the mobile population; men, women, children and disables.

The existing public toilets in large cities in Bangladesh, particularly in Dhaka, are besieged with serious signs of negligence and mismanagement. These facilities are constructed by Dhaka City Corporations, and leased out to private operations selected through a competitive bidding process. However, political influences and local musclemen often play a role in this process, and management of the toilets can end up with profiteering enterprises that lease out the toilets and adjacent space to small businesses, while the facilities fall into misuse and disorder.

WaterAid signed a memorandum of understanding (MOU) with Dhaka City Corporations and WASA, under which 30 toilets are to be constructed in urban hubs, including bus terminals, campus areas, commercial centre and tourist spots. The toilets were designed to be women-friendly, with separate chambers equipped with menstrual hygiene facilities and accessible for persons with disabilities. The objective is not only to provide urban citizens and visitors with a much-needed amenity, but also to change their usual perceptions about public toilets and how to use them.

WaterAid, therefore, has commissioned this in-depth study on the current modes of operation of 19 toilets constructed through SUNRISE project; assessing the physical, administrative and economic challenges around this sector; and conducting user-level analysis and financial analysis to understand how economic viability could be reached without compromising on gender, accessibility and safety considerations. The study has also aimed to explore the human resource and financial implications for long-term sustainability of the public toilet services.

## 1.2 Objectives and Scope of the Study

The overall objective of the study is to identify feasible business models for the operation and management of public toilet complexes in Dhaka city that would be suitable for piloting either by DNCC and DSCC, or an external agency.

The specific objectives of the in-depth study are to:

- i. Understand the current and projected scenario of public toilets in Dhaka city, including demand and supply levels and operational modalities;
- ii. Analyse current and projected income and expenditure of public toilets under different operational modalities; and
- iii. Propose three business models for the operation and management of sustainable public toilet services.

The study, among others, focused on the following issues:

- i. Assess current scenario of public toilets in Dhaka city, including an assessment of the overall level of services; and exploration of different models of the service currently in operation, e.g. public toilets in public locations, shopping malls and public buildings, and in filling stations;
- ii. Conduct a demand supply analysis, including demand analysis (current and projected over the next 20 years); supply situation; and demand-supply gap;
- iii. Prepare separate and aggregate (consisting of aggregated statements for both City Corporations separately) income and expenditure statements and detailed financial analysis of 18 public toilets functioning under SUNRISE, as well as comparable facilities operating along the different modalities explored in the current scenario assessment; and
- iv. Develop and propose three alternatives business models for sustainable public toilet services.

## 1.3 Approach and Methodology

The study has been conducted on the basis of information collected both from primary and secondary sources. The primary information has been collected through field data collection through i) Public Toilets User Survey; ii) Interviews with different stakeholders; iii) Discussions/Meetings with the project officials and so on.

The secondary information on cost of investment, monthly operational performance and relevant papers on operation and management of the public toilets. Besides, different web-based publications have also been consulted in different phases of the study.

## **2.0 OVERVIEW OF CURRENT SCENARIO**

### **2.1 Public Toilets In Dhaka City**

Public toilets (dedicated) in Dhaka city areas are mainly owned by the City Corporations and being managed under lease arrangement. However, shopping malls, large office buildings, mosques and other religious places have arrangements for public toilets in most cases, especially in the larger ones. The following sections addressed the common categories of public toilets in the city.

#### **2.1.1 Dedicated public toilets (leased by City Corporations)**

Dhaka City Corporations own and manage 69 open access public toilets within Dhaka city; however, only 57 of them are in operation. All the toilets under the city corporations have been leased out through a competitive bidding process. However, the standard of the toilets fall much below than that of WAB sponsored toilets. Many of the lessees do not clear the dues of utilities and bills of the corporations. Legal measures against them has also been initiated by the authority. As opined by the officials of the city corporation, it is difficult to raise the service quality due to political reasons and local level influential groups. Ineffective supervision and monitoring mechanism is another key problem for maintaining standard of the services.

#### **2.1.2 Public toilets at shopping malls**

Large shopping malls in Dhaka city have toilet facilities in their structure. In almost all cases, market committees manage the toilets, but consumables are not adequately supplied (or, not supplied at all) other than water. In majority cases, these are non-pay toilets and costs related to cleaning services, utility bills, etc. are borne from the committee fund.

#### **2.1.3 Public toilets in office buildings**

Public toilets in the common spaces of the office buildings are often seen in the city. It is observed in many cases that the floor space (including the toilet structures) is rented to a single office by the owners. In that situation, the toilet facility is no more in the common space. If a floor is rented to multiple lessees, the toilets are usually positioned in the common space which can equally be used by the floor employees and general public.

Usually building management body takes care of cleaning and keeping the toilets usable. And, no fees or charges are being taken from the users in most cases.

#### **2.1.4 Public toilets in mosques or religious centres**

Dhaka is globally known as the 'City of Mosques' and in some instances 5-10 mosques are found in a sq. kilometer area. As such, in the absence any public toilets in the vicinity, passerby uses the toilet adjacent to a mosque and of course, without any fees. However, in no occasion this is being used by female. The employees of the mosque keep the toilet clean and usable. But facilities for defecation are usually kept under lock and not open for public use.

### 2.1.5 Public toilets in filling stations

This is a common phenomenon not only in Dhaka city, but all over the country especially in the highway-side filling stations. They also do not take any charge for the use. These toilet are not often gender-friendly (i.e., no separate chamber for female users are there).

## 2.2 Description of Existing Public Toilets under SUNRISE Project

### 2.2.1 Background of the Project

WaterAid, under its SUNRISE project, planned to construct 30 public toilets in Dhaka city, 20 of them have already been constructed and are in operation which served 2.5 million people. Besides, another 10 public toilets in Dhaka city are in construction and planning phase. The public toilets constructed and managed by WaterAid and its partners, are all single-storied buildings, with attractive architectural design, and properly maintained and cleaned. A performance summary of public toilets may be viewed below:

**Table 2.1: Indicative performance summary of SUNRISE public toilets\***

#	Location	DCC Area	Oper. Months	Use (in Number)		Revenue (in BDT)	
				Total	Monthly Average	Total	Monthly Average
1	Gabtolli Bus Terminal	North	37	1,222,805	33,049	6,415,912	173,403
2	Mohakahli Kancha Bazar	North	35	90,485	2,585	474,826	13,566
3	Manik Nagor	South	19	27,638	1,455	178,381	9,388
4	Sayedabad Bus Terminal (M)	South	15	307,185	20,479	1,651,119	110,075
5	Sayedabad Bus Terminal (F)	South	3.5	9,021	2,577	58,259	16,645
6	Nabisco- Haji Maron Ali Road	North	14	85,637	6,117	428,252	30,589
7	Tejgaon Satrasta T&T Gate	North	14	133,734	9,552	847,623	60,545
8	Pouro Filling Station	South	10	60,602	6,060	276,595	27,660
9	Zaman filling Station	North	10	6,991	699	251	25
10	Bahadur Shah Park	South	10	138,115	13,812	683,454	68,345
11	Osmani Uddan-1	South	8	155,206	19,401	881,649	110,206
12	Osmani Uddan-2	South	8	193,467	24,183	968,956	121,120
13	Farmgate Indira Road	North	7.5	189,798	25,306	973,971	129,863
14	Shyamoly Park	North	7.5	55,926	7,457	247,327	32,977
15	Mohakhali-near WASA Pump	North	7.5	28,383	3,784	143,437	19,125
16	Panthokunjo Park	South	6	43,103	7,184	230,565	38,428
17	Muktangon Park	South	6	121,082	20,180	612,358	102,060
18	Tejgaon Truck Stand	North	6	64,419	10,737	384,320	64,053
19	Dhaka Zoo Road	North	6	17,256	2,876	86,169	14,362
	<b>Total</b>		<b>230</b>	<b>2,950,853</b>	<b>11,447</b>	<b>15,543,424</b>	<b>60,128</b>

\*Up to June, 2017

As seen from the table above, Gabtoli, Farmgate and Osmani Uddyan-2 are the three top performers in terms revenue earning. On the other hand, Manik Nagar, Dhaka Zoo and Mohakhali WASA Pump have not been performing well. Zaman Filling Station is not being run commercially from the beginning and Mohakhali Kancha Bazar PT is also being managed by the Bazar Committee in their own way.

## 2.2.2 Findings from Spot Observation and User Survey

### a. Spot Observation of Selected Public Toilets

In order to assess the uses of public toilets constructed and operated by WaterAid, eight public toilets located in eight different areas of Dhaka City Corporations have been surveyed. Out of these eight toilets, four are located in the North City Corporation and the rest four in the South City Corporation. The total duration of survey was sixteen hours; two hours each in each public toilet. The following table reveals the uses of different services of each unit. Detailed analysis of the sport observation may be viewed in **Annex VI**.

**Table 2.2: Findings of the spot observation of selected public toilets**

SI #	Public Toilet	Observation		Duration (in hrs.)	Toilet				Bath			Locker			D. Water		
		Date	Time		Male	Female	Free	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
1	Farmgate Indira Road	14.07.17	11.30-01.30	2	98	3	11	112	6	0	6	2	0	2	2	0	2
2	Shyamoli Park	14.07.17	14.30-16.30	2	18	2	7	27	0	0	0	0	0	0	6	0	6
3	Gabtoli Bus Terminal	15.07.17	11:00-13.00	2	65	3	15	83	10	0	10	1	0	1	0	0	0
4	Tejgaon Sat Rasta	15.07.17	14:20-16.20	2	55	1	1	57	13	0	13	0	0	0	0	0	0
5	Osmani Uddyan (1)	19.07.17	13.50-15.50	2	113	3	11	127	12	2	14	0	0	0	2	0	2
6	Osmani Uddyan (2)	19.07.17	15.50-17.50	2	75	2	5	82	10	2	12	1	0	1	0	0	0
7	Pantokunjo Park	23.07.17	15.25-17.25	2	45	0	7	52	1	0	1	0	0	0	0	0	0
8	Muktangon Park	24.07.17	16.30-18.30	2	85	9	0	94	2	0	2	3	0	3	3	0	3
<b>Total:</b>				<b>16</b>	<b>554</b>	<b>23</b>	<b>57</b>	<b>634</b>	<b>54</b>	<b>4</b>	<b>58</b>	<b>7</b>	<b>0</b>	<b>7</b>	<b>13</b>	<b>0</b>	<b>13</b>

It needs to be mentioned here that pick hour of the uses are different for individual public toilets depending on the type and occupation of the users in specific locations. As found from the survey, pick hours of selected public toilets are shown below (data collected from the operators):

**Table 2.3: Usage pick hour of observed toilets**

SI #	Public Toilet	Pick Hour (PM)
1	Farmgate Indira Road	5.00-8.00
2	Shyamoli Park	5.30-8.00
3	Gabtoli Bus Terminal	6.00-8.00

4	Tejgaon Sat Rasta	5.30-7.00
5	Osmani Uddyan (1)	5.30-7.00
6	Osmani Uddyan (2)	5.30-7.00
7	Pantokunjo Park	5.00-8.00
8	Muktangon Park	5.00-8.00

**b. Variation in usage of male toilet in selected public toilets**

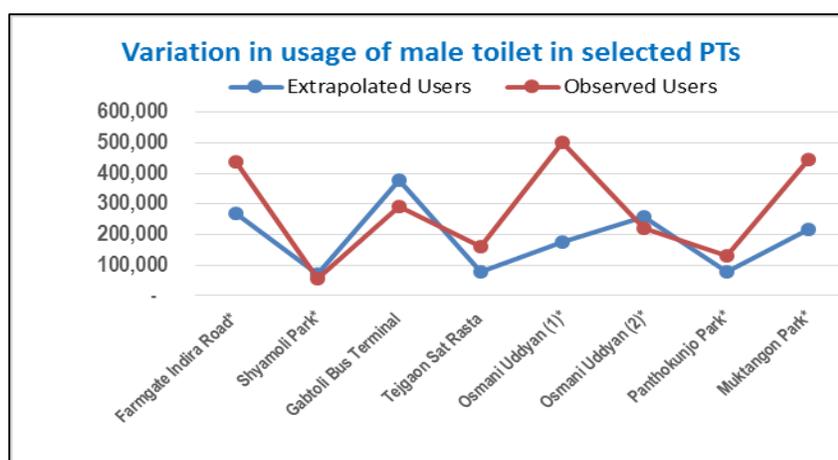
It is observed that the use of male toilet occupies the highest usage and revenue for all the public toilets. A comparison has been made with the recorded and reported number of use of the selected public toilets with the data generated from spot observation. The table below reveals that actual use of male toilets is 47.19% higher than the reported use. It means that real income from the public toilets are much higher than the reported ones. The figures, however, may vary depending on the survey period during the day. *(In order to obtain more realistic data on variation, week-long observation of each toilet may be carried out by WAB, so that justified subsidy can be fixed for each one).*

**Table 2.4: Use (in no.) variation of male toilet in selected between observation & record\*\***

Location	Recorded	Observed	Difference
Farmgate Indira Road*	268,962	436,320	62.22%
Shyamoli Park*	72,633	57,600	-20.70%
Gabtolli Bus Terminal	377,657	293,760	-22.22%
Tejgaon Sat Rasta	78,789	161,280	104.70%
Osmani Uddyan (1)*	177,546	501,120	182.25%
Osmani Uddyan (2)*	256,997	221,760	-13.71%
Panthokunjo Park*	76,810	129,600	68.73%
Muktangon Park*	216,824	444,960	105.22%
<b>Total</b>	<b>1,526,218</b>	<b>2,246,400</b>	<b>47.19%</b>

\*Extrapolated to 12 months

\*\*as per recorded performance of 2016-17



### c. Survey of users of selected public toilets

The consultant deployed field enumerators to draw out the response of the users of the public toilets in different locations. A pre-designed questionnaire was used to collect data in relation to accessibility, cleanliness, utility supply, smell & fresh air, service rate, attendants, security, location, inclusiveness (female, child & disable), demand for public toilets and other opinions. A total of 80 respondents (65 male and 15 female) shared their thoughts on the use of SUNRISE public toilets. The summarized findings of the user survey are shown below. Survey questionnaire and detailed survey findings along with the suggestions/opinions of the respondents may be viewed in **Annexes VII and VIII**.

**Table 2.5: Summarized findings on key issues of the user survey**

SI #	Particulars	Yes	No
1	Is it easy to access the toilet?	100%	0%
2	Is the approach clean and cemented?	100%	0%
3	Are you satisfied with the quality of cleaning services?	90%	10%
4	Is the water supply regular?	92%	8%
5	Is the electricity supply regular?	100%	0%
6	Are the consumables (soap, detergent, tissue, etc.) are sufficient?	87.5%	12.5%
7	Is the toilet smell-free with adequate air flowing?	97.5%	2.5%
8	Can service rates be increased further?	0%	100%
9	Are there enough attendants in the toilet?	95%	5%
10	Is there CC camera in proper place?	100%	0%
11	Is the toilet suitable for use by women, children & disables?	100%	0%
12	Is the demand for public toilets increasing?	100%	0%

Field enumerators, while surveying the toilets, also draw out location-specific observations and suggestions from the operators and users. The findings are summarized below:

SI #	Location	Observations
1	Gabtoli Inter-district Bus Station	<ul style="list-style-type: none"> <li>- Ticketing system not properly maintained</li> <li>- Supply of water is not regular</li> </ul>
2	Shyamoli Park	<ul style="list-style-type: none"> <li>- Large number of free users of toilet</li> <li>- Lockers are being used by the staff, not available to the users</li> <li>- Supply of water is irregular</li> </ul>
3	Tejgaon T&T Gate	<ul style="list-style-type: none"> <li>- Hand-wash is not always available</li> </ul>
4	Farmgate Indira Road	<ul style="list-style-type: none"> <li>- Ticketing system not properly maintained</li> <li>- Users need more number of bathing chambers</li> <li>- Users take inordinate long time for bathing</li> <li>- Shortage of sandals</li> </ul>

5	Panthakunja Park	<ul style="list-style-type: none"> <li>- Shortage of water supply</li> <li>- Stealing of shoes, sandals, etc.</li> <li>- Shortage of toilet sandals</li> <li>- Sandals supplied are slippery</li> <li>- Attendants/staff play music inside the toilet</li> <li>- Outsiders gather and gossip in the toilet</li> <li>- Rickshaw-pullers cannot use because of lack of guards to watch their rickshaws</li> </ul>
6	Muktangon	<ul style="list-style-type: none"> <li>- Shortage of toilets for men than in need/demand</li> <li>- Shortage of toilet sandals</li> <li>- Rickshaw-pullers cannot use because of lack of guards to watch their rickshaws</li> </ul>

### 2.2.3 Estimation of Fixed Assets and Physical Facilities

The total construction cost of 19 public toilets (as reported by WaterAid) has been estimated at **BDT 89,117,114** (as of June 30, 2017). A summary of construction cost and operating income of all 19 public toilets is presented below. Detailed list of physical facilities in all the toilets can be viewed at **Annex- II**.

**Table 2.6: Investment/Construction cost of SUNRISE public toilets\***

#	Location	Area (in Sq. ft.)	Operating Months	Construction Cost (in BDT)	Con. Cost Per Sq. ft.
1	Gabtolli Bus Terminal	565	37	5,567,943	9,855
2	Mohakahli Kancha Bazar	500	35	965,240	1,930
3	Manik Nagor	650	19	3,000,000	4,615
4	Sayedabad Bus Terminal (M)	350	15	4,000,442	5,715
5	Sayedabad Bus Terminal (F)	350	3.5		
6	Nabisco- Haji Maron Ali Road	550	14	6,627,328	12,050
7	Tejgaon Sattrasta T&T Gate	750	14	7,674,077	10,232
8	Pouro Filling Station	350	10	1,763,221	5,038
9	Zaman filling Station	???	10	999,033	???
10	Bahadur Shah Park	760	10	3,064,127	4,032
11	Osmani Uddan-1	1740	8	7,770,854	4,466
12	Osmani Uddan-2	1740	8	9,149,189	5,258
13	Farmgate Indira Road	1075	7.5	7,620,893	7,089
14	Shyamoly Park	1150	7.5	5,459,745	4,748
15	Mohakhali-near WASA Pump	780	7.5	4,516,989	5,791
16	Panthokunjo Park	1252	6	6,675,712	5,332
17	Muktangon Park	940	6	6,845,995	7,283
18	Tejgaon Truck Stand	???	6	4,147,270	???
19	Dhaka Zoo Road	450	3	3,269,057	7,265
<b>Total:</b>			<b>227</b>	<b>89,117,114</b>	

As seen from the table, highest cost was incurred for the construction of Osmani Uddyan – 2 public toilet (BDT 9.149 million) and highest unit cost was paid for Nabisco Haji Maran Ali Road public toilet (BDT 12,050). Mohakhali Kancha Bazar public toilet required the lowest construction cost out of the lot. A summary of total physical structures/facilities made in these toilets is shown below. A list of location-wise physical facilities for all the 19 toilets can be viewed at **Annex-II**.

**Table 2.7: Fittings, fixtures and other facilities available in SUNRISE public toilets**

Sl #	Facility	No. of PT	No. of Unit
1	Male toilet	18	55
2	Male urinal	14	40
3	Female toilet	17	47
4	Disable toilet	17	23
5	Drinking Water	19	67
6	Bath	19	35
7	Hand Washing	17	83
8	Sanitary Napkin provision	16	15
9	Shoe Shelf	16	16
10	Locker Cabinet	18	18
11	CC Camera provision	19	19
12	Back-up Power Supply provision	17	17
13	Store Room	19	19
14	Ramp Provision	19	19
15	Green Zone	19	17
16	Ablution	6	22
17	Breast Feeding provision	9	9

### 3.0 OPERATIONAL PERFORMANCE OF SUNRISE PUBLIC TOILETS

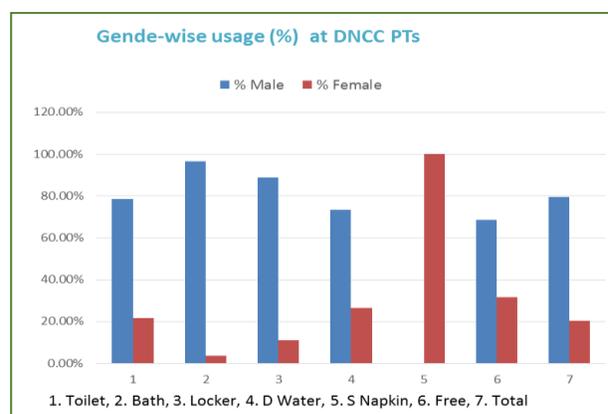
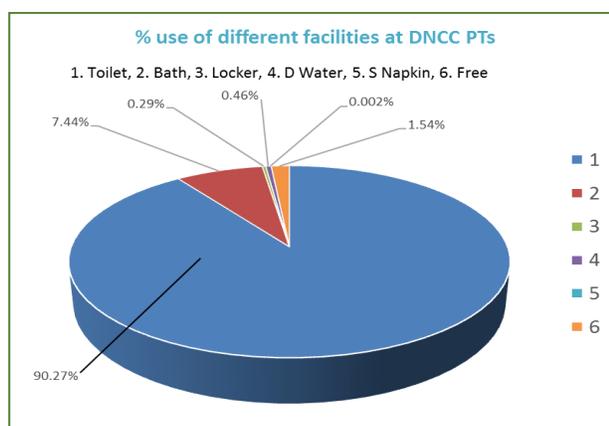
#### 3.1 Year-wise Performance of Public Toilets since Inception

Following 2 tables show the physical performance of as well as revenue generated from the public toilets under DNCC and DSCC. As seen from the analyses, toilet use is the major function (DNCC - 90.27% and DSCC - 86.37%) among the 6 categories of services offered by the units. On the other hand, gender-wise use of services are highly inclined towards the male users (DNCC - 79.66% and DSCC - 88.92%). Year-wise progression of uses are also spectacular in case of both the city corporation.

The comparative performance of different services and gender-wise usage rate (%) are also shown in the figures for the toilets under both the City Corporations.

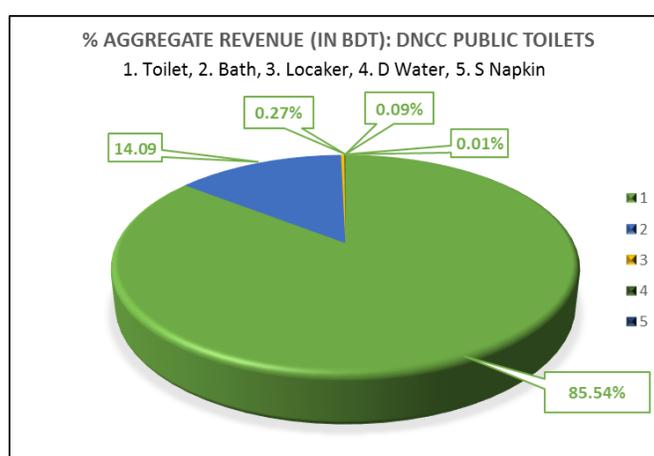
**Table 3.1: Aggregate Year-wise Performance (in number): Public Toilets under DNCC**

Male Use							
Year	Toilet	Bath	Locker	D. Water	S. Napkin	Free	Total
2014-15*	322,464	2,467	-	435	-	1,019	326,385
2015-16	210,060	56,722	1,349	389	-	4,132	272,652
2016-17	602,231	54,068	1,941	3,060	-	11,613	672,913
2017-18*	209,340	22,866	1,596	2,533	-	3,253	239,588
<b>Total (Male)</b>	<b>1,344,095</b>	<b>136,123</b>	<b>4,886</b>	<b>6,417</b>	<b>-</b>	<b>20,017</b>	<b>1,511,538</b>
<b>%</b>	<b>88.92%</b>	<b>9.01%</b>	<b>0.32%</b>	<b>0.42%</b>	<b>0.00%</b>	<b>1.32%</b>	<b>100.00%</b>
Female Use							
2014-15*	53,606	61	-	123	-	413	54,203
2015-16	127,745	219	-	266	-	2,261	130,491
2016-17	158,207	3,633	400	1,149	19	5,035	168,443
2017-18*	29,175	1,055	206	778	14	1,502	32,730
<b>Total (Female)</b>	<b>368,733</b>	<b>4,968</b>	<b>606</b>	<b>2,316</b>	<b>33</b>	<b>9,211</b>	<b>385,867</b>
<b>%</b>	<b>95.56%</b>	<b>1.29%</b>	<b>0.16%</b>	<b>0.60%</b>	<b>0.01%</b>	<b>2.39%</b>	<b>100.00%</b>
<b>Grand Total</b>	<b>1,712,828</b>	<b>141,091</b>	<b>5,492</b>	<b>8,733</b>	<b>33</b>	<b>29,228</b>	<b>1,897,405</b>
<b>%</b>	<b>90.27%</b>	<b>7.44%</b>	<b>0.29%</b>	<b>0.46%</b>	<b>0.002%</b>	<b>1.54%</b>	<b>100.00%</b>
<b>% Male</b>	<b>78.47%</b>	<b>96.48%</b>	<b>88.97%</b>	<b>73.48%</b>	<b>0.00%</b>	<b>68.49%</b>	<b>79.66%</b>
<b>% Female</b>	<b>21.53%</b>	<b>3.52%</b>	<b>11.03%</b>	<b>26.52%</b>	<b>100.00%</b>	<b>31.51%</b>	<b>20.34%</b>


**Table 3.2: Aggregate Year-wise Revenue (in BDT): Public Toilets under DNCC**

Male Use (in BDT)							
Year	Toilet	Bath	Locker	D. Water	S. Napkin	Free	Total
2014-15*	1,612,320	24,670	-	435	-	-	1,637,425
2015-16	1,050,300	567,220	6,745	389	-	-	1,624,654
2016-17	3,011,155	540,680	9,705	3,060	-	-	3,564,600
2017-18*	1,159,200	270,080	8,105	3,363	-	-	1,440,748
<b>Total (Male)</b>	<b>6,832,975</b>	<b>1,402,650</b>	<b>24,555</b>	<b>7,247</b>	<b>-</b>	<b>-</b>	<b>8,267,427</b>
<b>%</b>	<b>82.84%</b>	<b>16.78%</b>	<b>0.30%</b>	<b>0.08%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>100.00%</b>

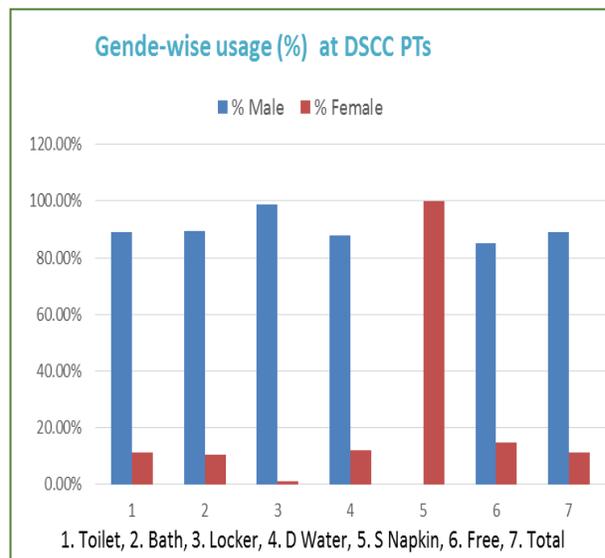
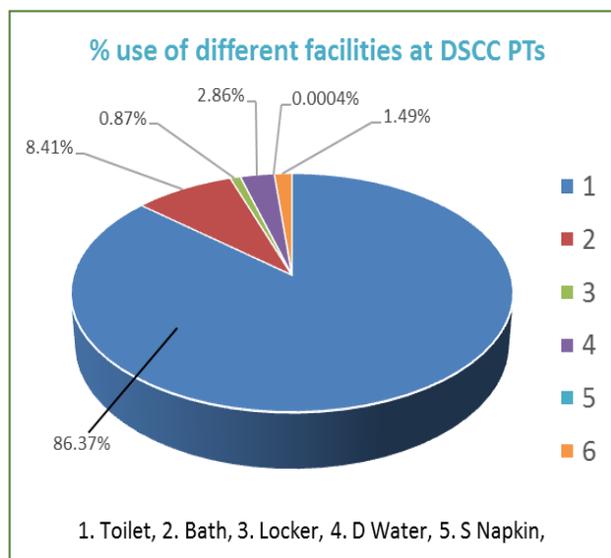
Female Use (in BDT)							
2014-15*	268,030	610	-	123	-	-	268,763
2015-16	638,725	2,190	-	266	-	-	641,181
2016-17	791,035	36,330	2,000	1,149	380	-	830,894
2017-18*	145,875	10,550	1,030	778	280	-	158,513
<b>Total (Female)</b>	<b>1,843,665</b>	<b>49,680</b>	<b>3,030</b>	<b>2,316</b>	<b>660</b>	<b>-</b>	<b>1,899,351</b>
<b>%</b>	<b>97.07%</b>	<b>2.62%</b>	<b>0.16%</b>	<b>0.12%</b>	<b>0.03%</b>	<b>0.00%</b>	<b>100.00%</b>
<b>Grand Total</b>	<b>8,564,140</b>	<b>1,410,910</b>	<b>27,460</b>	<b>8,733</b>	<b>660</b>	<b>-</b>	<b>10,011,903</b>
<b>%</b>	<b>85.54%</b>	<b>14.09%</b>	<b>0.27%</b>	<b>0.09%</b>	<b>0.01%</b>	<b>0.00%</b>	<b>100.00%</b>
% Male	78.47%	96.48%	88.97%	73.48%	0.00%	0.00%	81.03%
% Female	21.53%	3.52%	11.03%	26.52%	100.00%	0.00%	18.97%



**Table 3.3: Aggregate Year-wise Performance (in number): Public Toilets under DSCC**

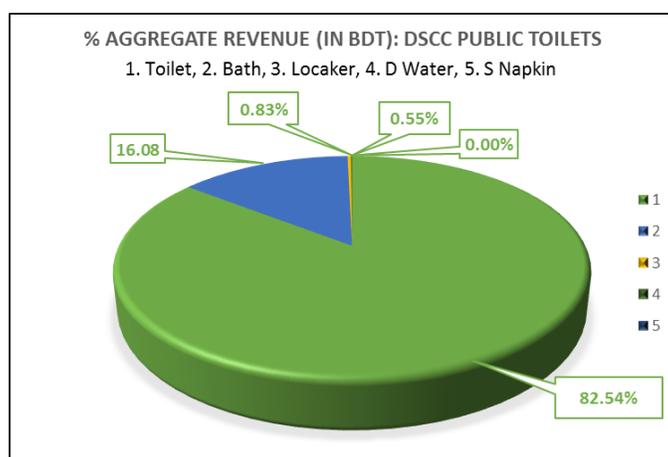
Male Use							
Year	Toilet	Bath	Locker	D. Water	S. Napkin	Free	Total
2014-15	-	-	-	-	-	-	-
2015-16	6,058	1,366	-	185	-	85	7,694
2016-17	619,933	53,372	5,008	17,721	-	10,107	706,141
2017-18*	212,497	27,462	4,379	9,569	-	3,681	257,588
<b>Total (Male)</b>	<b>838,488</b>	<b>82,200</b>	<b>9,387</b>	<b>27,475</b>	<b>-</b>	<b>13,873</b>	<b>971,423</b>
<b>%</b>	<b>86.32%</b>	<b>8.46%</b>	<b>0.97%</b>	<b>2.83%</b>	<b>0.00%</b>	<b>1.43%</b>	<b>100.00%</b>
Female Use							
2014-15	-	-	-	-	-	-	-
2015-16	701	9	-	40	-	20	770
2016-17	81,490	5,563	93	1,343	-	1,913	90,402
2017-18*	22,947	4,124	16	2,365	4	459	29,915
<b>Total (Female)</b>	<b>105,138</b>	<b>9,696</b>	<b>109</b>	<b>3,748</b>	<b>4</b>	<b>2,392</b>	<b>121,087</b>
<b>%</b>	<b>86.83%</b>	<b>8.01%</b>	<b>0.09%</b>	<b>3.10%</b>	<b>0.003%</b>	<b>1.98%</b>	<b>100.00%</b>
<b>Grand Total</b>	<b>943,626</b>	<b>91,896</b>	<b>9,496</b>	<b>31,223</b>	<b>4</b>	<b>16,265</b>	<b>1,092,510</b>
<b>%</b>	<b>86.37%</b>	<b>8.41%</b>	<b>0.87%</b>	<b>2.86%</b>	<b>0.0004%</b>	<b>1.49%</b>	<b>100.00%</b>
<b>% Male</b>	<b>88.86%</b>	<b>89.45%</b>	<b>98.85%</b>	<b>88.00%</b>	<b>0.00%</b>	<b>85.29%</b>	<b>88.92%</b>
<b>% Female</b>	<b>11.14%</b>	<b>10.55%</b>	<b>1.15%</b>	<b>12.00%</b>	<b>100.00%</b>	<b>14.71%</b>	<b>11.08%</b>

\*April '17 - June '17



**Table 3.4: Aggregate Year-wise Revenue (in BDT): Public Toilets under DSCC**

Male Use (in BDT)							
Year	Toilet	Bath	Locker	D. Water	S. Napkin	Free	Total
2014-15*	-	-	-	-	-	-	-
2015-16	30,290	13,660	-	185	-	-	44,135
2016-17	3,099,665	533,720	25,040	17,721	-	-	3,676,146
2017-18*	1,062,485	274,620	21,895	9,569	-	-	1,368,569
<b>Total (Male)</b>	<b>4,192,440</b>	<b>822,000</b>	<b>46,935</b>	<b>27,475</b>	<b>-</b>	<b>-</b>	<b>5,088,850</b>
%	<b>82.38%</b>	<b>16.15%</b>	<b>0.92%</b>	<b>0.54%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>100.00%</b>
Female Use (in BDT)							
2014-15*	-	-	-	-	-	-	-
2015-16	3,505	90	-	40	-	-	3,635
2016-17	407,450	55,630	465	1,343	-	-	464,888
2017-18*	114,735	41,240	80	2,365	80	-	158,500
<b>Total (Female)</b>	<b>525,690</b>	<b>96,960</b>	<b>545</b>	<b>3,748</b>	<b>80</b>	<b>-</b>	<b>627,023</b>
%	<b>83.84%</b>	<b>15.46%</b>	<b>0.09%</b>	<b>0.60%</b>	<b>0.01%</b>	<b>0.00%</b>	<b>100.00%</b>
<b>Grand Total</b>	<b>4,718,130</b>	<b>918,960</b>	<b>47,480</b>	<b>31,223</b>	<b>80</b>	<b>-</b>	<b>5,715,873</b>
%	82.54%	16.08%	0.83%	0.55%	0.00%	0.00%	100.00%
% Male	88.86%	89.45%	98.85%	88.00%	0.00%	0.00%	89.03%
% Female	11.14%	10.55%	1.15%	12.00%	100.00%	0.00%	10.97%



Separate performance of each public toilet (both physical and financial) under DNCC and DSCC have been shown in **Annexes-V and VI**. The performance reveals that Gabtoli PT generates highest income out of the 19 PTs.

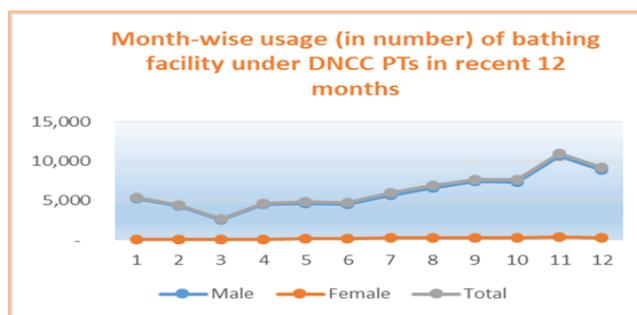
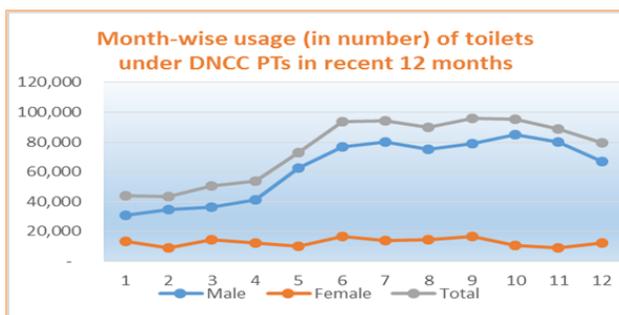
### 3.2 Month-wise Trend Analysis of Public Toilets for Recent Months

Comparative analysis of monthly usage trends of the toilets under DNCC and DSCC was done on the basis of recorded data. The tables below show the trends of toilets under the two City

Corporations. Usage trends of all the public toilets under the two city corporations have been analyzed and may be viewed at **Annex VII**.

**Table 3.3: Monthly usage trend (in number): Public toilets under DNCC**

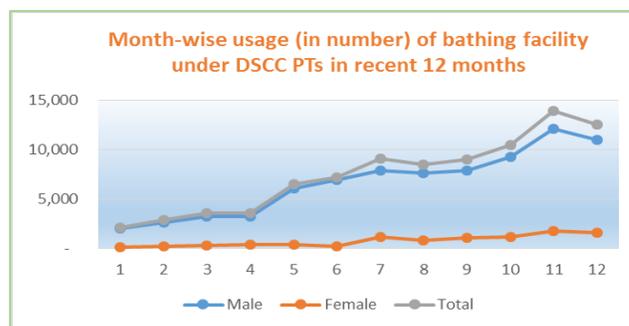
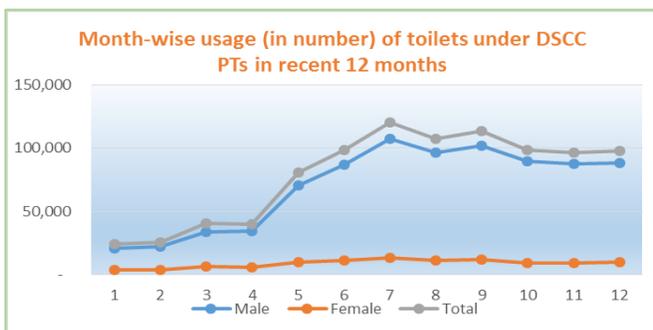
Month	Toilet			Bath			Locker			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
1	30,910	13,165	44,075	5,346	105	5,451	10	9	19	36,764	13,298	50,062
2	34,434	9,173	43,607	4,372	140	4,512	-	-	-	39,505	9,430	48,935
3	36,448	14,176	50,624	2,609	119	2,728	-	-	-	40,544	14,361	54,905
4	41,262	12,300	53,562	4,570	110	4,680	-	-	-	47,234	12,471	59,705
5	62,605	10,154	72,759	4,653	222	4,875	40	-	40	68,603	10,759	79,362
6	76,932	16,723	93,655	4,546	239	4,785	589	68	657	84,115	17,576	101,691
7	80,240	13,988	94,228	5,714	286	6,000	190	20	210	87,873	14,589	102,462
8	75,316	14,538	89,854	6,639	350	6,989	471	91	562	84,720	15,565	100,285
9	78,921	16,785	95,706	7,436	275	7,711	480	89	569	89,168	17,475	106,643
10	84,888	10,457	95,345	7,412	315	7,727	521	75	596	95,225	11,911	107,136
11	79,823	8,879	88,702	10,665	408	11,073	527	94	621	93,722	10,716	104,438
12	44,629	9,839	54,468	4,789	332	5,121	548	37	585	50,641	10,952	61,593



As toilet and bathing occupies the top positions in terms of use and revenue, graphical presentations have been drawn only for these two facilities. As seen in graph-1, last month's performance was abnormally low in DNCC PTs. Usage trend remains stagnant from December '16 to May '17 even after a number of public toilets started operation recently. Female participation is insignificant and not showing increasing trend over the passage of time. Bathing facilities (as shown in graph-2) show an upward trend up to May, 2017. The decline of performance in June, 2017 may be caused by Ramadhan (the month of fasting).

**Table 3.4: Monthly usage trend (in number): Public toilets under DSCC**

Month	Toilet			Bath			Locker			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
1	20,645	3,566	24,211	2,034	136	2,170	-	-	-	22,940	3,730	26,670
2	21,776	3,362	25,138	2,621	285	2,906	-	-	-	24,732	3,857	28,589
3	33,577	6,687	40,264	3,284	345	3,629	-	-	-	37,393	7,120	44,513
4	34,230	5,752	39,982	3,223	389	3,612	-	-	-	38,490	6,223	44,713
5	70,469	10,014	80,483	6,112	374	6,486	100	22	122	80,668	11,088	91,756
6	86,844	11,387	98,231	6,969	229	7,198	763	10	773	99,231	11,996	111,227
7	107,357	12,911	120,268	7,877	1,221	9,098	1,342	52	1,394	122,232	14,400	136,632
8	96,401	11,077	107,478	7,596	886	8,482	1,127	1	1,128	110,044	12,800	122,844
9	101,670	11,830	113,500	7,922	1,101	9,023	1,676	8	1,684	117,015	12,997	130,012
10	89,425	9,333	98,758	9,270	1,209	10,479	1,498	11	1,509	105,822	12,393	118,215
11	87,449	9,359	96,808	12,076	1,777	13,853	2,140	-	2,140	107,321	12,606	119,927
12	35,623	4,255	39,878	6,116	1,138	7,254	741	5	746	44,445	6,818	51,263



In case of DSCC public toilets, a downward trend is observed in the use of toilets from December '16. However, bathing shows an increasing usage (excepting June, 17).

## 4.0 DEMAND SUPPLY SITUATION

Dhaka and the municipalities that make up the Greater Dhaka Area have a total population of over 18 million, and the city has shown population growth of about 4.2% annually<sup>1</sup>. Nearly 6.0 million of about 18 million population of Dhaka city belong to low-income group who do not have access to proper water and sanitation. The project targeted to approximately 2.0 million floating population and pedestrians who are deprived of good public sanitation services in Dhaka. Due to the dilapidated condition of the traditional public toilets and lack of appropriate facilities, women and children are the worst sufferers.

User survey as narrated in section 2.2 reveals that the public toilets of SUNRISE project were enthusiastically accepted by the common mass. The toilets and their operational standard made a paradigm shift on the concept of public toilets in urban Dhaka. The respondents of the survey also suggested to set up more public toilets with such facilities and standards in other important public places as well.

Some other organizations and NGOs have also taken initiatives for setting up public toilets with similar facilities. Two such toilets are already started operation in the city. One toilet is being run by an NGO (namely SPACE) at Dhaka Zoo Road (near Dhaka Commerce College). The second one was constructed (not yet started operation) by Social Marketing Company (a renowned NGO) at Farm Gate area. The two city corporations have also planned for setting up more than 100 public toilets following the WAB model in near future. Besides, newly constructed public buildings and shopping malls also keep better provision for toilets inside and as such, need for using SUNRISE toilets will face competition in the coming days.

Finding the most appropriate location of public toilets is important to ensure maximum use of the facility and for personal safety. Public toilets should be located where traffic and pedestrian volume are higher. High visibility and closeness to streets are also important in selecting the location.

### 4.1 Demand Analysis

Demand for using public toilets will continue to rise with the increase of population in the city. Among other factors, awareness building through appropriate promotional measures, selecting right locations, inclusiveness and proper safety measures must also be adopted.

With the pace of population growth @4.2% per annum, the demand for public toilets will continue to grow as a whole. The trend analyses shown in the Table 3.3 and 3.4 for the public toilets under DNCC and DSCC show an upward trend at the beginning, but they do not indicate a

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<sup>1</sup> <http://worldpopulationreview.com/world-cities/dhaka-population/>

clear growth pattern over the period. Again, as seen from separate analyses of individual public toilets, some of them, especially in the vibrant areas, show higher usage rate compared to that of less busy areas. The performance of the existing SUNRISE toilets (as seen in Table 2.1) indicates that bus terminals, busy commercial locations such as, Farmgate, Gulistan, Kawran Bazar and Sadarghat have the high potentials for accommodating 2-3 additional toilets. Mohakhali bus terminal, Shahbag area, Kakrail, Komolapur railway station and some other busy spots have not been covered yet. On the other hand, public toilets at Shyamoli Park, Dhaka Zoo Road and filling station-based toilets are lagging behind in terms of usage. Experience gained from the performance of existing toilets provide a clear indication of choosing location for setting up public toilets in future.

## 4.2 Supply Situation

Feeling the necessity and observing the performance of SUNRISE toilets, both DNCC and DSCC have made provisions for setting up more toilets in the city. Upcoming project on 'Upgrading and Greening of Urban Areas' have kept provision for setting up 100 toilets in urban Dhaka. Other local NGOs, similar to SMC and SPACE may come up with more public toilets in the coming days.

For sustainable functioning of public toilets, many other factors such as, service rates, cleanliness, accessibility, security, inclusiveness, availability of supplies, monitoring and surveillance must also be addressed. Otherwise, only locational advantage will not only ensure the usage of the toilets by the city dwellers.

## 5.0 CURRENT OPERATIONAL ARRANGEMENT

After deciding on the appropriate and feasible location, appropriate design and construction of the toilet are done by considering both internal and external factors. Once the construction is done the management and maintenance of a public toilet are decided.

### 5.1 Management Committee

In the management of the public toilets, several considerations carry a lot of importance. Such as - the formation of the committee, the appointment of the cleaning agent, etc.

In order to perform the overall activities (i.e., regular maintenance, management of toll, supervision of cleaning agent / company and book keeping, etc.) of each public toilet, a committee is constituted in consultation with the City Corporation with the representation from community people. The committee comprises of the following members:

President:	Retired high-ranking government officials from the local community or any other interested and influential community member.
Vice-President:	Social workers at the community level or any other interested or appropriate local person
General Secretary:	Leading social worker living at community level or any other interested or appropriate people considered by local
Treasurer:	Ward level officer of City Corporation (nominated by City Corporation)
Member:	Authorized officer of the cleaning company
Member:	Local NGO representative
Member:	Representative of local professional organization

#### **Duties and Responsibilities of the Management Committee:**

- a) Arrangement of monthly committee meetings, approval of the expenses of the previous month and reviewing of income and expenditure
- b) Running the regular functions of the toilet, ensuring of regular attendance of the staff, monitoring activities and providing necessary guidance.
- c) On-time replacement of damaged items.
- d) On-time repair of sewerage system.
- e) Regular payment of electricity, water, cleaning company's monthly salary.
- f) Monitoring the timely depositing of collection to the bank account.
- g) Proper record keeping of income and expenditure.
- h) Monitoring the tasks of the employees of cleaning company and evaluating the quality of their work and renewal of contract.
- i) Preparation of monthly report and obtaining approval from the committee.

- j) Taking necessary action by discussing among the members of the committee in case of emergency, such as fire, etc.

## **5.2 Maintenance of Public Toilets**

Cleaning agent/ company will be appointed to maintain the toilets. Cleaning agent/ company can be a person or organization.

## **5.3 Operation of Public Toilets**

The Committee will appoint a number of skilled, hardworking and service-minded operators for a specific period of time to manage the daily toilet. The operator can be selected from any member involved in the management committee or any person or any other organization.

## **5.4 Guidelines for Users**

Public toilets are used by people of all strata of society. Its cleanliness and successful management depend on proper use of the toilet.

## **5.5 Guidelines for Leaseholders**

The public toilet should have a water meter and the meter reading will be done at the same time each month. The leaseholder or the employer or organization will record water meter reading on a daily basis. The leaseholder cannot sub-lease his contract in any form.

## **5.6 Responsibilities of the City Corporation**

City Corporation has an important role in public toilet management as the legitimate authority in the city. The neglect and ignorance of the City Corporation can create disorder in managing the infrastructure and operation of the toilet. Therefore, it is very important that the responsibility and duties should be specifically allocated in order to overcome various complications. Some examples are mentioned below:

- a) Be responsible for the removal of garbage of all types of public toilets and urinals.
- b) Ensure CSR fund collection and access to all, the City Corporation will take appropriate initiatives to extend the services.
- c) Take promotional activities for all the urban citizens including the rich and the poor who come under this service and use them.
- d) Develop an effective relationship between various government agencies, especially among the City Corporations, RAJUK, WASA and other stakeholders. City Corporation will take highest responsibility or play the leading role in this area.
- e) Take proper initiatives to increase the efficiency of the employees involved in public toilet management
- f) Specify the roles of local Ward Commissioner and other stakeholders.

## 5.7 Sustainability Measures

It is important to maintain the permanence of the public toilets for ensuring the services to the city dwellers. Sustainability is mainly to maintain the infrastructure of the public toilets, maintain a clean environment, and overall improvement of health, movement, and human life through proper use of public toilets. Sustainability measures are to taken on the above denominators and if possible, appropriate stakeholders are to be engaged in order to sustain the operation without financial and operational difficulties.

## 6.0 ALTERNATIVE BUSINESS MODELS

WAB piloted the SUNRISE Project with a Memorandum of Understanding (MoU) with the City Corporations. The agreement will expire after 3 years of signing of the MoU. In such a situation, WAB needs to draw out a suitable exit plan for the project and as such, different options are being examined so that the public toilets can operate smoothly even after the withdrawal of WAB from the scene.

### 6.1 Financial Projections of Public Toilets under DNCC and DSCC

Under the existing arrangement with the given service rates, operation and maintenance cost, the subsidy will need to be continued for running the toilets in the coming years. Without a substantial lift in usage rate of the toilets, it will be difficult to make all the toilets financially sustainable. Financial projections of the toilets under DNCC and DSCC have been drawn in **Annex IX and X**. The financial projections have been prepared on the basis of average performance of existing public toilets under the two City Corporations. The analyses indicate that deficit will continue for the next 5 years if the toilets are run from the operational income only. However, it can be minimized from non-operational income, such as - support from sponsors' CSR activities, advertisements, etc.

**Table 6.1: Average Investment of Public Toilets under DNCC and DSCC**

Particulars	Average Size (in sft)	Average Rate/sft (in BDT)	Average Cost (in BDT)
DNCC Public Toilets	747	6,579	4,684,457
DSCC Public Toilets	887	4,339	4,696,616
All Public Toilets	813	5,518	4,690,374

**Table 6.2: Projected Annual Average Income of DNCC PTs**

(in BDT)

Particulars	Year:1	Year:2	Year:3	Year:4	Year:5
Gross Revenue	573,906	631,296	694,426	763,869	840,255
Operating expenses	736,000	772,800	811,440	852,012	894,613
<b>Operating surplus</b>	<b>(162,094)</b>	<b>(141,504)</b>	<b>(117,014)</b>	<b>(88,143)</b>	<b>(54,357)</b>
Other expenses	438,250	441,250	444,400	447,708	451,180
<b>Net surplus/(deficit)</b>	<b>(600,344)</b>	<b>(582,754)</b>	<b>(561,414)</b>	<b>(535,851)</b>	<b>(505,537)</b>

**Table 6.3: Projected Annual Average Income of DSCC PTs**

(in BDT)

Particulars	Year:1	Year:2	Year:3	Year:4	Year:5
Gross Revenue	618,127	680,059	748,220	823,244	905,832
Operating expenses	746,500	783,825	823,016	864,167	907,375
<b>Operating surplus</b>	<b>(128,373)</b>	<b>(103,766)</b>	<b>(74,796)</b>	<b>(40,923)</b>	<b>(1,544)</b>
Other expenses	468,200	471,200	474,350	477,658	481,130
<b>Net surplus/(deficit)</b>	<b>(596,573)</b>	<b>(574,966)</b>	<b>(549,146)</b>	<b>(518,580)</b>	<b>(482,674)</b>

## 6.2 Detailed Financial Analysis

Although some of the public toilets have been showing satisfactory performance and have already surpassed break-even point (BDT 1,790,689 per annum), many of the public toilets are yet to run without subsidy under the current usage rate. Monthly trend analyses of selected public toilets reveal that Gabtoli, Usmani Uddyan, Farmgate, Tejgaon Truck Stand, Sayedabad have already exceeded monthly sales of BDT 100,000/- in the recent months. Again, there are non-recorded revenues in almost all the public toilets. The phenomenon can be checked through stringent surveillance and internal control.

With a view to derive the key financial indicators, a financial projection has been exercised on the basis of the performance of Gabtoli PT (the oldest one) which assessed the investment size, profitability, IRR, BEP and financial ratios. Detailed calculation and assumptions thereto may be viewed in **Annex – XI**. The summary of the financial projections for DNCC and DSCC may be viewed as under:

### Project Cost (investment size) (in BDT)

Particulars	Amount
Fixed cost	5,570,000
Working capital	130,000
<b>Total cost of the project</b>	<b>5,700,000</b>

### Income Statement (in BDT)

Particulars		Actual	Year:1	Year:2	Year:3	Year:4	Year:5
Projected uses (in number)	Male	267,402	320,882	352,971	388,268	427,094	469,804
	Female	135,596	162,715	178,987	196,885	216,574	238,231
	Total	402,998	483,598	509,298	536,436	565,097	595,376
Projected revenue (in BDT)	Male	1,317,625	1,679,012	1,846,914	2,031,605	2,234,766	2,458,242
	Female	664,200	802,158	882,374	970,611	1,067,672	1,174,440
	Total	1,981,825	2,481,170	2,729,287	3,002,216	3,302,438	3,632,682
Projected operating expenses			1,277,000	1,340,850	1,407,893	1,478,287	1,552,201
Projected non-operating expenses			1,204,170	1,388,437	1,594,324	1,824,151	2,080,480
Total expenditure			1,759,500	1,833,550	1,911,303	1,992,943	2,078,665
Net surplus/(deficit)			721,670	895,737	1,090,914	1,309,495	1,554,017

### Financial Ratios:

Particulars	Year:1	Year:2	Year:3	Year:4	Year:5
Operating surplus to revenue	48.53%	50.87%	53.10%	55.24%	57.27%
Net surplus to revenue	29.09%	32.82%	36.34%	39.65%	42.78%
Return on initial investment (RoI)	12.66%	15.71%	19.14%	22.97%	27.26%

Internal Rate of Return (IRR)	37.07%
Net Present Value (NPV) - at 15%	199,782
Break Even Point (BEP) (% of revenue)	54.80%
Break Even Point (BEP) (in BDT)	1,645,127

**Unit Cost: (in BDT)**

Services	# of Users	Total Revenue	% Ratio of Total Rev.	Salary + O&M Cost	Other Cost	Total Cost	Dedicated Materials	Unit Cost	Service Rate	Surplus per unit
Toilet	499,638	2,498,188	90.56%	385,787	620,122	1,005,909	1.00	3.01	5.00	1.99
Bath	25,149	251,486	9.12%	38,836	62,426	101,262	5.00	9.03	10.00	0.97
Locker	1,603	8,015	0.29%	1,238	1,990	3,227	-	2.01	5.00	2.99
D. Water	388	388	0.01%	60	96	156	0.25	0.65	1.00	0.35
S. Napkin	28	552	0.02%	85	137	222	14.00	22.05	20.00	(2.05)
Total	526,804	2,758,629	100.00%	426,006	684,771	1,110,777		7.35	8.20	

### 6.3 Options for Operational Modalities

Under the present arrangement, the management committee has been running the public toilets where, among others, a local NGO representative and ward-level city corporation official are engaged. It is observed that the NGO representative has been playing a pivotal role in supervision and monitoring of the day-to-day affairs of the toilets on behalf of the committee. Other members have less roles in the effective functioning of the toilets. While proposing on feasible options for operational models, current operational performance of different public toilets have been taken into consideration.

#### OPTION 1: Private Sector based operation

Before leasing out the public toilets, the City Corporations must prepare a detailed operation manual with specific and measurable standards/bench mark for each task related to the services offered, quality assurance and other key parameters. It will be an integral part of the lease agreement and penalties for any deviation from the set standards must be clearly stated in the manual. The responsibility of developing a full-fledged operation manual may be offered by WAB or any other competent organization having experience in the sector.

The City Corporations must ensure the selection of lessee through fair and open bidding process without undue influence from any vested quarter as per Public Procurement Rules (PPR). Unlike the current arrangement with the lessees of the traditional public toilets run by the City Corporations, a monitoring committee (similar to that of SUNRISE Project) with the representatives from community level ward councilor and NGO will look after the operational performance of the individual public toilets. They will hold monthly meeting on regular basis and be paid honourarium by the lessee for the purpose. Both the lessee and the committee will submit periodic reports to the higher authority in the City Corporations responsible for public toilet management.

As seen from the performance analyses in the other sections, some of the public toilets are lagging behind and needs subsidies to run smoothly. In order to rationalize the income, management contract may be arranged on cluster basis (a mix of 4-5 public toilets together with good, moderate and poor performance). In addition, both the lessees and the City Corporations will put efforts to tag financial sponsors as a gesture of CSR by large business groups/banks (currently being practiced for gardening road divider).

### OPTION 2: NGO based operation

A number of NGOs have acquired adequate experience and good reputation in managing various WASH related projects. A lessee can be selected through open bidding from among these NGOs on competitive basis. It is expected that the NGOs will exert better performance due to their social mandates and they will run the activities like a social business. Moreover, they are accountable to the Government for their performance to the NGO Affairs Bureau and Department of Social Welfare and as such, they will try to perform sincerely to keep their programs and activities undisputed.

The management and operation modalities in case of option – 2 will be similar to that of option - 1.

### OPTION 3: Both Private Sector and NGOs

Under this options, the public toilets may be leased out for 5-year term on 50:50 basis, i.e., 50% toilets will be leased out to private sector and the rest 50% to the NGOs. The performance of lessee will be evaluated after the term and future course of action will be drawn for the next term from the evaluation.

### Option 4: Modified Existing Arrangement

Management and profit sharing of the existing SUNRISE toilets may be handed over to the existing committee under a partnership arrangement. Rather than extending uneven subsidies, a flat monthly subsidy to individual public toilets may be given for the poor performers (performing below BEP) after further assessment of the future revenue stream. In that case, the partners will find out the means for checking pilferage and inefficiency and will try to maximize their profit.

For all the options above, City Corporations must not compromise on quality issues, which they may monitor themselves or any local or international NGO/organization may be assigned the responsibility on voluntary or fee basis.

Out of the above options, the third one (**Both Private Sector and NGOs**) seems more practical considering the current management and operational status of public toilets in the city.

## 6.4 Risk Analysis

A comparison of associated risks against the options mentioned above is addressed below:

Issue	Risk level	Possible remedy
Undue political influence	High risk in case of option 1 and 3.	Bidding process must be transparent with strict adherence to PPR. City Corporations may outsource the whole process of recruitment to a competent 3 <sup>rd</sup> party.

Ensuring quality of services	High risk in case of all the options more or less.	A comprehensive manual with strict adherence to the same is necessary. A sound monitoring mechanism will reduce the deviation from the set standards.
Extortion, bribery, lawlessness, etc.	Moderate risk for all the options	Proposed monitoring committee should be formed with members having the capability of tackling such occurrence.
Non-reporting of uses	Low risk	Periodic subsidy for weak performing PTs should be adjusted not on monthly performance, but on the basis of spot observation of each toilet. The lessee will be liable for performance above or below the fixed subsidy.
Clearing utility bills	Low risk	Specific clauses should be kept in the agreement on non-payment of bills. The lessee will be disqualified if bills are not paid for certain months.

### 6.5 Business Development Issues:

SUNRISE project aimed at providing affordable quality sanitation services for the low income and commuter population of the city. The project successfully implemented the about 20 units and all of them are under operation now. However, use of these toilets varies place to place due to the locational factors. To raise the awareness among the potential users, WAB may adopt, among others, the following steps:

- Features, articles, panel discussions to promote good hygiene practice in both the print and electronic media;
- Web-based apps may be introduced with the location map of SUNRISE public toilets;
- Using billboard, street signage with arrow indication for the toilets not adequately visible from the main streets (e.g. Shyamoli Park);
- Applying proper internal control and monitoring mechanism to reduce non-reported uses and so on.
- As the City Corporations are allotting dedicated open space in prime locations, multi-storied design may also be considered for the toilets. The ground level of the structure may be used for toilets, the upper floors can be rented for Coffee shops and other suitable commercial outlets. It will generate additional revenue from the investment which will substantially cover the subsidies being paid for toilet operation.

## 7.0 CONCLUSION AND RECOMMENDATIONS

SUNRISE project, from the inception of first public toilet at Gabtoli Bus Terminal, put emphasis on high quality services for the urban citizens and visitors. The project to a great extent successfully changed the perceptions of the city dwellers about public toilets and how to use them. Survey findings and the observations of key stakeholders clearly indicate the degree of satisfaction of the users. The design of these toilets was not only confined to defecation, but also included bathing, locker and drinking water within the service package. Inclusiveness is one of the key parameters of these toilets, so that women, children and disables can also avail the services with ease. Accessibility, cleanliness and safety issues were also addressed satisfactorily while designing and operating the toilets.

20 toilets have so far started operation out of which 18 are being run commercially and some other units are under implementation. Physical and financial performance of the toilets, as revealed from the survey, interview and analysis, indicate that about 3-4 toilets have been performing quite well and can proceed sustainably and without subsidies in future. Other toilets will still require subsidy or external funding to be operated without compromising the service quality.

Altogether during 230 toilet-months 2.95 million users availed the services of SUNRISE toilets and a total revenue of BDT 15.543 million was generated up to June, 2017. Out of the 19 public toilets covered under the study, Gabtoli Bus Terminal, Farmgate, Osmani Uddyan 1 & 2, Sayedabad Bus Terminal have been performing satisfactorily with a monthly average income of more than BDT 100,000. Spot observation reveals that due to poor monitoring a significant number of uses are not being reported (47.19%) which means that actual income would be much higher than the reported ones.

Toilet (DNCC – 85.54%, DSCC 86.37%) is the most availed service and followed by bathing (DNCC – 14.09%, DSCC – 8.41%). Uses of other services have little impact on overall income of the units. Female users account for 20.34% in DNCC and 18.97% for DSCC.

The respondents of the user survey expressed their satisfaction on the service quality and other parameters. Some aspects, such as – cleanliness, availability of consumables, availability of water and attendant services need to be improved further. All the respondents found the service rate reasonable, but no one is in favour of increasing the rate from the present level. On the service facilities, they opined for keeping provision for more toilets for male use especially in the busy areas like Gabtoli, Muktangon, Usmani Uddyan and so on. Some stakeholders emphasized on increasing the number of public toilets in the city by lowering the standard to some extent, so that larger population can be benefitted from the investment made.

A financial analysis has been done in the study to assess the cost of the project, income statement, financial ratios, BEP, IRR, NPV and unit cost. Five year projection was made in the analysis basing on the performance of leading public toilets. The analysis indicates that assuming

the prevailing service rate and investment size, a public toilet would be viable if the monthly income exceeds BDT 150,000. Estimated IRR and NPV (at 15% discount rate) would be 37.07 % and BDT 199,782 respectively.

Four alternative business models are proposed in the study, namely – a) Private sector based operation; b) NGO based operation; c) Mix of NGO and private sector (50-50); and d) Existing arrangement with some modification. Out of the proposed options, the **third option** seems more practical in the current status of public toilet scenario in Dhaka city.