



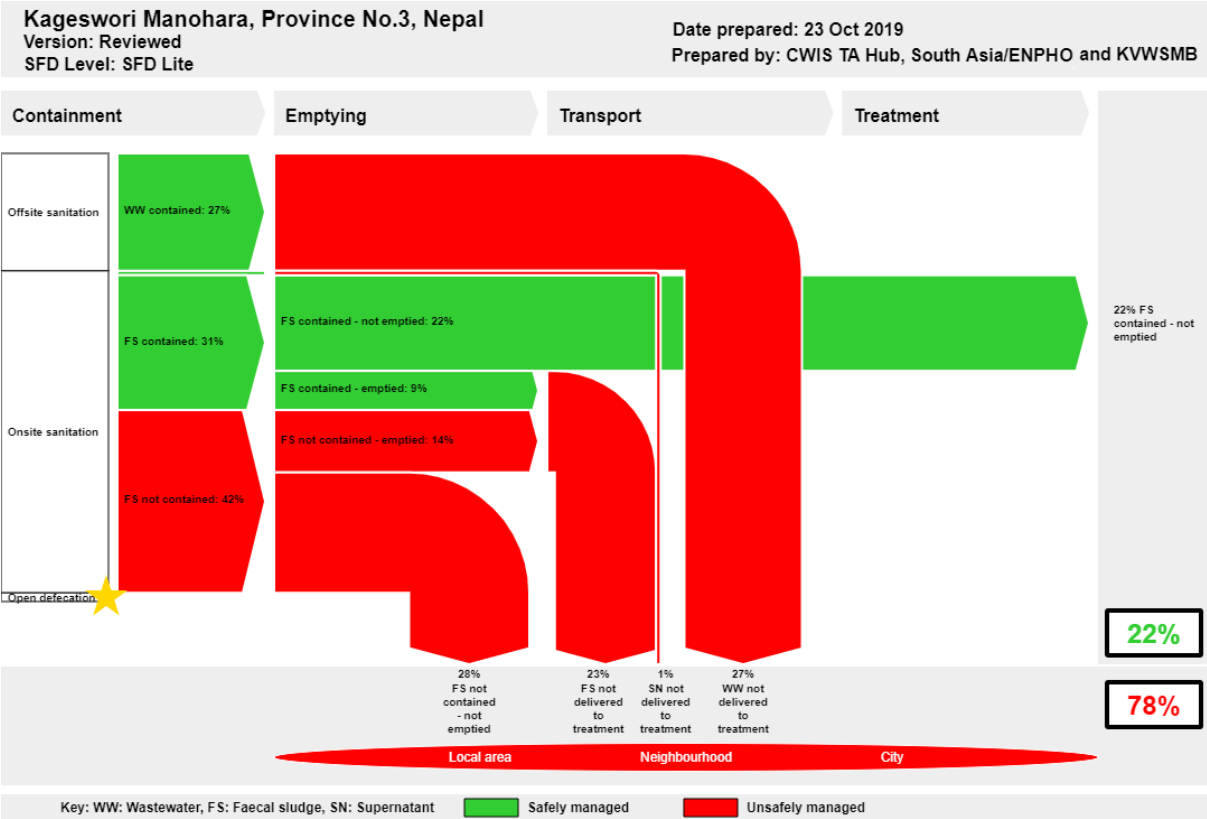
SFD Lite Report

Kageshwori Manohara Municipality Nepal

This SFD Lite Report was prepared by City-wide Inclusive Sanitation Technical Assistance Hub, South Asia (CWIS TA Hub, South Asia)/Environment and Public Health Organization (ENPHO) and Kathmandu Valley Water Supply Management Board (KVWSMB).

Date of production/ last update: 23/10/2019

1 The SFD Graphic



2 SFD Lite information

Produced by:

- The Shit Flow Diagram for Kageshwori Manohara Municipality was created by City-wide Inclusive Sanitation technical Assistance Hub, South Asia (CWIS TA Hub, South Asia)/ENPHO and Kathmandu Valley Water Supply Management Board (KVWSMB) with the SFD graphic generator available on the SuSanA Website.

Collaborating partners:

- Eco- Concern Pvt. Ltd.
- DevCon.

Date of production: 23/10/2019

3 General city information

Kageshwori Manohara Municipality is located in Kathmandu district in Province No.3 of Nepal. The name Kageshwori Manohara is derived from the historic religious “Kageshwori Manohara” temple located at Gagalphedi-1. The municipality was formed in 2017 (2073 in Nepali calendar) by merging former Village Development Committees (Gothatar, Mulpani, Danchi, Bhadrabas, Aalapot and Gagalphedi) consisting of nine wards covering an area of 27.38 km² with an altitude ranging from 1,297m to 2,258m above mean sea level. The municipality is bounded by Shankharapur Municipality in the East, Kathmandu metropolitan city and Gokarneshwor Municipality in the west, Sindupalchowk district in the North and Madhyapur Thimi Municipality in the south (Policy, Programme and Budget, 2019).

The total population of the municipality is 102,235 residing in 26,166 households. People of Kageshwori Manohara Municipality rely on either municipal water supply or from other sources. The main sources of drinking water are public tap, well and household bore water (KII 1, 2019).

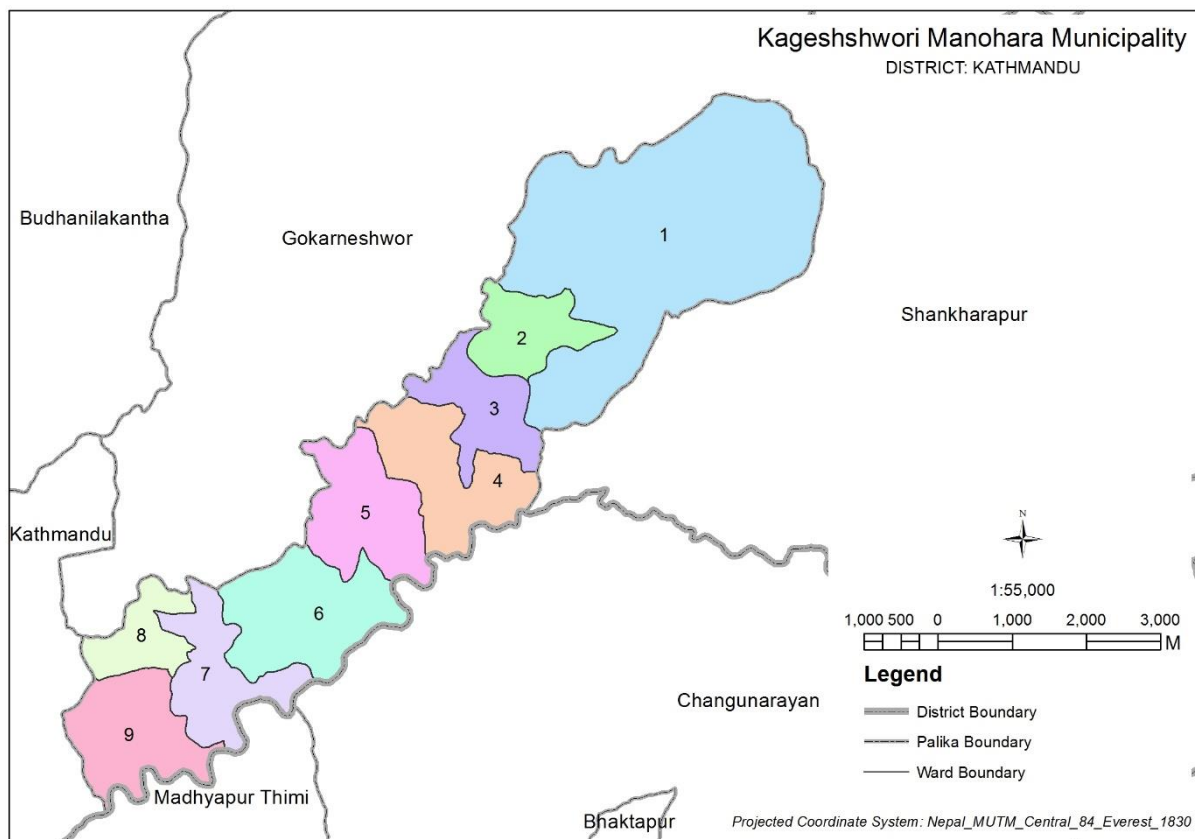


Figure 1: Map of Kageshwori Manohara Municipality (Source: Ministry of Federal Affairs and General Administration).

4 Service outcomes

Table 1: SFD Matrix for Kageshwori Manohara Municipality.

Kageshwori Manohara, Province No.3, Nepal, 23 Oct 2019. SFD Level: SFD Lite

Population: 102235

Proportion of tanks: septic tanks: 100%, fully lined tanks: 98%, lined, open bottom tanks: 100%

System label	Pop	W4a	W5a	F3	F4	F5	S4d	S5d
System description	Proportion of population using this type of system	Proportion of wastewater in sewer system, which is delivered to centralised treatment plants	Proportion of wastewater delivered to centralised treatment plants, which is treated	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 sewer system, which is delivered to treatment plants	Proportion of supernatant in sewer system that is delivered to treatment plants, which is treated
T1A1C1 Toilet discharges directly to a centralised combined sewer	27.0	0.0	0.0					
T1A3C1 Fully lined tank (sealed) connected to a centralised combined sewer	1.0			0.0	0.0	0.0	0.0	0.0
T1A3C10 Fully lined tank (sealed), no outlet or overflow	30.0			30.0	0.0	0.0		
T1A3C9 Fully lined tank (sealed) connected to 'don't know where'	2.0			43.0	0.0	0.0		
T1A4C8 Lined tank with impermeable walls and open bottom, connected to open ground	4.0			23.0	0.0	0.0		
T1A4C9 Lined tank with impermeable walls and open bottom, connected to 'don't know where'	2.0			43.0	0.0	0.0		
T2A4C10 Lined tank with impermeable walls and open bottom, no outlet or overflow, where there is a 'significant risk' of groundwater pollution	24.0			30.0	0.0	0.0		
T2A5C10 Lined pit with semi-permeable walls and open bottom, no outlet or overflow, where there is a 'significant risk' of groundwater pollution	9.0			39.0	0.0	0.0		
T2A6C10 Unlined pit, no outlet or overflow, where there is a 'significant risk' of groundwater pollution	1.0			100.0	0.0	0.0		

4.1 Containment

In Kageshwori Manohara Municipality, 27% of the population are dependent on centralized combined sewer (T1A1C1), 33% of population use fully lined tanks, out of which, 1% are connected to a centralized combined sewer (T1A3C1, 1%), 2% are connected to 'don't know where' (T1A3C9) and 30% have no outlet or overflow (T1A3C10). About 30% of the population use lined tanks with impermeable walls and open bottom connected to open ground (T1A4C8, 4%), to 'don't know where' (T1A4C9, 2%) and with no outlet or overflow (T2A4C10, 24%). 9% of the population use lined pits with impermeable walls and open bottom, no outlet or overflow (T2A5C10) and 1% of the population use unlined pits, no outlet or overflow (T2A6C10). The average size of containment in Kageshwori municipality is 8m³ (HHs Survey, 2019).



Figure 2: Containment system (HHs Survey, 2019).

4.2 Emptying and transportation

Mechanical emptying (87%) was found dominant in Kageshwori Manohara Municipality (HHs survey, 2019). Mechanical emptying is done by the private mechanical service provider since there is no municipal service. The mechanically emptied Faecal Sludge (FS) is transported by a desludging vehicle, a tank equipped with movable centrifugal pump on a truck. The wastewater and supernatant are transported through the sewer system. The emptying frequency varies for even the same type of containment connected to the same technology. Hence, the proportion of emptied faecal sludge for different types of containment connected to different technologies (variable F3) was estimated on the basis of data collected from HHs survey and Key Informant Interviews.

4.3 Treatment

There is no treatment facility for treating wastewater, supernatant or faecal sludge in the municipality.

4.4 Reuse and Disposal

As represented by Figure 3, the wastewater, supernatant and faecal sludge are discharged in the Hanumante and Manohara Rivers untreated and other rivers of Kathmandu Valley (KII1, 2019).



Figure 3: Wastewater and supernatant discharged into Manohara River untreated.

4.5 SFD Graphic

According to the SFD graphic, 78% of faecal sludge and wastewater are not safely managed and 22% of FS is safely managed. 27% of the wastewater and 1% of the supernatant contained in the technology are discharged in the environment without any treatment. 23% of emptied FS is discharged untreated, consisting of 9% of FS contained and 14% of FS not contained. 22% of safely managed FS originates from fully lined tanks connected to centralized combined sewer and fully lined tanks with no outlet or overflow, which are not emptied.

4.6 Groundwater Contamination

There is no published data available regarding groundwater table and soil profile of Kageshwori Manohara Municipality. So, the information was collected from KII1 (2019). Majority of population rely on underground sources of water from protected boreholes extracted from a depth of greater than 10 metres consisting of fine sand, silt and clay in unsaturated zone. The lateral separation between sanitation facilities and groundwater source within less than 10 metres is considered greater than 25% and the percentage of sanitation facilities that are located uphill of groundwater sources was estimated greater than 25% (KII1, 2019). So, it has been estimated that there is high risk of ground water pollution in Kageshwori Manohara Municipality.

5 Data and assumptions

The data for the SFD Matrix were estimated using the data collected from the household survey carried out by CWIS TA Hub, South Asia in 2019. The collected data were further discussed and finalized with key informants of Kageshwori Manohara Municipality.

The proportions of FS in septic tanks and lined tanks with impermeable walls and open bottom and all types of pits were set to 100% while the proportion of FS in fully lined tanks (sealed) was set to 98% according to the relative proportions of the systems in the municipality, as per the guidance given in the Frequently Asked Questions (FAQs) in the Sustainable Sanitation Alliance (SuSanA) website.

The proportion of emptied faecal sludge for different types of containment connected to different technologies (variable F3) was estimated on the basis of the data collected from the household survey and Key Informant Interviews.

6 List of data sources

- *Kageshwori Manohara Municipality, 2019/2020, Policy, Programme and Budget.*
- *Household Survey, 2019, City-Wide Inclusive Sanitation Technical Assistance Hub, South Asia.*
- *MoFALD, 2019, Ministry of Federal Affairs and General Administration.*
- *KII1, October 2019, Interview with Engineer of Environment and Emergency Department, Kageshwori Manohara Municipality.*
- *KII2, September 2019, Interview with Private desludging service provider, Lalitpur Municipality.*

SFD Kageshwori Manohara Municipality,
Nepal, 2019

Produced by:

City-Wide Inclusive Technical Assistance Hub,
South Asia (CWIS TA Hub, South Asia), Amrita
Angdembe

Environment and Public Health Organization
(ENPHO)

Kathmandu Valley Water Supply Management
Board (KVWSMB)

Editing:

Eco Concern Pvt.Ltd., Krishna Ram Yendyo

© Copyright

All SFD Promotion Initiative materials are freely available following the open-source concept for capacity development and non-profit use, so long as proper acknowledgement of the source is made when used. Users should always give credit in citations to the original author, source and copyright holder.

This Executive Summary and the SFD Report are available from:

www.sfd.susana.org

SFD Promotion Initiative

