SFD Lite Report

Rajshahi Bangladesh

This SFD Lite Report was prepared by
WaterAid Bangladesh

Date of production/ last update: 27/12/2018

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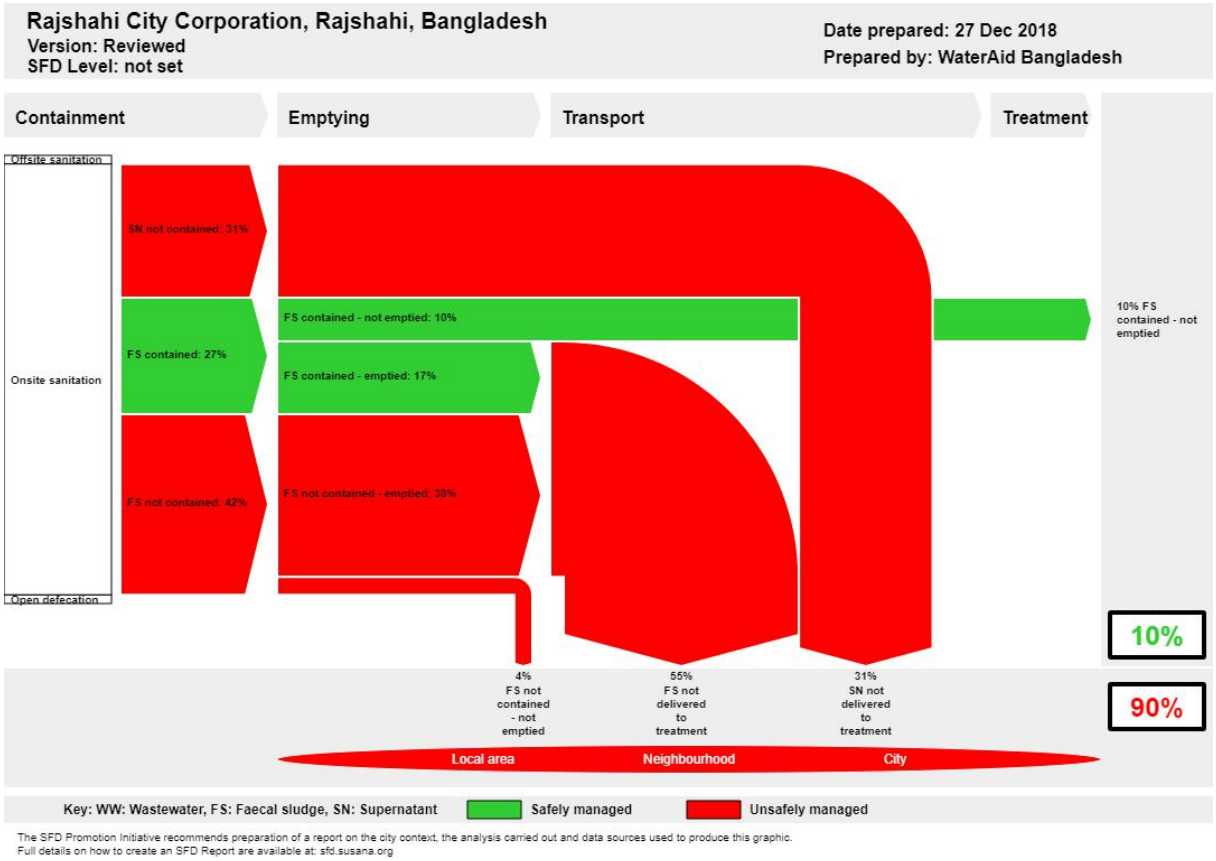
1 The SFD Graphic



The SFD Promotion Initiative recommends preparation of a report on the city context, the analysis carried out and data sources used to produce this graphic.
Full details on how to create an SFD Report are available at: sfd.susana.org

2 SFD Lite information

Produced by:

The Flow Diagram (SFD) for Rajshahi was created through desk-based research by the WaterAid country programme in Bangladesh using the SFD Graphic Generator on the SuSanA website.

Collaborating partners:

Rajshahi City Corporation and WaterAid Bangladesh

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3 General city information

Rajshahi City Corporation (RCC) stands on the bank of the river Padma in Rajshahi districts. Rajshahi District is bounded by Naogaon District on the north, West Bengal of India, the Padma and Kushtia District on the south, Natore District on the east and Chapainawabganj District on the west. The region consists of Barind tract, Diara and Char lands.

RCC was established in 1991. It comprises of 30 wards and total area is 96.72 sq. km. The total population of Rajshahi City Corporation is about 0.85 million with Population Density 4,318/Sq Km. Average minimum temperature of Rajshahi town is 5.8°C and the average highest temperature is around 38°C. RCC is located in an area of relatively high rainfall with an average annual rainfall of 4,637 mm. In Rajshahi city, RWASA (Rajshahi Water Supply & Sewerage Authority) supplies water to meet the need of the water demand through a distribution network in Rajshahi City Corporation (RCC) area. RWASA has a water supply pipeline network of 712.50 km through which it serves almost 70% people in the city corporation area. The city has no sewerage system; the whole population uses mainly onsite sanitation technologies.

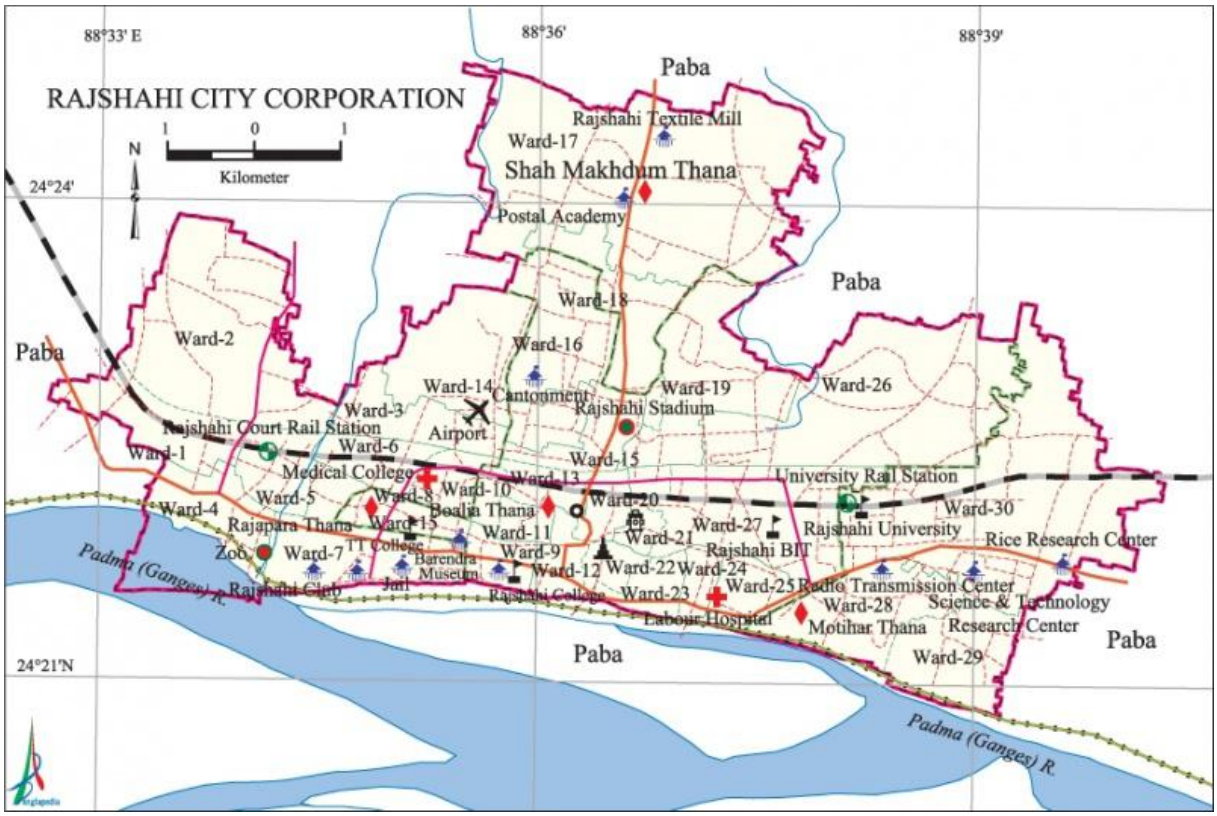

Figure 1: Map of Rajshahi City Corporation (RCC)

(Source: Banglapedia, National Encyclopedia of Bangladesh.)

4 Service outcomes

Rajshahi City Corporation, Rajshahi, Bangladesh, 27 Dec 2018. SFD Level: not set
Population: 850000
Proportion of tanks: septic tanks: 56%, fully lined tanks: 100%, lined, open bottom tanks: 92%

System label	Pop	F3	F4	F5	S4e	S5e
System description	Proportion of population using this type of system	Proportion of this type of system from which faecal sludge is emptied	Proportion of faecal sludge emptied, which is delivered to treatment plants	Proportion of faecal sludge delivered to treatment plants, which is treated	Proportion of supernatant in open drain or storm sewer system, which is delivered to treatment plants	Proportion of supernatant in open drain or storm sewer system that is delivered to treatment plants, which is treated
T1A2C5 Septic tank connected to soak pit	10.0	50.0	0.0	0.0		
T1A2C6 Septic tank connected to open drain or storm sewer	70.0	90.0	0.0	0.0	0.0	0.0
T1A4C10 Lined tank with impermeable walls and open bottom, no outlet or overflow	12.0	90.0	0.0	0.0		
T1A4C6 Lined tank with impermeable walls and open bottom, connected to an open drain or storm sewer	3.0	90.0	0.0	0.0	0.0	0.0
T1A5C10 Lined pit with semi-permeable walls and open bottom, no outlet or overflow	5.0	90.0	0.0	0.0		

Table 1: SFD Matrix for Rajshahi

The percentages presented in Table 1 are based on data collected through key informant interviews and focus group discussions.

Most of the population uses septic tanks (80%), and around 20% population uses toilet connected to lined tanks and pits. Within that 80%, about 70% of the population's septic tanks are connected to open drains (T1A2C6) and 10% of the population uses septic tanks which are connected to soak pits (T1A2C5), even though the specifications of the Bangladesh National Building Code (BNBC) state that it is not allowed to discharge the effluent of septic tanks into open water courses and a soak pit shall be installed. The Building Code also demands soil percolation tests to determine the soil and site suitability (Ahsan et al., 2014). The 20% of toilets connected to lined tanks and pits consists of: 12% of lined tanks with impermeable walls and open bottom, no outlet or overflow (T1A4C10), 5% of lined pits with semi-permeable walls and open bottom, no outlet or overflow (T1A5C10) and 3% of lined tanks connected to an open drain or storm sewer (T1A4C6).

There is no open defection found in the City Corporation. The frequency at which emptying occurs varies on the number of people using the facility, but the minimum time is every 6 months up to more than 5 years.

The SFD assessment has shown that, 90% of the excreta generated are “unsafely managed”. 31% of the population’s excreta are composed of supernatant (SN) which is discharged directly into the environment untreated. Also, 42% of the population’s excreta are not contained and 27% are contained in the technology. Within this 42%, 4% is FS not contained and not emptied, discharged into the environment from the systems. 38% of the population among that 42% (FS not contained) and 17% of the population among 27% (FS contained) have emptied their tanks and pits at least once in last 5 years. This 55% of the population’s excreta does not go through any treatment and eventually are discharged into the environment. Within the 27% that have contained FS, 10% of the population did not require emptying their technology in last 5 years,which is shown in the SFD as “safely managed”.

In RCC, the emptying of pits and septic tanks is undertaken by private sweepers through manual processes (FGD, 2018a). The city has no sewer system or sewerage treatment plant (KII2, 2018). Faecal sludge is discharged at the open drain or surrounding ditches or transported and discharged into the dumpsite. The dumpsite of 30 bigha (4.8 ha) receives all wastes from the city (organic, inorganic, solid and faecal sludge) coming from industries, households, and public and private institutions (KII1, 2018). It is simply an open field, with no protection or appropriate design details for the handling of wastes.

People in Rajshahi City Corporation get their water either from the municipal supply or from their own sources. A large amount of water is produced from groundwater sources and most of the city corporation areas are supplied with pipe water. It is estimated using the risk of groundwater pollution tool that there is low risk of groundwater pollution in the city.

5 Data and assumptions

A variety of data sources were used to determine the most reasonable estimates of percentages of excreta flow for the SFD matrix. In addition to the published national level WaSH policy and implementation documents, transect walks, observations, key informant interviews and focus group discussions were used for data collection purposes because of the limited availability of data in secondary sources.

The proportion of FS in tanks was selected based on the relative proportion of the people using those systems according to the guidance given in the FAQ section of the SuSanA Webpage. That means that the FS content in septic tanks and fully lined tanks (sealed) was set to 56% and 100%, respectively. For lined tanks with impermeable walls and open bottom with no outlet or overflow and all types of pits, a recommended value of 92 percent was used as the proportion of the content that is faecal sludge.

As per data gathered from KIIs and FGDs, it is assumed that 90% people empty their systems at least once in five years. But for septic tanks connected to soak pit, it is assumed that 50% of the people empty such tanks in that time period.

6 List of data sources

- IRF, 2017. Institutional and Regulatory Framework for FSM: Section on municipalities.
- Sector Development Plan (SDP) for Water Supply and Sanitation Sector in Bangladesh (FY 2011-25).
- KII1, 2018. Interview with Mr. Sheikh Md. Mamun, Chief conservancy officer, RCC.
- KII2, 2018. Interview with Mr. Md. Mahbubur Rahman, Research Officer, RCC.
- KII3, 2018. Interview with Md. Parvez Anwar, Officer of Health Dept. RCC.
- FGD, 2018a. Focus group discussion with sweepers. (manual emptying)
- FGD, 2018b. Focus group discussion with toilet users. (household)