CWIS

Sanitation Data Ecosystem Profile

Khulna City - 2021

Executive Summary

This report overviews the sanitation data ecosystem in Khulna in 2021, and consists of two sections: 1) a review of service level data across the sanitation value chain, and an analysis of some key factors that influence data generation and update, including the reporting structure, the regulatory environment, and funding sources; 2) availability of sanitation financial data, and what affects that availability. This report provides a foundation for Khulna's service providers to develop a strategy outlining action points to bridge data gaps and improve data usage, and **facilitate data-driven decision-making in sanitation.** This report does not cover data reliability and data quality, although we note that these are important issues that must be tackled in any strategy to improve accountability structures for sanitation service delivery.

Table of Contents

Report Highlights

#1

Data generation across the sanitation service chain heavily relies on donor-funded programs and lacks mechanisms for updates.

The datasets collected from program surveys and activities have established a comprehensive baseline for the city and are highly transparent, yet it is not clear how the critical data points will be updated as the donor-funded programs are coming to an end. The only available datasets that are not a result of donor programs are the national census which covers toilet access for households, the datasets collected by national level ministries for educational institutions, and the records kept by the Khulna City Corporation (KCC) for the mechanical desludging service that it offers.

#2

City-level datasets lack clear definitions and alignment with global standards.

These include the national census, which captures household toilet access, and the datasets collected by the ministries for all primary and secondary schools in the country. The datasets on toilet access in educational institutions focus on the number of toilets and whether they are functional, not the types of toilet facilities or whether they are "improved". While the national census does try to distinguish between "sanitary" and "non-sanitary" toilets, there is ambiguity around what counts as a "sanitary latrine".

#3

Emptying data only covers mechanical emptying, which is a very small percentage of all desludging services in the city.

KCC is currently the only provider of mechanical emptying in the city, via four trucks. While a community-based organization formed under a donor program previously offered mechanical desludging services alongside KCC, the service was discontinued in 2020 due to lack of funds to repair the desludging vehicles. More than 90% of the population still rely on informal manual emptying, with the collected waste dumped illegally into the environment.

#4

Treatment data is infrequently collected and irregularly updated due to weak national level monitoring and enforcement.

Set up with donor support, the only Fecal Sludge Treatment Plant (FSTP) in Khulna has tested treatment quality and reported the data for program purposes nine times over the past four years (2017-2020), with irregular intervals. While FSTPs are required to report treatment data and obtain an annual Environmental Clearance Certificate from the Ministry of Environment, this has not been applied to Khulna, likely due to the low volume of fecal sludge treated at the FSTP.

#5

Commercial reuse is yet to start, but standards exist to facilitate future commercialization.

In Bangladesh, products from treated human waste need to be certified before they are sold, and certification is provided by different ministries depending on the product's purpose. Various products are currently under development and testing at the Khulna FSTP. If the products from the Khulna FSTP could obtain the necessary certification, this would facilitate revenue generation and incentivize data collection.

#6

Financial data for sanitation are relatively simple, as the city is currently entirely non-sewered with few assets.

The city authority keeps records of revenue and expenditure data for municipal budgeting purposes, and sanitation infrastructure such as the FSTP and desludging vehicles are funded by donors with detailed financial records. As the sewer network is being developed in Khulna, availability of financial data on sewered sanitation will depend on the data infrastructure governing utility data reporting and accounting practices.

Summary Table: Availability and Sustainability of Key Datasets Across the Sanitation Service Chain

Sanitation service chain	Dataset area	Data collected?	Data is representative of the entire city (for access) / covers all service providers (for emptying & conveyance)?	Periodically updated?
Access & containment	Access: Individual Household Latrines (IHHL)	● Y*	Y	Updated every 10 years (last updated in 2011)
		● Y	Y	Irregularly updated (last updated in 2019)
	Access: Public and Community Toilets (PT & CT)	● Y (CT)	Y	Irregularly updated (last updated in 2019)
		● Y (PT)	Y	One-off study in 2019
	Access: Educational Institutions	●● Y (primary schools)	Y	Updated annually
		●● Y (secondary schools)	Y	Updated annually
		● Y (primary schools)	N	One off in 2019
		● Y (secondary schools)	N	One off in 2019
	Access: Healthcare Facilities	● Y	Y	One-off in 2019
	Access/Containment: Sewer Connection	N/A	N/A	N/A
	Containment: Non-sewered Sanitation (NSS)	● Y	Y	Irregularly updated (last update in 2019)
		● Y	Y	One off in 2016
Emptying & conveyance	Emptying (NSS)	● Y	Y	Irregularly updated (last updated in 2019)
		● Y	N	Daily
		● Y	N	Daily till 2020 (discontinued)
	Disposal at Treatment Plants (NSS)	●● Y	N	Daily
Treatment	Treatment Quality	● Y	N/A	Irregularly updated (last update in 2020)
Reuse	Reuse: Treated Effluent	N	N/A	N/A
	Reuse: Treated Biosolids	N	N/A	N/A

Institutionalized reporting
National/State programmatic reporting
Own activity
Donor/ IFI program reporting

● National/State transfer
● Own revenue
● IFI/donor funding; Corporate Social Responsibility (CSR)
● Private sector; self-sustainable CBO activities

*In this summary table, references and sources have been removed to aid readability; however, full references and sources are provided in tables in the main body of the report

Data Across the Sanitation Service Chain

Achieving the Sustainable Development Goal (SDG) of ensuring safely managed sanitation for all will require accurate and up-to-date sanitation data at the city level to facilitate appropriate planning, management and decision making. This should encompass not only the typology and extent of sanitation access throughout the city, but also the management of waste from containment to emptying, transport, and treatment. However, for many cities including Khulna, obtaining and maintaining sanitation data can be a significant challenge, resulting in gaps in data availability.

This section outlines two key data dimensions: the generation of datasets across the sanitation service chain which are critical to the planning and decision-making of Khulna City Corporation (KCC); and the continued update of these datasets.

Overview: Data Availability and Gaps in Khulna

Table 1 summarizes the availability of datasets in Khulna mapped to the key data areas across the sanitation service chain, the coverage of each dataset, and the frequencies of update. In cases where more than one data source is available for the same indicator data point, each dataset is presented in a separate row.

Table 1: Overview of data availability and data sustainability across the sanitation service chain

Sanitation service chain	Dataset area	Data collected?	Data is representative of the entire city (for access) / covers all service providers (for emptying & conveyance)?	Periodically updated?
Access & containment	Access: Individual Household Latrines (IHHL)	Y[1]	Y	Updated every 10 years (last updated in 2011)
		Y[2]	Y[3]	Irregularly updated (last updated in 2019)[4]
	Access: Public and Community Toilets (PT & CT)	Y[2] (CT)	Y[5]	Irregularly updated (last updated in 2019)[4]
		Y[2] (PT)	Y[6]	One-off study in 2019
	Access: Educational Institutions	Y[7] (primary schools)	Y	Updated annually
		Y[8] (secondary schools)	Y	Updated annually
		Y[2] (primary schools)	N[9]	One off in 2019
		Y[10] (secondary schools)	N[11]	One off in 2019
	Access: Healthcare Facilities	Y[2]	Y[12]	One-off in 2019[13]
	Access/ Containment: Sewer Connection	N/A[14]	N/A	N/A
	Containment: Non-sewered Sanitation (NSS)	Y[2]	Y[3]	Irregularly updated (last update in 2019)[4]
		Y[15]	Y[16]	One off in 2016
Emptying & conveyance	Emptying (NSS)	Y[2]	Y[3]	Irregularly updated (last updated in 2019)[4]
		Y[17]	N[18]	Daily
		Y[19]	N[18]	Daily till 2020 (discontinued)
	Disposal at Treatment Plants (NSS)/ Decanting stations	Y[20]	N[21]	Daily
Treatment	Treatment Quality	Y[22]	N/A	Irregularly updated (last update in 2020)[23]
Reuse	Reuse: Treated Effluent	N[24]	N/A	N/A
	Reuse: Treated Biosolids	N[25]	N/A	N/A

Data availability across the sanitation service chain is high in Khulna. However, most datasets are collected through one-off studies or are irregularly updated. The only datasets that are periodically updated and are representative of the entire city are those of the Census of Bangladesh and the two datasets on primary and secondary schools collected by the respective ministries.

However, none of the three datasets collect much information on the type of sanitation facility used. The school datasets only cover the number of toilets and whether they are functional. While the census does try to collect data on the type of toilet access, the definition is rather vague—the only options given in the census for sanitation facilities are "sanitary (water seal)", "sanitary (no water seal)", "non-sanitary", and none/ no toilet. The Post Enumeration Check report published by the Bangladesh Bureau of Statistics also observes that there is ambiguity in the definition of "sanitary" toilets, which leaves actual classification of a particular type of toilet to the interpretation of the respondent and the enumerator. Moreover, the census does not capture whether a facility is used by an individual household or shared between two or more households, and neither is data collected on the containment unit.

If the census can adopt a clearer definition of "sanitary" toilets aligned with global standards and cover information on the containment unit, it would allow meaningful comparison with the other datasets collected through one-off studies and be **leveraged to track progress over the long term towards the Sustainable Development Goals (SDGs).**

The biggest data gap in Khulna is on emptying of onsite sanitation facilities. The current dataset only captures mechanical emptying, which is provided by the four trucks owned by the local service authority responsible for onsite sanitation, KCC. For a city of 1.5 million people, this type of emptying constitutes less than 10% of all desludging activities in the city. As per a citywide representative survey conducted in 2019, 92.1% of the surveyed households that emptied were served by a manual emptier, with or without equipment (SNV, 2020). As manual emptying is also associated with rampant illegal dumping into the environment, **there is an urgent need for Khulna to start formalizing manual emptying and collect data on this for monitoring and regulation.**

Another data gap is on reuse of treated effluent and biosolids, where different products are being developed and tested through action research, including co-composting, aquaculture, and non-carbonized and charcoal briquettes. Bangladesh already has national standards on the reuse of treated human waste based on the purpose of the product, which has helped create a market for reuse products. For example, the Ministry of Agriculture sets the standards for the reuse of treated biosolids as compost, whereas the standards for biosolids used as fish feed are set by the Ministry of Fisheries, etc. Once the products from the Khulna FSTP are tested and certified, commercialization and potential revenue generation could provide a stronger incentive for data collection and documentation.

Motivation for Data Collection / Collation

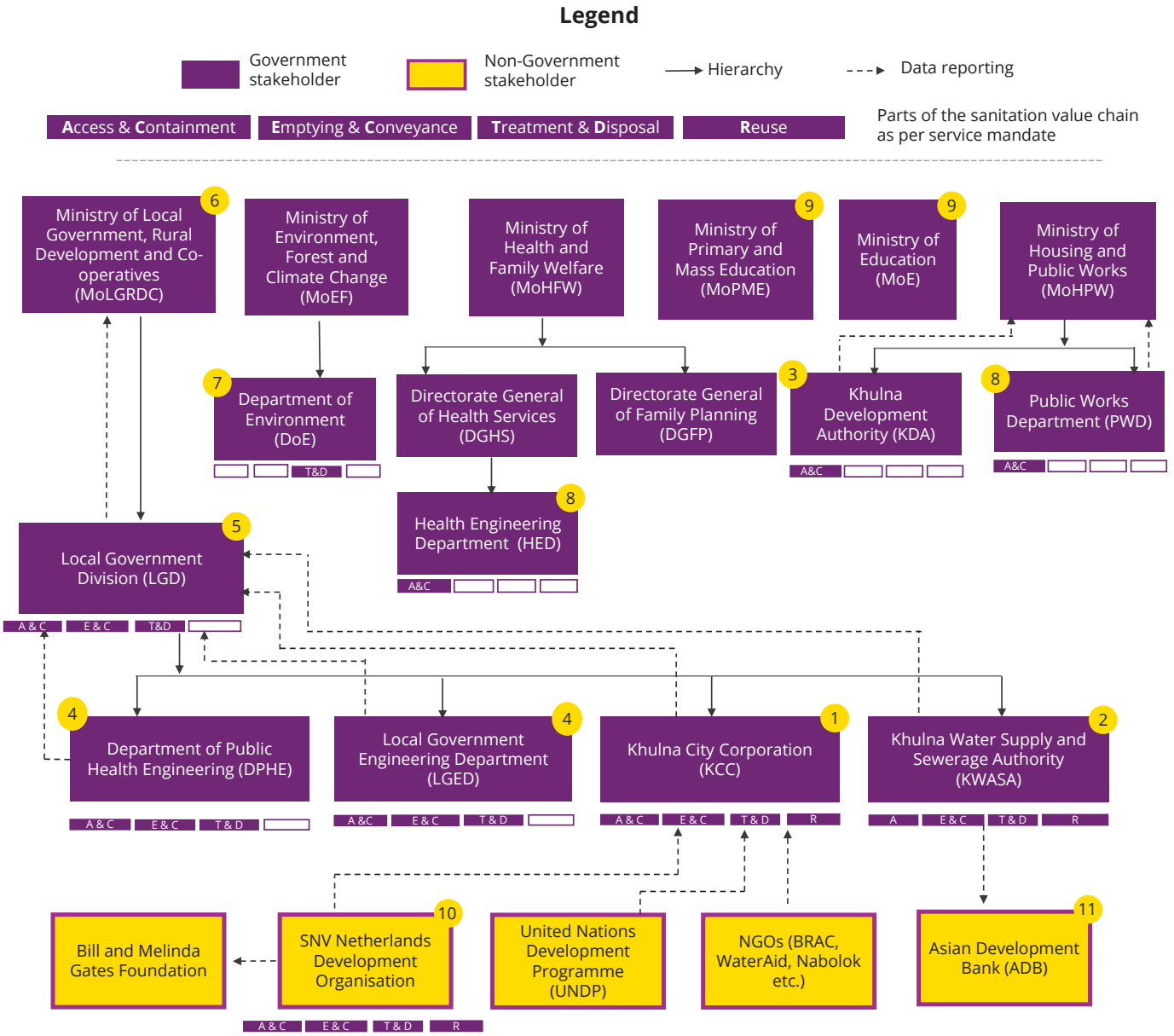
Understanding the underlying factors driving data collection provides critical context and insights that help evaluate data reliability, identify stakeholders, and reveal why some data areas are prioritized or neglected. Decision makers can therefore make more informed choices about data-driven policies and programming. This section delves into Khulna's sanitation datasets and explores the motivations behind them.

Khulna's Sanitation Administrative and Reporting Structure

Figure 1 below summarizes the mandate and key activities of various stakeholders involved in sanitation (both government and non-government) together with the reporting structure. A high-level overview of the city's governance structure with respect to sanitation mandate and accountability is also available in the Khulna CWIS Snapshot (link).

In Khulna, KCC is the local authority responsible for Non-Sewered Sanitation (NSS) service provision. The Khulna Water Supply and Sewerage Development Authority (KWASA) is mandated to provide Sewered Sanitation (SS) services, once the sewer network under construction is operationalized. As all households currently rely on onsite sanitation, KCC is therefore the relevant de facto data owner.

Figure 1. Sanitation administrative and reporting structure in Khulna



1. KCC is the primary stakeholder with the responsibility to provide sanitation services including PT/CT construction, emptying, conveyance, treatment and disposal services in the city. KCC shares data on city service functioning with LGD.
2. KWASA is mandated to provide water supply and sewer sanitation services in the city. Upon completion of sewer system network KWASA will be responsible for sanitation service provision in the sewered areas
3. KDA approves building design (site plan, floor area ratio, open space, existence of toilet and containment unit etc.) for any establishment in the city.
4. DPHE and LGED supports Ministry of Primary and Mass Education (MoPME) and Ministry of Education (MoE) to provide school WASH services. They also constructs PT/CT, FSTP and provide desludging vehicles to different municipalities.
5. LGD is the administrative body that monitors the performances of all Local Government Institutions (LGIs) including KCC, KWASA, LGED and DPHE. National Government budget allocation to LGIs are disbursed through LGD.
6. MoLGRDC is the ministry under Government of Bangladesh, with executive authority over the formulation and administration of the rules and regulations relating to Local Government services.
7. DoE is responsible for the compliance of discharge of treated effluent as per The Environment Conservation Rules, 1997.
8. The HED under the MoHFW and PWD under the MoHPW are involved in the construction and renovation of the health care infrastructure including sanitation facilities i.e. toilet, septic tank.
9. MoPME and MoE are the apex bodies for policy formation and implementation of WASH programs in educational institutions.
10. SNV is the lead implementing partner and the BMGF CWIS grantee for Khulna, with a focus on capacity building, knowledge management and dissemination. SNV shares data on its work in the city and the studies conducted with KCC on request basis.
11. ADB is supporting KWASA to construct sewerage networks and STPs in the city.

Reporting Requirements and Data Generation

To understand the influence of these various types of reporting requirements and needs, they have been classified into four categories: **1) institutionalized reporting,** which are inbuilt mechanisms of the overall government system and could include things such as the national census and routine regulatory reporting; **2) national/ state programmatic reporting,** which are initiatives of the national/ state government with a fixed timespan; **3) own activity,** which are collected entirely for the city's own operational purposes and needs and not reflected in other national/state/donor processes; **4) IFI/ donor program reporting,** which are collected and reported for IFI/ donor driven programs. It is worth noting that even though type 2) programs may also receive financial support from IFIs/ donors, the agenda is mostly driven by the national governments. On the other hand, some of the datasets collected under IFI/donor supported programs may receive support from the service authority and be used by the service authority for other purposes once they become available, but only the data collection initiated by the service authority itself would count towards type 3).

Using this classification, Table 2 below shows the reporting requirement of each dataset from Table 1.

Table 2. Data generation as linked to data reporting requirements

Sanitation service chain	Dataset area	Data collected?	Data is representative of the entire city (for access) / covers all service providers (for emptying & conveyance)?	Periodically updated?
Access & containment	Access: Individual Household Latrines (IHHL)	Y	Y	Updated every 10 years (last updated in 2011)
		Y	Y	Irregularly updated (last updated in 2019)
	Access: Public and Community Toilets (PT & CT)	Y2 (CT)	Y	Irregularly updated (last updated in 2019)4
		Y2 (PT)	Y	One-off study in 2019
	Access: Educational Institutions	Y (primary schools)	Y	Updated annually
		Y (secondary schools)	Y	Updated annually
		Y2(primary schools)	N	One off in 2019
		Y(secondary schools)	N	
	Access: Healthcare Facilities	Y2	Y	One-off in 2019
	Access/ Containment: Sewer Connection	N/A	N/A	N/A
	Containment—Non-sewered Sanitation (NSS)	Y2	Y3	Irregularly updated (last update in 2019)4
		Y	Y	One off in 2016
Emptying & conveyance	Emptying (NSS)	Y2	Y3	Irregularly updated (last updated in 2019)4
		Y	N	Daily
		Y	N18	Daily till 2020 (discontinued)
	Disposal at Treatment Plants (NSS)/ Decanting stations	Y	N	Daily
Treatment	Treatment Quality	Y	N/A	Irregularly updated (last update in 2020)
Reuse	Reuse—Treated Effluent	N	N/A	N/A
	Reuse: Treated Biosolids	N	N/A	N/A

Institutionalized reporting
National/State programmatic reporting
Own activity
Donor/ IFI program reporting

Most of Khulna's existing datasets are related to donor-supported programs, with very few required by higher public authorities. Across the service chain, only the census and datasets on educational institutions are currently required for national reporting. This points to weak, and in many areas non-existent, monitoring for sanitation at the national level and a need to strengthen the overall system of accountability for sanitation. All Local Government Institutions (LGIs), including KCC, are required to sign an Annual Performance Agreement (APA) with LGD on an agreed set of KPIs every year. For Khulna, the only sanitation-related KPI is the annual percentage of fecal sludge produced in the city that is safely collected, which focuses on emptying activities. However, the reporting under this indicator is not transparent, and data collection on KCC's mechanical emptying services is mostly driven by KCC's own revenue accounting purposes.

Of all the accountability areas, treatment quality monitoring is the weakest. Between the operationalization of the FSTP in 2017 and the writing of this report in September 2021, a total of nine tests have been conducted, one each in 2017 and 2018, four in 2019, two in 2020, and one in 2021. All these have been driven by donor-required reporting, although a national monitoring mechanism does exist. As the environmental regulatory authority, the Department of Environment (DoE) under the Ministry of Environment specifies standards for the discharge of treated effluent and is responsible for monitoring compliance. All treatment plants are supposed to obtain an annual Environment Clearance Certificate from the DoE, which is granted based on test results. However, this has not yet been applied in Khulna, likely due to the very low volume of fecal sludge that is being treated at the Khulna FSTP (7 KLD for a treatment capacity of 180 KLD). **This weak monitoring and enforcement process could demotivate KCC from continuing to conduct tests even at the low frequency that it currently does,** due to the costs associated with testing.

Influence of Funding Sources on Data Sustainability

Sustaining sanitation datasets requires regular and frequent updating of sources, potentially causing significant strain to already stretched resources for city governments and utilities. Understanding the viability of sanitation data ecosystems requires consideration of the sustainability of funding sources and the impact that inevitable political, administrative, and fiscal changes might have on ongoing data collection and maintenance efforts. The following section seeks to overview the resourcing landscape for sanitation in Khulna, and consider its impact on data sustainability and future viability.

Khulna's Funding Sources for Sanitation

Khulna has multiple sources of finance: own revenue (property tax, emptying fees, public toilet license fees, etc.), national government-approved annual budget (Annual Development Program – ADP, general transfer/block grant), donor grants (provided on specific project) and borrowings (loans). Table 3 shows the characteristics associated with each of Khulna's funding sources for sanitation, including for KCC and for KWASA (ongoing sewerage project).

Table 3. Sources of sanitation finance in Khulna

	LGD (National level)	**LGED** (National level)	**KCC** (City level) (Own Revenue)	**KDA** (City level) (Own Revenue)	**BMGF** (Donor) (Through SNV)	**UNDP** (Donor)	**ADB** (IFI)
CAPEX or OPEX	CAPEX	CAPEX	Both	Both	Both	CAPEX	CAPEX
Grants or Loans	Grant	Grant	-	-	Grant	Grant	Loan
Infrastructure or soft interventions	Both	Infrastructure	Both	Both	Both	Both	Infrastructure
Recurring or program-linked	Both	Program-linked	Both	Both	Program-linked	Program-linked	Program-linked
Sewered sanitation (SS) or non-sewered sanitation (NSS)	Both	NSS	NSS	NSS	NSS	NSS	SS
Part of the sanitation value chain addressed	Access and treatment	Emptying and Conveyance	All parts of the value chain	Access	All parts of the value chain	Access, Emptying and Conveyance	Conveyance and treatment

Influence of Funding Sources on Sanitation Data

The sanitation funding sources presented above can be broadly classified into four categories: 1) national/ state transfers, all of which are classified as grants; 2) city's own revenue; 3) IFI/ donor funding, which can be grants or loans but are external sources and always linked to specific programs; 4) private sector or self-sustainable Community Based Organization (CBO) activities, which operate on a business model. Data collection in a city may be funded through several of these sources but not necessarily all of them. To understand how these funding sources affect sanitation data in Khulna in different ways, and their implications for the continued update of datasets, Table 4 below brings funding sources into Table 2.

Table 4: Overview of datasets as linked to funding sources

Sanitation service chain	Dataset area	Data collected?	Data is representative of the entire city (for access) / covers all service providers (for emptying & conveyance)?	Periodically updated?
Access & containment	Access: Individual Household Latrines (IHHL)	● Y[1]	Y	Updated every 10 years (last updated in 2011)
		● Y[2]	Y[3]	Irregularly updated (last updated in 2019)[4]
	Access: Public and Community Toilets (PT & CT)	● Y[2] (CT)	Y[5]	Irregularly updated (last updated in 2019)[4]
		● Y[2] (PT)	Y[6]	One-off study in 2019
	Access: Educational Institutions	● ●Y[7] (primary schools)	Y	Updated annually
		● ●Y[8] (secondary schools)	Y	Updated annually
		● Y[2]	N[9]	One off in 2019
		● Y[10]	N[11]	
	Access: Healthcare Facilities	● Y[2]	Y[12]	One-off in 2019
	Access/ Containment: Sewer Connection	N/A[14]	N/A	N/A
	Containment: Non-sewered Sanitation (NSS)	● Y[2]	Y[3]	Irregularly updated (last update in 2019)4
		● Y[15]	Y[16]	One off in 2016
Emptying & conveyance	Emptying (NSS)	● Y[2]	Y[3]	Irregularly updated (last updated in 2019)[4]
		● Y[17]	N[18]	Daily
		● Y[19]	N[18]	Daily till 2020 (discontinued)
	Disposal at Treatment Plants (NSS)/ Decanting stations	● ● Y[20]	N[21]	Daily
Treatment	Treatment Quality	● Y[22]	N/A	Irregularly updated (last update in 2020)[23]
Reuse	Reuse: Treated Effluent	N[24]	N/A	N/A
	Reuse: Treated Biosolids	N[25]	N/A	N/A

Institutionalized reporting
National/State programmatic reporting
Own activity
Donor/ IFI program reporting

● National/State transfer
● Own revenue
● IFI/donor funding; Corporate Social Responsibility (CSR)
● Private sector; self-sustainable CBO activities

Most of program datasets were collected through comprehensive citywide surveys funded by donors. The high cost of these surveys and a lack of established mechanisms for further collection and updates pose a major challenge to the sustainability of these datasets when donor-funded programs end. The only exception is the disposal dataset collected at the FSTP, which is co-funded by KCC which covers the salary of the caretaker. As the mechanism has already been established and has a low maintenance cost, this could be the only data initiated by an external program that will continually updated. As the donor programs are coming to an end, **the city may need to explore alternative funding sources** for future sanitation data collection, and most importantly, **set up cost effective mechanisms for periodic and frequent monitoring** that can leverage existing institutional arrangements, such as through contracts with PT operators.

The table also reveals another challenge with data collection by community-based organizations (CBOs). CDC – a CBO formed under a donor project – started providing mechanical desludging services in 2012 using three trucks donated by the project. However, the service was discontinued in 2020 as all three trucks became non-functional due to lack of resources for maintenance and repair. This implies that the revenue from emptying services might have been insufficient to cover the full cost of service provision. In such a case where the viability of the business model is low or vulnerable to external shocks, the service authority may need to proactively find ways to help CBOs sustain their operations, such as through innovative financing schemes or subsidies.

Considering both reporting requirements and funding sources for datasets across the sanitation service chain, **only the toilet access data for households** (through the national census) **and educational institutions** (through the ministries), **emptying data** (mechanical service provided by KCC) **and the fecal sludge disposal data at the FSTP are likely to be repeated and updated.**

Data on Sanitation Finance

The generation and continued update of data across the sanitation service chain assists the service authority and accountability authorities to track progress and plan programs and interventions for service improvement. City-level sanitation finance data are particularly important to shed light on the cost-effectiveness and financial sustainability of current sanitation service provision. However, sanitation finance data is often patchy or unavailable. Table 5 below summarizes the data available in Khulna in key financial data areas.

Table 5. Financial data availability for Khulna

Financial Data	Dataset Area	Data Collected? (Yes, No, Not Applicable)
Revenue	Total annual sewerage/ sanitation fees (collected on water bills) for the city	N/A
	Disaggregation of sewerage/ sanitation fees (on water bills) for sewered vs. non-sewered households, if the city has sewers	N/A
	Sanitation surcharge (on water bills) for sanitation improvement interventions	N/A
	Sanitation tax as part of property tax/ water bills/ independently for service provision	N/A
	Total annual revenue generated from PT & CTs owned and operated by the service authority, if user fees are charged	N/A
	Total desludging revenue to service authority from HHs and/or institutions (for services directly provided by vehicles owned and operated by the service authority)	Y
	Total annual tipping fees from desludging operators	N/A
	Fees from private players contracted to operate PT & CTs / treatment plants, including license fees	Y
	Fines and penalties (for illegal sewer connections and drains, FS leakage/ spillage, etc.)	N/A
	Sales of treated effluent and biosolids	N/A
Expenditure	CAPEX for each treatment plant	Y
	Annual O&M cost for each treatment plant	Y
	CAPEX for the sewer network	N/A
	Annual O&M cost for the sewer network	N/A
	CAPEX for PT/CTs owned by the service authority	Y
	Annual O&M cost for PT/CTs owned by the service authority	Y
	CAPEX for desludging vehicles	Y
	Annual O&M cost for desludging vehicles	Y
	CAPEX for transfer/ decanting stations (incl. mobile transfer stations)	N/A
	Annual O&M cost for transfer/ decanting stations (incl. mobile transfer stations)	N/A
	CAPEX for any other assets owned by the service authority	N/A
	Annual O&M cost for any other assets owned by the service authority	N/A
Direct Subsidies	Direct HH subsidies provided by the service authority for toilet & containment	N/A
	Direct HH subsidies provided by the service authority for emptying	N/A

The situation in Khulna is relatively simple, as the city is currently entirely non-sewered and has only a few assets: one FSTP, four desludging vehicles, and several PTs licensed out to private operators. The areas relevant to Khulna have good data availability due to both municipal budgeting requirements and practices, and detailed records from donor programs. For example, KCC deposits its revenue from its emptying services into a separate FSM account; KCC's annual budget has separate line items for PT construction, PT cleaning, vacutug (desludging vehicle) procurement and repair etc. Meanwhile, the FSTP and the vacutugs were constructed and donated through donor funded programs, with detailed cost data available.

As the sewer network finishes construction and becomes operationalized, financial data availability for sewered sanitation will depend on the data infrastructure governing utility reporting and accounting practices, such as whether O&M costs are recorded in a way that allows disaggregation by asset category.

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SNV. (2020). Annual Performance Monitoring Survey 2019 for Khulna City Corporation, Jhenaidah and Kushtia Paurashavas Under CWISE Project. SNV in Bangladesh.

Notes

1 Collected under Census of Bangladesh (Population and Housing Census, 2011); Reporting of this data is institutionalized; The data collection and update is funded by the national government.
2 Collected for Khulna City Corporation (KCC; data owner) under the CWISE program implemented by SNV and funded by BMGF.
3 Data collected from a sample survey with stratified random sampling of the entire city, including slum areas.
4 The first CWIS performance survey was done in 2014, then again in 2017 and 2019.
5 Percentage of HH using CT is collected from the HH sample survey, which is representative of the entire city.
6 The 2019 survey covered all PTs in the city.
7 Collected by the Ministry of Primary and Mass Education through an annual self-assessment by all primary schools in the country. APSC was first collected through paper-based forms and was recently digitalized with support from ADB.
8 Collected by the Ministry of Education (responsible for secondary education and above) through an annual self-assessment by all secondary schools in the country. Similar to the data collection for primary schools, the initiative itself was started by the Ministry, whereas ADB supported the digitalization of the system.
9 The survey only covered primary schools in the city.
10 School Census on Sanitation Practices in Secondary School of Khulna City Corporation conducted under the CWISE program implemented by SNV and funded by BMGF for KCC (data owner)
11 The survey only covered secondary schools in the city.
12 A census of all health care facilities was done comprising both public and private hospitals, health care centers, clinics, dispensaries, diagnostic centers, maternal clinics and other specialized health care facilities such as non-profit faith-based facilities.
13 Survey conducted in 2019 and report Published in March 2020.
14 Sewerage is currently under planning in Khulna. The city is entirely dependent on onsite sanitation as of 2020.
15 A GIS survey was conducted in 2016 to identify containment type for all the establishments in the city by Khulna City Corporation (KCC; data owner) under the CWISE program implemented by SNV and funded by BMGF.
16 This was census covering all the establishments in the city.
17 KCC keeps records in paper format of the mechanical emptying services provided by them. This information is collected using own revenue sources.
18 The emptying information collected by KCC and Community Development Committee (CDC) doesn't include emptying services provided by manual emptiers.
19 CDC is a community based organizations formed under NUPRP project of UNDP provides mechanical emptying services in the city beside KCC. CDC started providing desludging services in 2012 and keeps records of the mechanical emptying services provided by them in paper format for their own monitoring purposes using the revenues generated from the emptying service provided. However, all CDC vehicles became non-functional in 2020 and the service was discontinued.
20 This data is documented in the logbooks at the Khulna FSTP for KCC and SNV's own use. Current data collection is funded by BMGF who supported the establishment of the Khulna FSTP together with DFID. KCC also shares the data collection cost by providing caretaker's salary who keeps disposal records at FSTP. The salary is paid from KCC's own revenue sources.
21 The logbook only records the operators that dispose at the FSTP. Activities of manual emptiers and illegal dumping are not captured.
22 Water quality testing is done by KCC and supported by SNV for inlet and outlet FS characteristics of FSTP in terms of physico-chemical parameters such as BOD, Nitrate, Phosphate, Suspended Solids, Temperature, Fecal Coliform and Total Coliform.
23 The testing was done once a year in 2017, 2019 and 2020. This is irregularly performed due to very low volume of FS disposed.
24 No reuse is happening for treated effluent.
25 Reuse of treated biosolids is currently at testing stage. SNV and KCC are piloting an action research to produce carbonized briquettes from treated faecal sludge.