

WASH

Baseline Assessment of Kushtia Municipality Bangladesh



Project: Integrated Water Management in Urban Areas

Implemented by: Waste Concern, Kushtia Municipality

Supported by: Bremen Overseas Research and Development (BORDA)

Funded by: BMZ



Federal Ministry
for Economic Cooperation
and Development

BORDA



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Baseline Survey Conducted on: March, 2021

Photograph Courtesy: Waste Concern

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ABBREVIATIONS

BBS	Bangladesh Bureau of Statistics
DEWATS	Decentralised Wastewater Treatment System
DPHE	Department of Public Health Engineering
FHTC	Functional Household Tap Connection
FS	Faecal Sludge
FSM	Faecal Sludge Management
FSTP	Faecal Sludge Treatment Plant
GoB	Government of Bangladesh
GPS	Global Positioning System
HH	Household
KLD	Kilo Litres Per Day
LGED	Local Government Engineering Department
LPCD	Litres Per Capita Per Day
MT	Metric Ton
O&M	Operation and Maintenance
PPE	Personal Protective Equipment
STS	Secondary Transfer Station
SWM	Solid Waste Management
Tk	Bangladeshi Taka
ULB	Urban Local Body
WASH	Water Sanitation and Hygiene

CURRENCY CONVERSION

1 USD = 84.75 Taka

1.0

Town Profile

1.0 Town Profile

1.1 Background

Kushtia is a district in the Khulna administrative division of western Bangladesh. It is a medieval township. From the Mughal period this area has developed as a trade centre because of its geographical location. Railway connection with Kolkata, the then Capital of British India and waterway facilities through the Padma River has further facilitated Kushtia to grow as an alluring location for mills and factories. The town developed based on these industries and trades associated with these industries. Considering its extensive growth, Kushtia Municipality was established on April 1, 1869 under the Municipal Act, 1868. Since then, this municipality has developed, and it has the potential to develop further not only as an administrative centre but also as an economically vibrant area housing substantial urban population of the country.

1.2 Demography

Kushtia Pourashava is a ‘Class A’ Pourashava with an area of 42.79 sqkm consisting 21 Wards and 19 Mouzas . Before 2015, Kushtia Pourashava had 12 wards. According to Bangladesh Bureau of Statistic (BBS) 2011, the total area was 13.4 sq. km. In 2015 the administrative area of this Pourashava has been extended consisting 21 wards. As a result, the population of this Pourashava increased to 250,364 (in 2017) according to the Pourashava and estimated present in 2021 is 467,197 where the growth rate is 1.69 and base year is 2017. The population density is 5,851 persons per km². Density varies in different wards. Highest population lives in ward no. 18 (36,986) and the lowest in ward no. 11 (5,137).

Kushtia is one of the fastest growing Pourashavas of Bangladesh with a potential to develop as an industrialized and developed community. The average growth of this Pourashava is 1.69%. Population projections indicate that Kushtia Pourashava will have a total population of 3,50,058 in the year 20373.

¹ A ward is an elective unit of a Municipality, created for the purpose of providing more direct representation, from which a single council member is elected.

² Mauza is a type of administrative district, corresponding to a specific land area within which there may be one or more wards or settlements. The term is also referred to a revenue collection unit in a revenue district.

³ Local Government Engineering Department (²⁰¹⁹), “Master Plan of Kushtia Municipality (^{2017_2037}), prepared by DDC Limited”.

Table 1: Town Profile

Name of the Town/City	Kushtia Municipality (Pourashava)			
Province/District/State/UT	Kushtia, Khulna, Bangladesh			
Area of the Town (Sq.Km)	42.79 (BBS, Small Area Atlas of Bangladesh 2016)			
Number of administrative division (Ward)	21			
Total population	2011: 102,988 (Census 2011)		Estimated Present: 239,922 (2020)	
	Male	Female	Male	Female
	52,887	50,101	122,693	116,229
Population growth rate (%)	1.69 (BBS. Population Census 2011)			
Floating population (If applicable)	136 (BBS. Population Census 2011)			
No. Properties	Residential	Commercial	Institutional	Others
	37.51 %	2.12%	6.36%	54.01%
No. of Notified Slum	38 (BBS, Census of Slum & Floating Population 2014)			
No. of Non-Notified Slum	57			

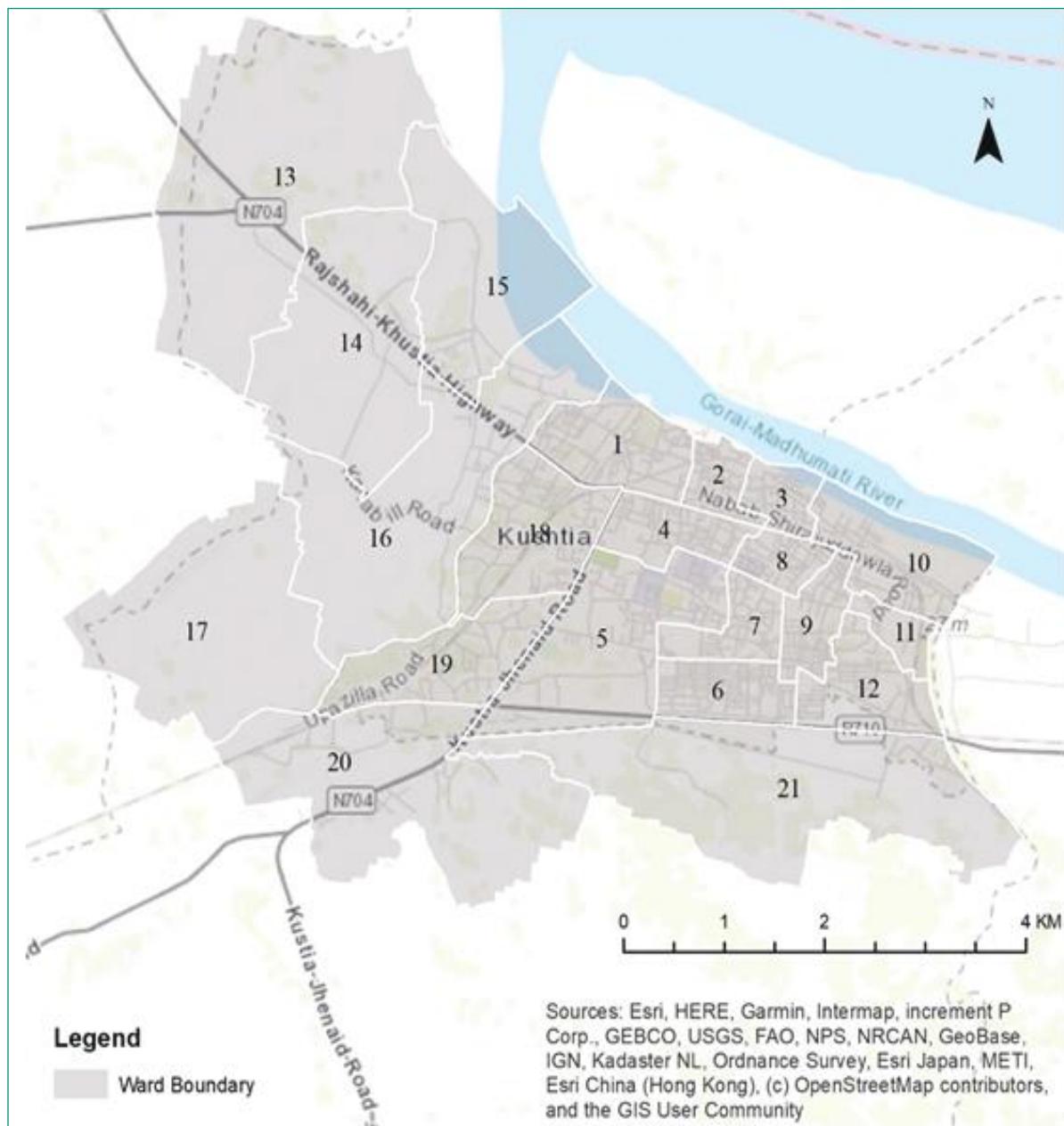
Table 2: Ward Level Data

Ward. No.	Area (Sq. Km)*	No. of Households**	Population**	General Income status	Remarks
1	1.42	1,587	9185	Mixed income area	Kamalapur Nabin Pramanik Primary School
2	0.55	2,081	10703	Mixed income area	Thanapara Temple
3	0.46	2,262	12028	Mixed income area	Lovely Tower
4	0.72	1,939	8824	Mixed income area	Eidgah Para
5	2.56	3,272	14587	Mixed income area	Stadium Field
6	0.80	1,918	11488	Mixed income area	Jailkhana Mor
7	0.65	1,665	8072	Mixed income area	Housing Kodomtola Mor
8	0.37	1,478	8610	Mixed income area	Rajar Hat
9	0.70	1,551	10318	Mixed income area	Hazrat Nafarshah Mazar
10	0.91	2,436	12209	Mixed income area	Shamsul Ulum Madrasa
11	0.55	1,097	6035	Mixed income area	Mohini Mils
12	1.53	1,751	9665	Mixed income area	Harshankarpur Water Tank
13	5.84	2,538	14856	Mixed income area	Trimohoni Bazar
14	3.03	1,600	10074	Mixed income area	Jugia Mondol Para
15	1.51	1,670	10079	Mixed income area	Kana Biler Mor
16	5.97	2855	14561	Mixed income area	Mongolbaria Bazar
17	4.16	3,641	9454	Mixed income area	Sugar Mill Dhaka Dhalu para
18	1.43	7,530	16746	Mixed income area	Udibari Munshurshahar Mazar
19	1.37	4,744	16846	Mixed income area	Chourhash Jagati Bazar
20	3.91	1,623	11506	Mixed income area	Kumargara BTC Mor/ BRB Group
21	4.37	2,051	13077	Mixed income area	Lahini School Para
	42.79	51,289	238922		

Source: Field survey done by Waste Concern, 2021 * BBS, Small Area Atlas of Bangladesh 2016 ** BBS. Population Census 2011, LGED, Kushtia Master Plan 2019



Map 1: Location Map of Khustia Municipality, Source: Google Earth, 2021



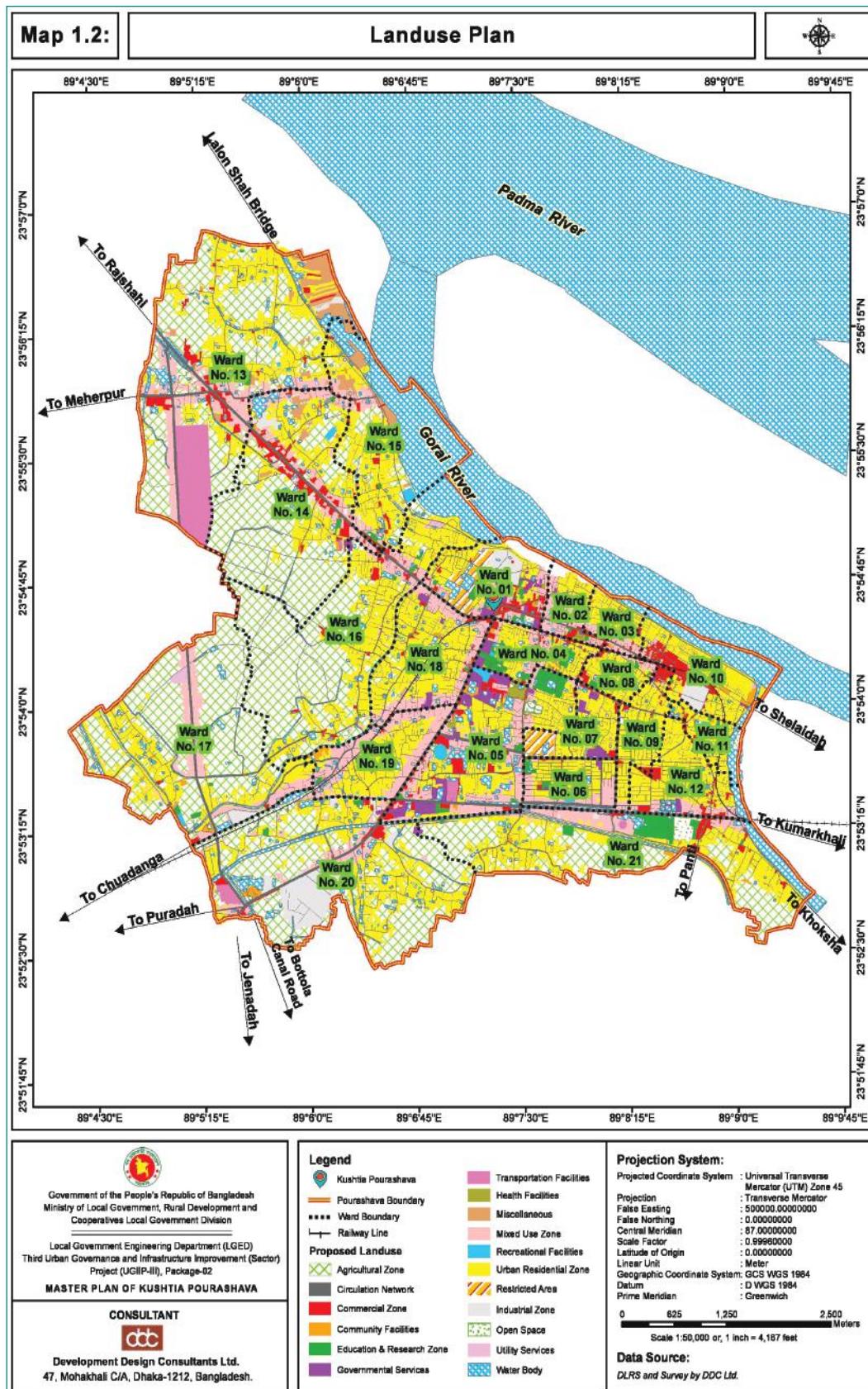
Map 2: Kushtia Municipality Ward Map

1.3 Location and Regional Linkages

Kushtia Municipality is in the Kushtia Sadar Upazila of Kushtia District under Khulna Division. It lies in between $23^{\circ}52'26''$ to $23^{\circ}56'54''$ north latitudes and $89^{\circ}4'18''$ to $89^{\circ}9'32''$ east longitudes. It is situated in the south-western part of Bangladesh lying just south of the upper Padma River. It is bounded by Rajshahi Natore and Pabna districts to the North, Chuadanga and Jhenaidah districts to the South, Rajbari District to the East, and West Bengal and Meherpur District to the West. The city is distanced about 235 km. from the capital city, Dhaka. National Highway N704 goes through this Pourashava. It has good road connection with its adjacent areas. Kushtia is connected with Pabna, Jhenaidah, Magura, Jessore and other southern districts of Bangladesh through national highway N704. This Pourashava is the gateway to southern part of Bangladesh from northern part and has good connection with other parts of the country through waterway. There is also railway connection in Kushtia Pourashava. It is connected with the northern and southern part of the country by railway.

1.4 General Landuse

Landuse pattern of Kushtia Municipality comprises of agricultural 29.53%, circulation network 8.48%, core area 12.50%, established urban area 32.44%, new urban area 4.35%, restricted area 0.88%, water body 5.26% and rural site of 6.57% (Kushtia Municipality Master Plan Report 2019)



Map 3: Landuse Map of Kushtia Municipality, Source: Local Government Engineering Department (2019), "Master Plan of Kushtia Municipality (2017-2037), prepared by DDC Limited

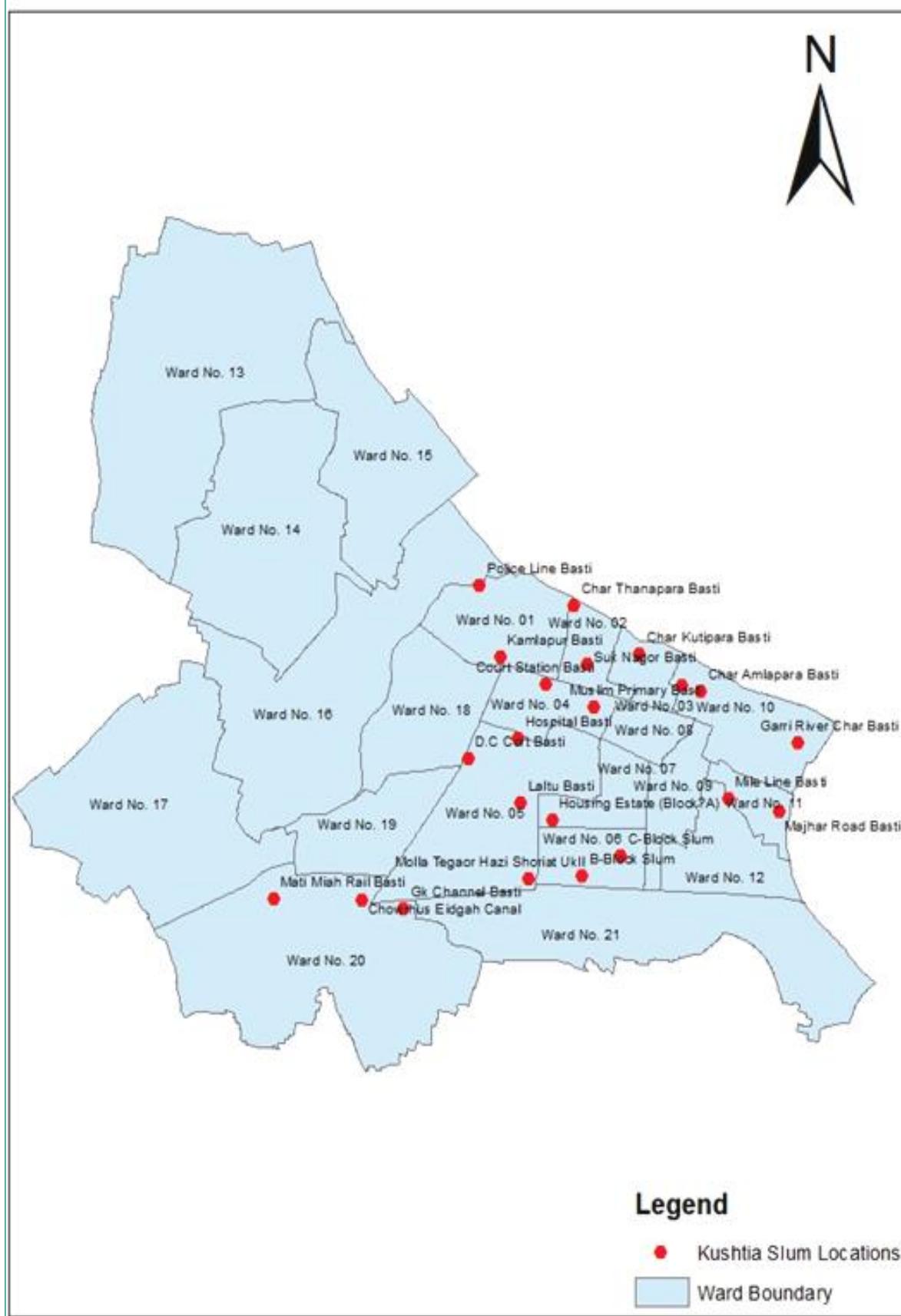
1.5 Slum Info

Table 3: Data of Notified Slums

Sl. No	Slum Name	Location / Ward	No. of Households	Population (2014)			Population (2021)**		
				Total	Male	Female	Total	Male	Female
1	Suk Nagor Basti	1	45	161	73	88	181	82	99
2	Kamlapur Basti	1	121	455	230	225	512	259	253
3	Thanapara Char Basti	1 & 2	566	1758	869	889	1977	977	1000
4	Gk Sweeper Colony	1	17	66	28	37	73	31	42
5	Police Line Basti	1	8	24	11	13	27	12	15
6	Char Thanapara Basti	1 & 2	882	3326	1633	1692	3739	1836	1903
7	Court Station Basti	2 & 4	13	57	28	29	64	31	33
8	Char Amlapara Basti	3 & 10	822	3033	1522	1511	3411	1711	1699
9	Char Kutipara Basti	2 & 3	273	1055	520	535	1186	585	602
10	Suknagar Basti	1 & 2	166	529	250	279	595	281	314
11	Chowrhus Eidgah Canal	5	166	610	293	316	685	329	355
12	Ershad Nagar	5	37	125	61	64	141	69	72
13	Majhar Road Basti	18	58	221	107	114	249	120	128
14	Mati Miah Rail Basti	18	32	120	60	60	135	67	67
15	Gk Channel Basti	5	118	394	194	200	443	218	225
16	D.C Cort Basti	5	6	32	15	17	36	17	19
17	Housing Estate (Block-A)	6	14	57	27	30	64	30	34
18	Molla Tegaor Hazi Shoriyat Ukil	21	62	239	115	124	269	129	139
19	Mohila College	5	27	109	53	56	123	60	63
20	B-Block Slum	6	63	210	96	114	236	108	128
21	C-Block	6	172	594	280	314	668	315	353
22	Pukur Par	6	47	168	82	86	189	92	97
23	Bihari Colony	9	50	215	109	106	242	123	119
24	Amla Para Gari River Basti	3 & 10	183	698	352	345	784	396	388
25	Garri River Char Basti	1, 2, 3, 10	479	1834	941	893	2062	1058	1004
26	Daspara Basti	10	39	71	90	97	210	101	109
27	Laltu Basti	10	19	101	36	35	80	40	39
28	Muslim Primary Basti	10	26	298	47	53	112	53	60
29	Sweper Colony	10	60	92	151	147	335	170	165
30	Napali Qut.	10	20	70	45	47	103	51	53
31	Bangal Patti	10	18	976	34	36	79	38	40
32	Gari River Char Basti	1, 2, 3, 10	257	705	495	481	1097	557	541
33	Rail Way Qut Basty	10	184	175	355	349	792	399	392
34	Badal Basha River Basti	10,11,12	39	1787	89	86	197	100	97
35	Gari River Char Basti	1, 2, 3, 10	457	174	899	885	2006	1011	995
36	Bagan Bari	11	47	919	80	94	196	90	106
37	Mile Line Basti	11	222	57	454	464	1032	511	522
38	Hospital Basti	5, 10	18	21,702	26	31	64	29	35
				5,833		10,750	10,942	24,391	12,088
									12,304

Source: BBS, Census of Slum & Floating Population 2014) ** 2021 Population is Projected

Slum Locations in Kushtia



Map 4: Slum Locations in Kushtia Municipality

2.0

Access to Toilet

2.0 Access to Toilet

2.1 Baseline Status

The sanitation situation of the Kushtia Municipality is shown below:

Table 4: Sanitation Situation of the Kushtia Municipality

Containment Type	Percentage
Septic tank ⁴	43.94%
Twin pit ⁵	23.15%
Single pit lined ⁶	31.28%
Single pit unlined/ dug hole	1.27%
No containment	0.36%
	100.00%

Containment Outlet	Percentage
Soak pit ⁷	6%
Drains	38.00%
Water bodies or Ground	30.00%
No outlet	26.00%

Source: DPHE (2020), "Household Survey Assessment Report for Kushtia, a Report Prepared by DevCon for DPHE".

A summary assessment of the sanitation situation is presented in the following matrix (Table 5). This assessment matrix will be used for designing interventions required and investment project components.

⁴ It is a watertight chamber made of concrete through which blackwater flows for primary treatment. Settling and anaerobic processes reduce solids and organics, but the treatment is only moderate.

⁵ Twin pit technology consists of two alternating pits connected to a pour flush toilet. The blackwater is collected in the pits and allowed to slowly infiltrate into the surrounding soil. Overtime, the solids are sufficiently dewatered and can be manually removed with a shovel.

⁶ It is one of the most widely used sanitation technologies. Excreta, along with anal cleansing waste (water or solids) are deposited into a pit. Lining the pit prevents it from collapsing and provides support to the superstructure.

⁷ A soak pit, also known as a soak away or leach pit, is a covered, porous-walled chamber that allows water to slowly soak into the ground. Pre-settled effluent from a collection and storage/ treatment system or (semi-) centralized treatment system is discharged to the underground chamber from which it infiltrates into the surrounding soil.

Table 5: Summary Assessment Matrix

Items	Key Findings	Mitigation Measures
SERVICE CHAIN		
User interface	<ul style="list-style-type: none"> • 0% open defecation • 90% toilet pour flush • 43% water source outside latrine 	<ul style="list-style-type: none"> • Explore business opportunity for toilet improvement
Containment	<ul style="list-style-type: none"> • 44% septic tank, • 31% single pit, • 23% double pit 0.4% No containment • 94% septic tanks connected to drains or ground 	<ul style="list-style-type: none"> • Upgrading of Containment/ Retrofitting • Enforce regulations and BNBC Code
Emptying	<ul style="list-style-type: none"> • 48% tanks never de-sludged • 53% done by private sweeper • 61% done manually by bucket and rope • 19% containment's distance more than 30m 	<ul style="list-style-type: none"> • Awareness building, capacity development of private entrepreneurs, workers safety • Regulations and by-laws • Innovative emptying options like two step pumping
Transport	<ul style="list-style-type: none"> • 40% transported by rickshaw van or manually • 60 % accessible by truck and pickups 	<ul style="list-style-type: none"> • Fleet of transport vehicles (small vehicles to mother tankers) • Explore innovative solutions
Treatment	<ul style="list-style-type: none"> • One FSTP • 44% disposed in dug hole • 8% in the drains and waterbody 	<ul style="list-style-type: none"> • Explore feasible treatment options • Construction of sustainable FSTP
Disposal/ Reuse	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Explore markets • Opportunities for end-use in agriculture, recycling, energy recovery, etc.
GENERAL		
Sanitation coverage	<ul style="list-style-type: none"> • 96% by SDG standard (safely managed) • 8% by MGD standard 	<ul style="list-style-type: none"> • Identify areas for sewerage systems and non-sewer systems • Improvement required along the NSS sanitation service chain, particularly from containment to disposal
Gender	<ul style="list-style-type: none"> • 97% female clean toilet • 99% female carrying pour flush water 	<ul style="list-style-type: none"> • Awareness building, gender sensitive design • Increase water supply facilities inside latrines
Perception and Willingness	<ul style="list-style-type: none"> • 92% not willing to improve toilet • 93% not willing to improve containment • 41% willing to pay for desludging 	<ul style="list-style-type: none"> • Awareness building and regulations

Source: DPHE 2020

2.2 Community Toilets & Public Toilets

Public toilets are not often considered as an important aspect for the communities. But public toilets are of utmost importance for any community. Currently, there are total six (6) public toilets in Kushtia Pourashava and the physical conditions of those vary greatly. Among those six public toilets some are operational and some are already abandoned because of their extreme unusable condition. The source of water for public toilets is either municipal piped water supply or tube wells and wastewater is collected in a septic tank. The list of Public toilet in Kushtia Pourashava is given below:

Table 6: Condition of Public Toilets in Kushtia

No	Location	Operational Status (Operational/Abandoned)	Overall Physical Condition
1	Sweeper Colony, Boro Station Kobi Azizur Rahman Road	Operational	Moderate
2	Municipality Bazar	Operational	Poor
3	Bus Terminal	Operational	Moderate
4	DC Office	Closed	Poor
5	Rajar Hat Bazar	Operational	Moderate
6	Sadar Hospital Gate	Closed	Poor



Figure 1: Inside of Public Toilet in Kushtia



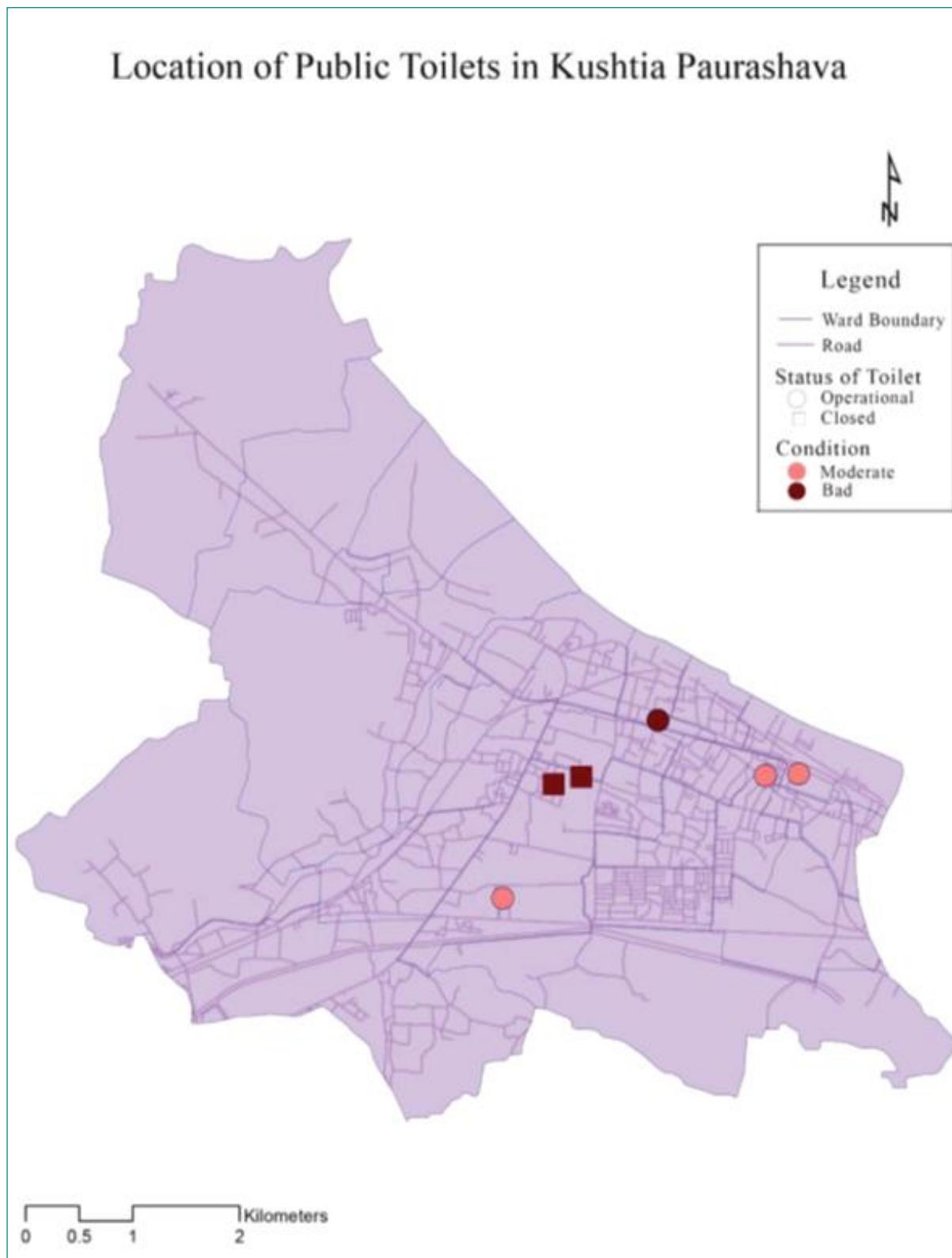
Figure 2: Discharge of Waste from Public Toilet in Kushtia



Figure 3: Outside View of Public Toilet



Figure 4: Condition of Toilet Facilities



Map 5: Location and Status of Existing Public Toilets in Kushtia Municipality

Table 7: Status of Public Toilet

No		1	2	3	4	5	6
Location / Ward		Sweeper Colny /10	Municipality Bazar/2	Bus Termina /5	DC Office/5	Sadar Hospital Gate/5	Rajar Hat Bazar/9
Avg.no of users per day		9 (8 M, 1 F)	195 (179 M, 16 F)	283 (232 M 51 F)	N/A	N/A	152 (150 M, 2 F)
No of Seats	M	3	3	3	5	8	4
	F	2	0	3	0	1	0
Waste water disposal		Septic Tank	Septic Tank	Septic Tank	Septic Tank	Septic Tank	Septic Tank
Functional status		Functional	Functional	Functional	Functional	Functional	Functional
Complaint redressal system available		Not properly	Not properly	Not properly	Not properly	Not properly	Not properly
Owned & Maintained by		Municipality	Municipality	Municipality	Municipality	Municipality	Municipality
User charges [Urinal/ Defecation/ Bath] Taka/ Person		5/10/10	5/10/10	5/10/10	5/10/10		
Cost Recovery (%)		62.5	71.3	49.6	20.5		
Remarks		Female section is being utilized as caretaker's accommodation	Operational but the condition is very unhygienic	Among the public toilets in Kushtia this has the highest number of users	Completely shut down due to the structural failure	the toilet is used by both men and women	completely shut down and used for dumping unnecessary materials



Figure 5: Public Toilet of Rajarhat Bazar



Figure 6: Public Toilet of Sweeper Colony



Figure 7: Public Toilet of Municipality Bazar



Figure 8: Public Toilet of Bus Terminal



Figure 9: Public Toilet of DC Office

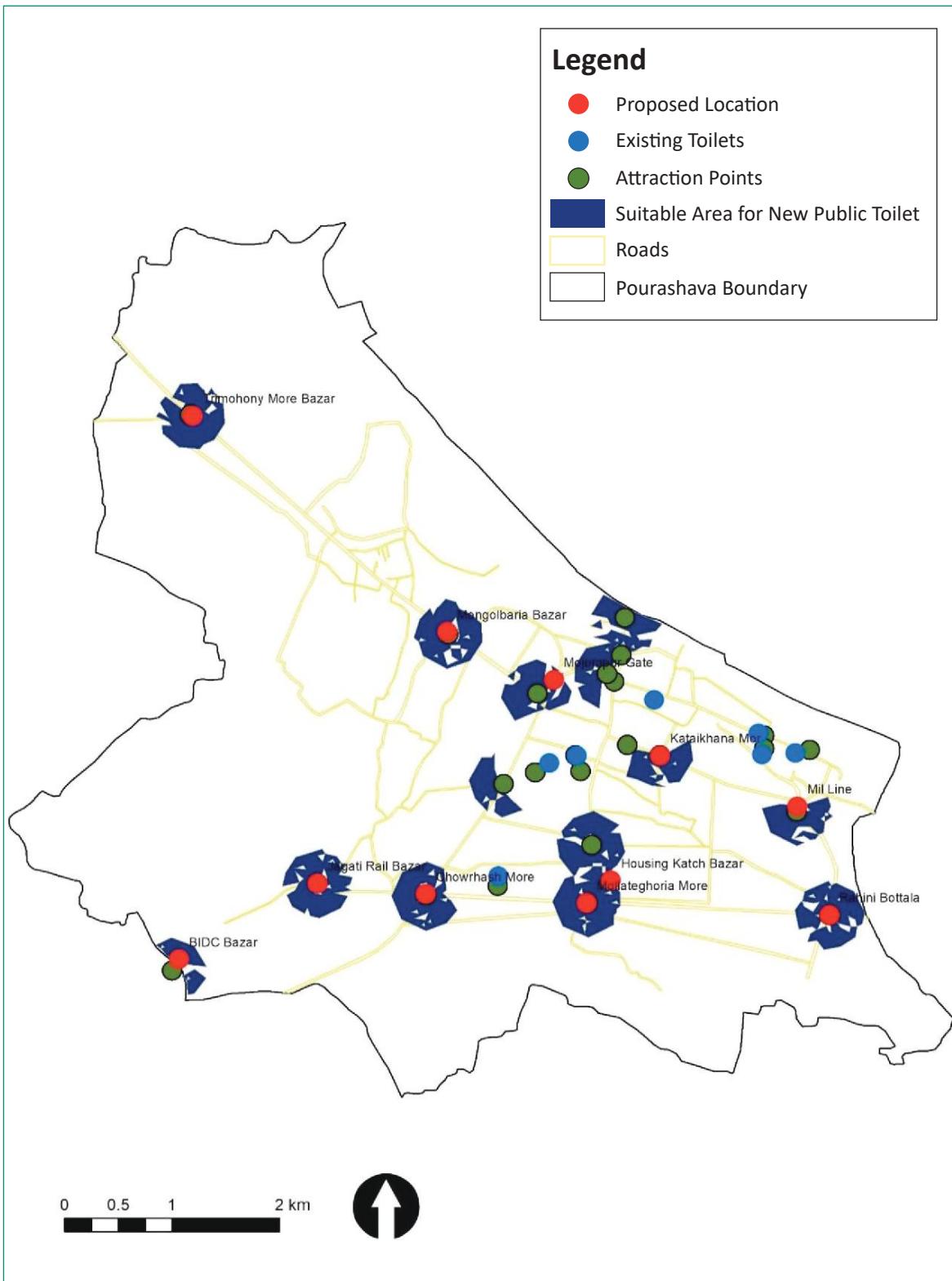
2.3 Gaps & Issues

- Out of 6 public toilets, 5 are operational in the whole Pourashava
- Improper waste water disposal arrangement are observed as no sewerage line is available and waste water is directly disposed to drain
- 3 of the public toilets don't have woman seat
- Caretakers are uneducated most of the case which results in poor collection of user charges and record keeping
- Poor cost recovery
- Poor maintenance
- Lack of lighting and ventilation
- Inadequate number of public toilets as these toilet cannot serve Kushtia's growing population.
- Lack of adequate water supply

2.4 Proposal of New Public Toilet Location

Based on the suitability analysis some areas of Kushtia Pourashava have been found to be the most suitable places for installing new public toilets. The places offer sustainability in terms of operational issues. Those areas have been listed in along with a brief description of those locations:

The suitable locations are shown in Map 5. These locations are less likely to be affected by flood and more likely to serve larger population. Kushtia Municipality is looking for support to construct public toilets in the aforementioned locations.



Map 6: Proposed Locations of New Public Toilets

Table 8: Suitable Locations for New Public Toilets in Kushtia Pourashava

Location	Type of Place	Description
Trimohony More Bazar	Commercial	Trimohony bus stop. Local bazar available here. It's the junction between Meherpur and Beramara
Mongolbaria Bazar	Commercial	Market place
Jagati Rail Bazar	Commercial	Railway Station is the preferred communication system in Bangladesh
Mojompur Gate	Commercial	Main city center of Kushtia. Kushtia Municipality located here. Local bazar available here. It's the junction between Meherpur and Dhaka
BIDC Bazar	Commercial	Katcha Bazar
Lahini Bottala	Commercial	Lahini Bottala is the famous area in the district kushtia. It is beside Kushtia Medical College Hospital.
Chowrhash More	Commercial	It's the junction point between Jhenaidah and Kushtia
Mollateghoria More	Commercial	Market Place
Housing Katcha Bazar	Residential	Residential area Market Place. People come here to purchase their daily goods
Kataikhana Mor	Commercial	Market Place
Ma Rahim Super Market	Commercial	Local bazar available here
Sweeper Colony	Residential	Sweepers are a socially isolated and neglected community of our society
Bus Terminal	Commercial	The location of a terminal may be made for reasons other than convenience of passengers
Ghora ghat	Commercial	Focal point for transportation through water ways
Mohashoshan	Cremation area	People come here to burn or cremate the dead body

Source: Public Toilet Demand Scan and Development of Individual Profile of Public Toilets in Kushtia Pourashavas

3.0

Water Supply

3.0 Water Supply

3.1 Baseline Status

Water supply in Kushtia Pourashava is operated by the Pourashava authority. Department of Public Health Engineering (DPHE) at times undertakes maintenance and extension programs of the system. According to the statistics provided by the Pourashava, there are 3,660 hand tube wells and 22 deep tube wells, 03 Iron and Arsenic removal plant, 04 Overhead tanks, 03 Reserve tanks in service. As reported by the Pourashava, there are a total of 9,215 water connections and 03 pump houses. The length of piped water supply in the Pourashava is 135 kilometers, and water supplied through these lines is 10,400 cubic-meter per day. Besides, the Pourashava maintains power pump houses which can provide 19,000 cubic-meter of water in each hour that covers 33% area.

Table 9: Water Supply Details in Pourashava

SI No.	Items	Number
1	Hand Tube wells	3,660
2	Deep Tube wells	22
3	Iron and Arsenic removal plant	03
4	Overhead Tank	04
5	Reserve Tanks	03

Source: Kushtia Pourashava

Table 10: Town Water Profile

Source of drinking water supply in the Town/City	Ground Water
Total water supplied to the town per day (KLD)	10,400
Total No. HH with functional household tap connection (FHTC)	9,215
Total No. of HH without FHTC?	42,074
No. of metered connection	N/A
Total length of water supply network? (Km)	180 Km
Existing arrangement for water supply in non-networked and slum area	Hand tube well
Per capita supply of water (lpcd)	120 lpcd
Number of water treatment plant with capacity (or) specify mechanism for treatment of raw water from the source	3 Iron and Arsenic Removal Plant
Existing water usage charges for residential and commercial use	See Table 11
Are there any ground water recharge structure in the city?	Yes, a project titled Rainwater Harvesting for Ground Water Recharging Project has been initiated though it's facing technical difficulty

Table 11: Existing Water Usage Charges for Residential and Commercial Use

Type	Unit Price (Taka)
½ Inch	Res-Single Story-BDT 140/month, Multi Story BDT 280/Month Com-Single Story-BDT 300/month, Multi Story BDT 370/Month
¾ Inch	Res-Single Story-BDT 320/month, Multi Story BDT 500/Month Com-Single Story-BDT 570/month, Multi Story BDT 800/Month
1 Inch	Res-Single Story-BDT 700/month, Multi Story BDT 1200/Month Com-Single Story-BDT 1300/month, Multi Story BDT 1700/Month
1½ Inch	Res-Single Story-BDT 2500/month, Multi Story BDT 3300/Month Com- BDT 3700/month
2 Inch	Res- BDT 4300/Month Com- BDT 4300/Month

The Department of Public Health Engineering (DPHE) and Pourashava will take initiatives for the supply of water in the whole areas of Kushtia Pourashava. Groundwater source is extensively used for household and commercial purpose. To avoid too much of extraction, probable alternate sources like rainwater harvesting or use of water from Gorai River could be investigated upon.

Surface water for potable purpose is not available in the Pourashava as there is no dependable source nearby. In this situation preserving rainwater into beels and ponds in order to use as potable water through treatment may be fruitful option. These reservoirs have been proposed to be protected from contamination by household waste or untreated discharge from industries. To use as rainwater retention areas, major waterbodies have been listed as conserved.

A new water supply network including the existing supply network for future has been planned. It is proposed to extend the existing pipeline and to provide a new overhead water tank as well as production wells for the present and future demand of water. The proposed water supply line will be constructed with 150,200 and 250 mm dia.

Estimated length till 2027 is:

- 150mm dia = 107.10 km
- 200mm dia = 28.94 km
- 250mm dia = 25.28 km

Following map shows the existing & proposed water supply infrastructure also to be provided.



Map 7: Existing & Proposed Water Supply Infrastructure

3.2 Gaps and Issues

- Only 33% of the household is covered by piped water supply
- 67% of the household are depending upon tube wells
- Currently the municipality is providing only 10,400 KLD
- Current supply is only 120 lpcd whereas the Government of Bangladesh (GoB) recommended is 180 lpcd.
- Poor complaint redressal system
- Water supply is only available between 2-3 hours per day at high pressure
- There are three water treatment plants in Kushtia Pourashava
- None of the 37 slums in the municipality has piped water supply or water points. They depend on public stand posts

Following table shows operating expenses and revenue earned from the water supply operations of the municipality. The cost recovery is very high as the charges are based on block rates and not actual consumption.

Table 12: Operating Expenses and Revenue Earned from Water Supply Operation

Cost Recovery	Operating Expenses (Tk.)	Operating Revenues (Tk.)	Cost Recovery (%)
2017-18	2,85,00,082	4,83,62,228	170
2018-19	3,57,12,400	5,26,92,614	148
2019-20 (Revised)	6,36,43,422	6,72,43,778	106

4.0

Management of Local Water Resources

4.0 Management of Local Water Resources

4.1 Baseline Status

Table 13: Status of Water Bodies in the Municipality

Type of water resource.	Rivers	Canals	Ponds and Lakes	Marshland/ Ditch	Khal
Approximate Area (acres)	430.31	11.38	318.75	70.74	92.88
Present condition (Visual observation)	Moderate	Moderate	Moderate	Poor	Moderate
Quality of water					
Current use	Irrigation Drinking and fishing		Irrigation Fishing	Dumping of solid waste and sewage	Irrigation Fishing
*Identify existing Problem (If any)	Absence of proper river area demarcation	Encroachment of Khals and Canals	Filling up of ponds and lakes for different purposes.	Filling and development activities in the marshland causing water logging.	Encroachment of Khals and Canals
Any initiative taken towards conservation of water resource (Yes/No) If Yes please note	No	No	No	No	No

Protect existing water bodies and retrieve all illegally acquired water bodies. Excavation of a new pond at Kushtia Islamia College area. Creation of greenbelt will restrict development along the water body of a new pond around the Kushtia Islamia College area. The rivers and khals are large enough to be converted as a recreation center. This will help in preservation and regular maintenance of these water bodies. This will provide recreation facility needs of people beyond the city jurisdiction and generate quite a good number of employments.

4.2 Gaps & Issues

- Kushtia Pourashava consisting of 'Padma River' and numerous ponds and ditches covering 924 acres which is about 10.87% of the total area.
- There exist 61% of the other water bodies as pond which are distributed throughout the Pourashava and act as emergency retention pond for rain water and are used for various other purposes such as bathing, fish cultivation, washing etc.
- Presently, about 70.74 acres of ditch are being used only for dumping of solid waste and sewage. It causes land degradation as well as water and air pollution by sludge and odor.
- The other issues relating water management are as follows:
 - Mixing of waste water with water streams
 - Encroachment into these water bodies
 - Dumping of solid waste resulting in pollution and clogging

5.0

Waste Water Management

5.0 Waste Water Management

5.1 Baseline Status

Kushtia Municipality has about 44% of septic-tank and 54% of pit latrine as a sanitation containment coverage. The soak-pit cannot function during rainy season as the water table remains very high. The municipality has an onsite sanitation system, vacutug service for sludge collection & transportation. The municipality has one FSTP for treatment of collected faecal sludge from on-site sanitation system.

5.1.1 Waste Water Disposal Arrangement

Table 14: Waste Water Disposal Arrangements

Ward	No. of Households	Waste water disposal arrangement in HH (No.)			Waste water disposal arrangement in Slum-HH (No.)		
		Sewerage system	Onsite sanitation	No. of Insanitary latrines	Sewerage system	Onsite sanitation	No. of Insanitary latrines
1 - 21	51,289		✓			✓	

5.1.2 Sewage Management:

Kushtia Municipality does not have sewerage line installed within its municipal area.

5.1.3 Septage Management

Kushtia Municipality started vacutug service for faecal sludge collection and transportation since 2004. Municipality has outsourced its vacutug service to AID Foundation (a private entity) from February 2021. The municipality has 18 KL capacity drying bed in its FSTP with a coco-pit filter (trickling filter) for treatment of percolates from the drying beds. The dewatered sludge from the drying bed is used for production of co-compost in the compost plant located within the FSTP. The co-compost plant is operational since 2012.

Table 15: FSM Status

Type of containment systems in town (Septic tank/Pit system/Lined tank without partition)	Septic tank/Pit system		
Existing mechanism for emptying of containment unit?	Mechanical Emptying – Vacutug Manual Emptying – Bucket, Rope/ Pump		
No. of desludging trucks owned	By ULB	6	By Private Operator
Capacity of the Truck	By ULB	1 KL -1 1.5 KL -2 2 KL -2 4 KL -1	By Private Operator
Avg No. of desludging trips in a month	By ULB	60-90	By Private Operator

Is there a Faecal Sludge treatment unit in the town?	Yes	✓	No	
Capacity of FSTP? (If yes)	18 KLD			
Where does the sludge get emptied? (If No)				
End use/Disposal of treated waste	Solid	Compost	Liquid	Agri

Table 16: FSTP Status

Name of FSTP	Treatment process / technology	Installation year	Capacity	Operational status	O&M done by	Reuse
Municipality Compost Plant/FSTP	Dewatering and Co-Composting	2012	18 m³	Functional	Outsourced Firm ERAS Ventures Ltd.	Compost

Table 17: Fee for Emptying of Pit Using Vacuum Trucks

Description	Trip	Size of Vaccutag and Fee				
		1000L	1500L	2000L	4000L	Vat
Septic tank /Pit Latrines	1st trip	Tk. 1000	Tk. 1300	Tk. 1500	Tk. 2000	15%
	Next trips	Tk. 500	Tk. 550	Tk. 600	Tk. 1000	

5.2 Gaps and Issues

5.2.1 Gaps in Waste Water Disposal Arrangement

- Majority of the toilets are connected to drain and water bodies, Only 6% of the toilets have soak wells
- Absence of proper containment units
- Containment units are not designed as per the Building Code
- 26% of the containment units are located in a place where it is difficult to desludge

Other Issues:

- Waste water from disperse homesteads of the fringe area is drained and discharged into adjacent ditches or family pits and this system may continue for an indefinite period in the future
- Gorai river carries waste water and rainfall run off mostly from central area through road side drains
- Waste water and run off from buildings, streets, parking lots, driveways, lawns and other areas collected by tertiary drains and discharged into rivers and khals

5.2.2 Gaps in Sewerage Management

There is no sewerage treatment plant in the municipality.

5.2.3 Gaps and Issues Related to FSM

Septage Collection & Conveyance:

- Desludging of septic tanks is not carried out regularly (once in every 2-3 years)
- There is a low demand for desludging as 68% of the toilets are connected to drain and water bodies

Septage Treatment and Reuse:

- Current capacity utilization of the FSTP is 67%. There is a scope to increase the capacity utilization of the FSTP
- Currently dewatered faecal sludge is co-composted and used in the agriculture. However, proper co-composting process is not followed as the boxes of the co-composting plant has been damaged due to lack of maintenance
- Staff at the co-compost plant requires training on health and safety as well as proper O&M of the facility

Main Issues of FS Management:

- 12 KL of fecal sludge is collected every day and only one FSTP available in the landfill site
- Since the FSTP is located at the landfill site, which is 10 km from the town center, 2-3 trips can be made by the vacuum trucks
- Due to non-availability of GPS tracking system, vacuum trucks sometimes discharge collected sludge in low-lying areas
- There are two types of faecal sludge collection system practiced in Kushtia. Areas which can be accessed by vacuum trucks, mechanical septic tank/pit emptying system is practiced. Faecal sludge collected using mechanical emptying is transported to the FSTP for proper treatment. Areas with narrow streets where the vacuum trucks cannot access, pit emptying is done manually by sweepers using buckets and in some cases using pumps. The collected sludge using manual method is disposed in the public drains or low lying area



Figure 10: Front Side OG Drying Bed



Figure 11: Drying Beds for Dewatering of the Faecal Sludge



Figure 12: Vacuum Tanker, Source: Field Survey by Waste Concern

6.0

Grey Water Management

6.0 Grey Water Management

6.1 Baseline Status

The municipality has no grey water management system. All the grey water are discharged in the open municipal drains.

Table 18: Status of Grey Water Management

Does HH have different discharge point for grey water and Black water?	No
What is the common practice in the town for grey water management	Grey water is discharged in open drains or in most cases low lying areas.
Are there any grey water treatment units in the town?	No
How grey water is managed in areas without sewerage network?	Discharged into open drains
Are there any common discharge point in the town for grey water collection?	No
Any special initiative taken in the town towards grey water management?	No

6.2 Gaps and Issue

- Lack of technical knowledge on greywater management
- There is no separate collection system for black and grey water
- Grey water is directly discharged into open drains and fields
- Mixing of grey water with water bodies
- There is no treatment plant at household, community or ward level
- No grey water drains available in the slums

6.3 Proposed Grey Water Management

Improvement of existing canals and drains are needed for drainage problem mitigation. It has been found that the roadside drains and canals require widening, joining of missing links. Widening and joining of gap is required for Fulbaria khal, Manna khal, and Kushtia Main Canal and Goral khal for solving drainage problem in Kushtia Pourashava. Moreover, DEWATS can be explored in many parts of the municipality.



Figure 13: Septic Tank Connected to Nearby Water Body



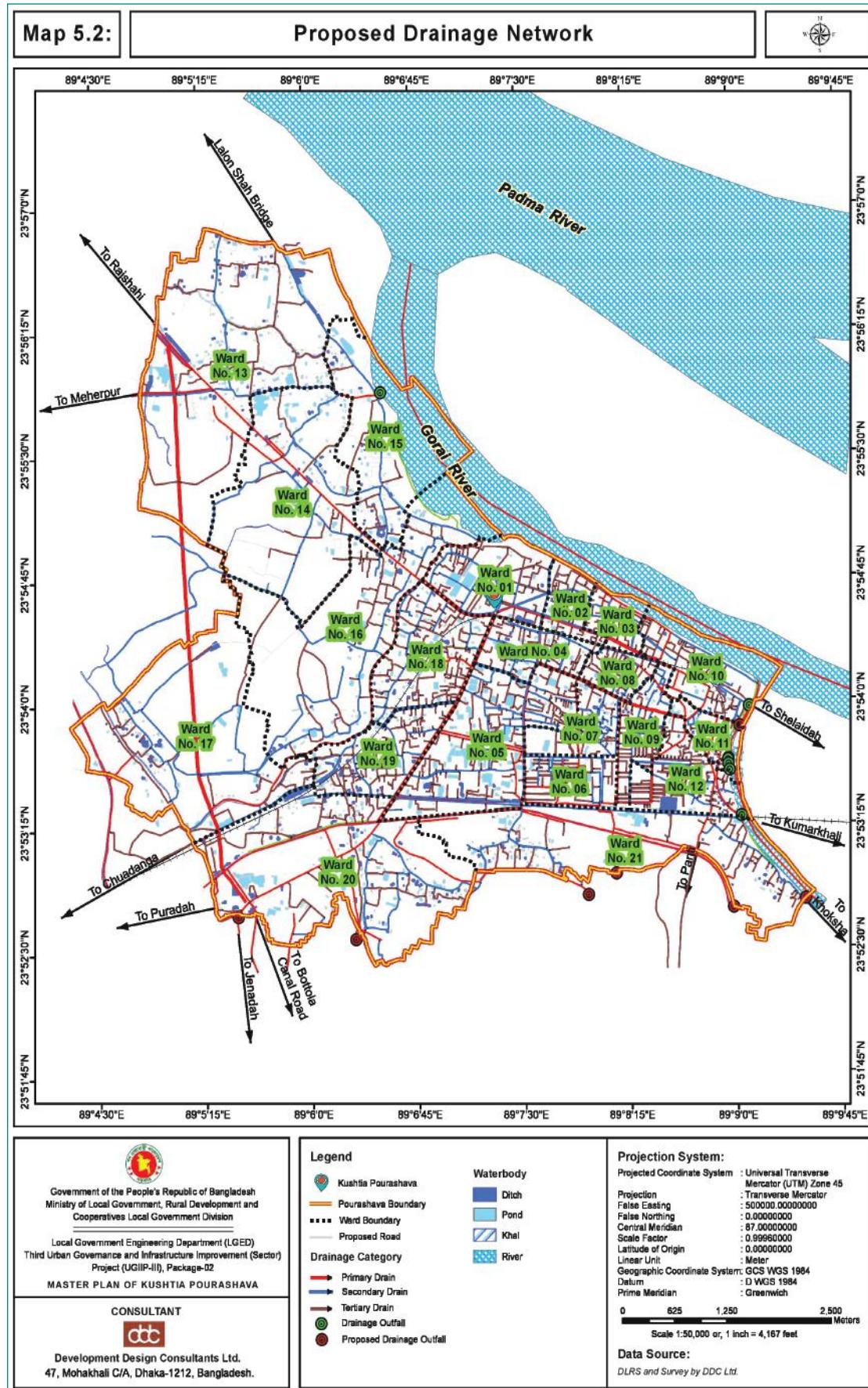
Figure 14: Toilet Pipe Connected to Storm Water Drain



Figure 15: Grey Water Discharge on Ground



Figure 16: Slum Drains



Map 8: Existing & Proposed Drainage System

7.0

Solid Waste Management

7.0 Solid Waste Management

7.1 Baseline Status:

This section includes detailed information regarding solid waste management in the city.

Table 19: Solid Waste Management Status

Quantity of waste generated from the town (MT/D)	76 MT (approx.)
Does the town have D2D collection system/Primary collection	Yes
Coverage of Door-to-Door waste collection (%)	14 Ward among 21
D2D Waste collection frequency	Once a day (six days in a week)
Number and Type of equipment present for Solid waste management	The municipality has 5 trucks of 1.5 tons capacity, 2 trucks of 2 tons capacity, 2 trucks of 3 tons capacity and 1 truck of 5 ton capacity. Moreover, 42 rickshaw vans are used for door to door collection of waste.
Number of community bins available for secondary collection	2 formal Secondary Transfer Station along with some informal STS
Quantity of waste collected from the town per day (MT)	27 MT/Day (approx.)
Waste management system in slums	Yes door to door in only 6 slums

Source: Field survey done by Waste Concern in February 2021

Processing (Treatment) of Solid Wastes:

Information on solid waste treatment facility such as treatment technology, design capacity, current utilization and current functional status including plant operation and maintenance to be collected.

Kushtia Pourashava has no efficient solid waste collection and management system. Municipality is able to collect only 35% of the generated waste. Rest of the household solid wastes are thrown into open drains and pits which causes water logging throughout the year by clogging sewage drains.

Disposal of Solid Wastes:

Every day around 76 tons solid waste is generated and on an average 27 tons are collected. At present 2 secondary transfer stations are available. There is only one open dump site in the municipality and one 4 tons per day capacity compost plant. The compost plant is co-treating both organic waste and dewatered faecal sludge.

7.2 Gaps & Issues

Primary and Secondary Collection: Identifies gaps & issues with respect to primary and secondary collection of solid waste. The issues may include

- Partial door to door collection service is available
- inadequate number of primary waste collection vans
- lack of operational health & safety standards
- no source segregation

- multiple handling points of waste is observed in the municipality
- lack of transfer station in the municipality

Conveyance (Transportation) to Treatment Facility: Identify gaps & issues with respect to transportation facility for solid waste. The issues may include

- Inadequate number of trucks
- Inadequate capacity of vehicles
- Inefficient routing plan
- No monitoring of waste transportation system
- Open trucks are used
- Most truck do not have hydraulic tipping system

Processing (Treatment) of Solid Wastes: Identify gaps & issues with respect to processing (treatment) of solid wastes. The issues may include

- Only 6% of the biodegradable waste is composted
- Capacity extension of the compost plant is required to increase processing of biodegradable waste
- Poor O&M of the compost plant.

Disposal of Solid Wastes: Identify gaps & issues with respect to safe disposal of solid waste. The issues may include

- Lack of scientific landfill facility
- Non-conformity to solid waste management rules and ill effects (along with location) of open dumping of solid waste.
- Current landfill site has reached almost full capacity

Main Issues of Solid Waste Management

- As per the Department of Environment 67% of the air pollution is happening in the Pourashava due to inefficient management of solid waste
- Wastes from commercial activities and service facilities are thrown away into unused lands and roadside open spaces causing air, water and land contamination
- Majority of the residents dispose their solid waste in vacant space and open drains resulting in water logging and causing environmental degradation.

As per the Master Plan of the municipality, 7 secondary transfer stations (STS) in 5,7,14, 16, 17 and 20 number ward of the Kushtia Pourashava must be constructed to improve the waste collection system. Moreover, one new landfill site has also been proposed in ward no 17.



Figure 17: Present dumping ground of Kushtia Pourashava



Figure 18: Waste disposed of in open ground



Figure 19: Present dumping ground of Kushtia Pourashava



Figure 20: Landfill ground of Kushtia Pourashava



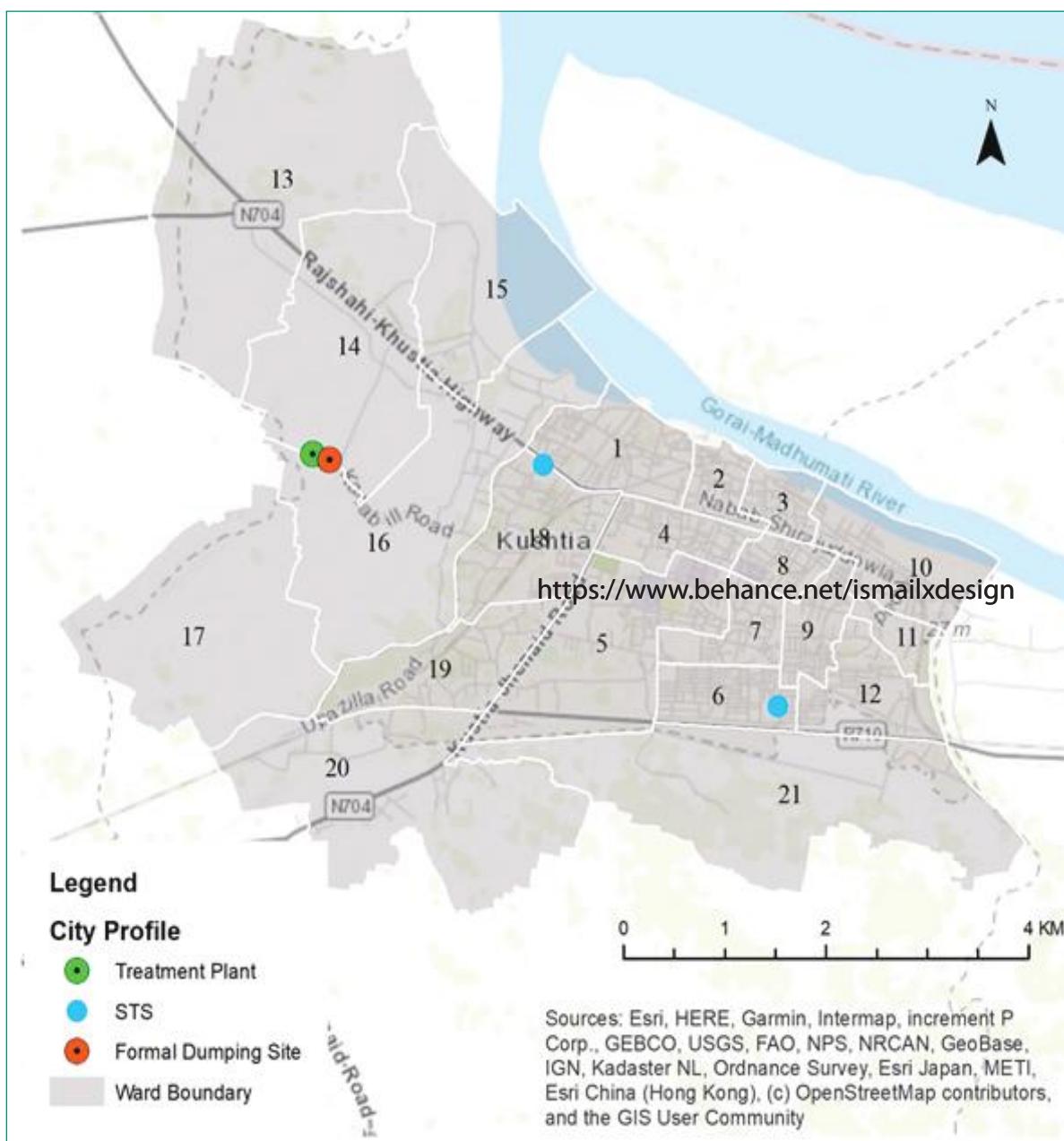
Figure 21: Transfer Station of Kushtia Municipality



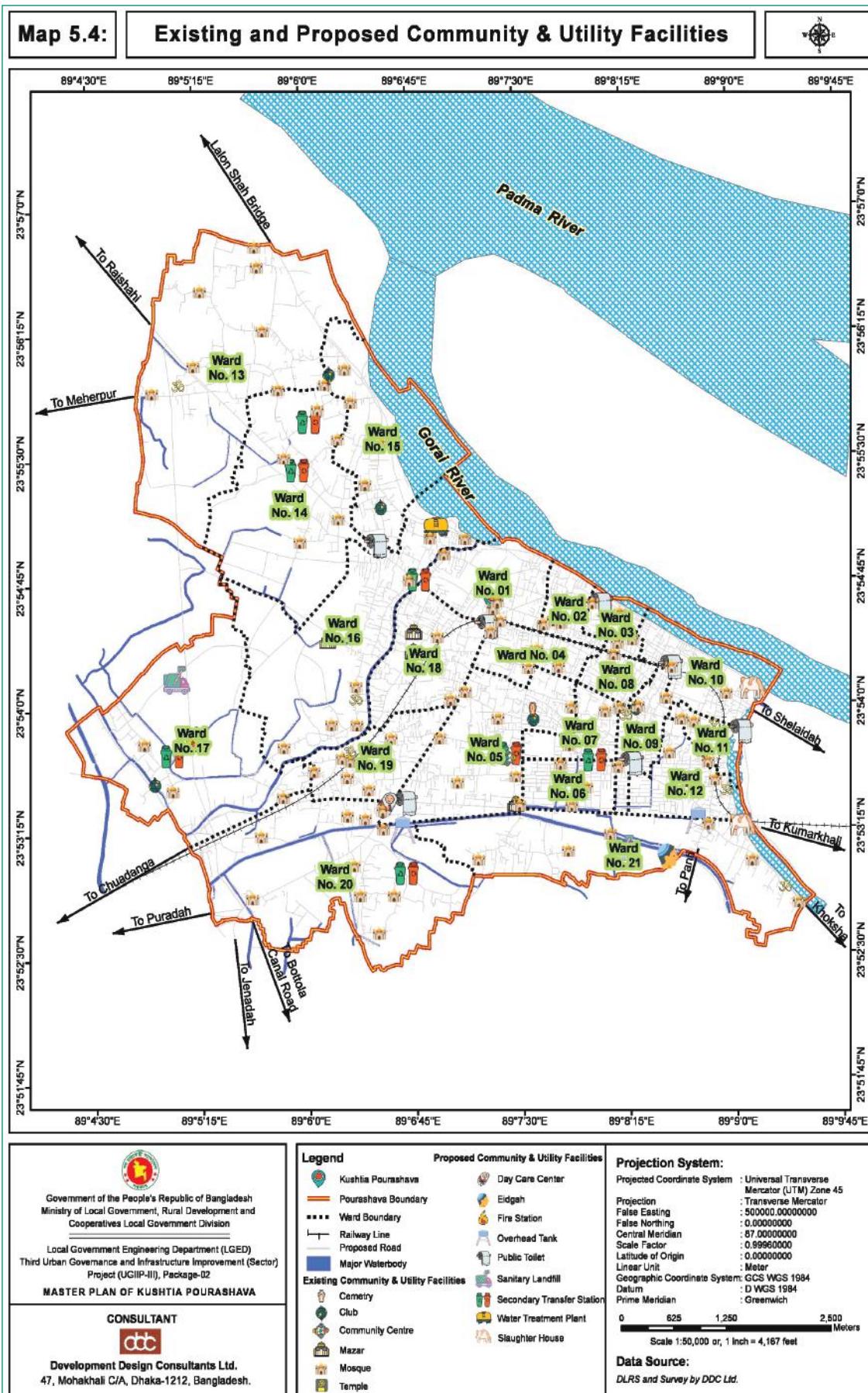
Figure 22: Empty transfer station



Figure 23: Garbage Trucks of Kushtia Pourashava



Map 9: Existing Waste Treatment Plant, STS, Formal Dumping Site



Map 10: Proposed locations for new STS and Landfill Site

8.0

Health and Hygiene of Sanitation Workers

8.0 Health and Hygiene of Sanitation Workers

8.1 Baseline Study

Table 20: Information of Sanitation Worker

Total number of sanitation workers working in the town	
Under SWM (Specify contractual employees separately)	315
Under waste water management (Specify non contractual employees separately)	11
Operators under water supply	23 (Water pump Operator)
Others	

Water and Sanitation Related Facilities: Provide information related to any special initiative taken towards providing better access to WASH facilities to sanitation workers such as hand wash, change rooms, toilet and bathing units, drinking water provision etc.

Municipality tries to provide adequate WASH facilities to its sanitation workers. However, due to shortage of fund the number of WASH facilities provided are not adequate.

Use of PPE Kits: Provide information regarding use of PPE kits by sanitation workers under SWM and Waste water management. Ex: Gumboots, Hand Gloves, Jacket, etc.

Municipality provides PPE to its sanitation workers like hand gloves, apron, gumboots, protective glass twice a year.

Training on Safety: Provide information of training and workshops conducted to address safety conditions of sanitation workers. Ex: Training for desludging operators, Training on work safety and health, awareness program etc.

Municipality provides training on occupational safety and health, and operation and maintenance of vacutug to its sanitation workers. No training is provided to solid waste collection staff.

Existing Living/housing Condition: Sanitation workers are currently living in sweeper's colony. Water supply and toilet facility are totally inadequate. Moreover, drainage facility is absent in the sweeper's colony. Health services/Benefits are provided to sanitation workers. No insurance is provided to the sanitation workers.

8.2 Gaps and Issues:

- Lack of awareness on safe working procedure
- Lack of PPE support from municipality
- Poor living condition without access to basic services

9.0

Institutional Arrangement

9.0 Institutional Arrangement

9.1 Baseline Status

The Pourashava is headed by an elected Mayor. The town is divided into 21 Wards. This political leadership guides the functions of the Pourashava. The Mayor heads the administrative structure of the Pourashava. A simplified administrative organizational structure related to the SWM and FSM is shown in organization chart. The Chief Executive Officer is under the Mayor and under him are six functional sections including Waste Management Section also known as Conservancy Section. The main functions of these sections are SWM and FSM.

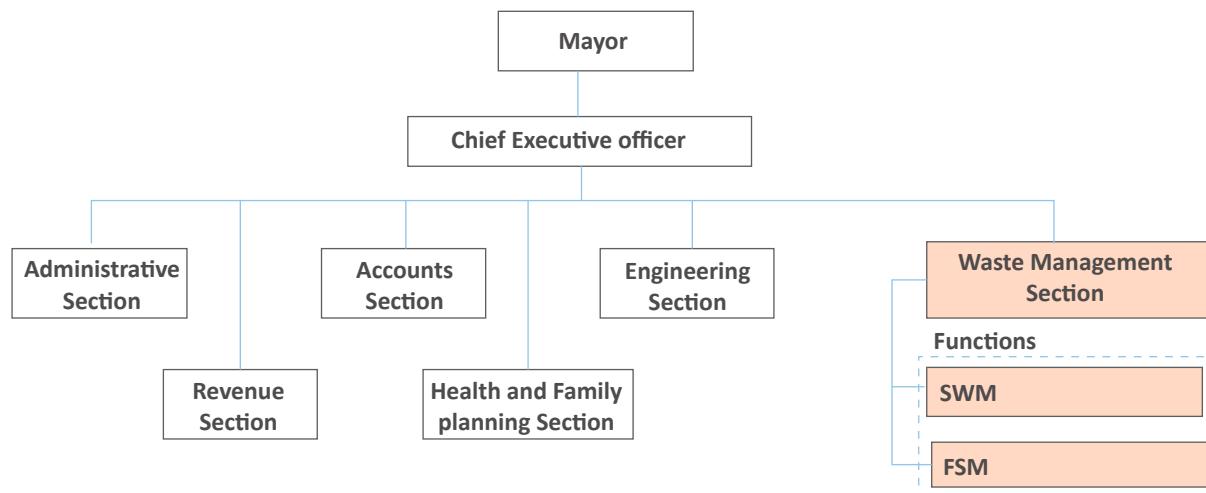


Figure 24: Organizational Structure Related to SWM and FSM

Table 21: Institutional Roles and Responsibility Under WASH

Urban Services	Water Supply	Sewerage	Septage management	Storm Water Drainage	Solid waste management	Public Toilets
Planning	Water Supply & Sanitation Section	NA	Conservancy Section	Conservancy Section	Conservancy Section	Engineering Section
Implementation	Water Supply & Sanitation Section	NA	Conservancy Section	Conservancy Section	Conservancy Section	Conservancy Section
O&M	Water Supply & Sanitation Section	NA	Conservancy & Engineering Section			
Collection of User Charge	Revenue Section	NA	Revenue Section	No user charge	Revenue Section	Revenue Section

9.2 Gaps & Issues

Overlapping functions between Engineering, Conservancy, Water Supply and Revenue Section are creating major problem for proper planning and executing projects. Moreover, lack of trained professionals in the conservancy section is also a big hurdle. Some of permanent positions in conservancy and water supply section are vacant for decades.

10.0

Municipal Finance

10.0 Municipal Finance

10.1 Baseline Status

Table 22: Overview of Municipal Budget Under WASH

Particulars		Amount (Taka. in Lakhs)		
		2017-18	2018-19	2019-20
	A. Revenue Income			
1	Income from Taxes	509.98	556.24	509.98
2	Income from Non-Taxes	1546.92	1072.28	935.49
3	Income from Assigned Revenue			
	Total Revenue Income (1+2+3)	2056.91	1628.52	1445.47
	B. Capital Income			
4	Grants and Loans	2.47	4.43	31.2
	Total Capital Income (4)	2.47	4.43	31.2
	Total Income (1+2+3+4)	2059.38	1632.95	1476.67
	C. Revenue Expenditure			
5	General, Establishment and Other Revenue Expenditure	946.52	734.03	1133.35
6	O&M of Sanitation including SWM	59.23	38.95	60.21
	Total Revenue Expenditure (5+6)	1005.75	772.98	1193.56
	D. Capital Expenditure			
7	Capital Expenditure	339.63	320.93	399.29
	Total Capital Expenditure (7)	339.63	320.93	399.29
	Total Expenditure (5+6+7)	1345.38	1093.91	1592.85
	Revenue Surplus/Deficit (1+2+3-5-6)	1051.16	846.54	251.41
	Capital Surplus/Deficit (4-7)	(-) 337.16	(-) 316.5	(-) 368.09
	Overall Surplus/Deficit (1+2+3+4-5-6-7)	714.00	539.04	(-) 116.18
ULB's budget year marked for next 3 years under water and Sanitation		2020-21 (BDT)	2022	2023
		40,50,000		
Name the schemes running in your city that includes sanitation/ water supply funding as one of their components?		SNV is supporting FSM project in the municipality. The project will end in June 2020.		
Has the city received any funds from external funding agency for WASH projects (CSR?)		No		

10.2 Gaps & Issues

- poor cost recovery from water supply, public toilets, waste water and solid waste management
- poor collection efficiency for cost of services
- lack of budget for efficient O&M of existing assets
- poor asset management
- dependency on state/central support for implementing/improving sanitation services
- excessive expenditure for managing solid waste
- high establishment cost for managing sanitation services
- lack of financial reforms (eg. double entry accounting) & monitoring mechanisms for transparency
- Lack of incentive & punitive measures to increase fund flow

Main Issues of Municipal Finance:

- Lack of budget for efficient O&M of existing assets
- High establishment cost for managing sanitation services
- lack of financial reforms (eg. double entry accounting) & monitoring mechanisms for transparency

11.0

Capacity Enhancement

11.0 Capacity Enhancement

Currently, no project is on-going for capacity development of municipal staff on sanitation and solid waste management. None of the staff working in waste management, drainage and public toilet operation has any training.

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Graphic Design: WHATABOUT
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