



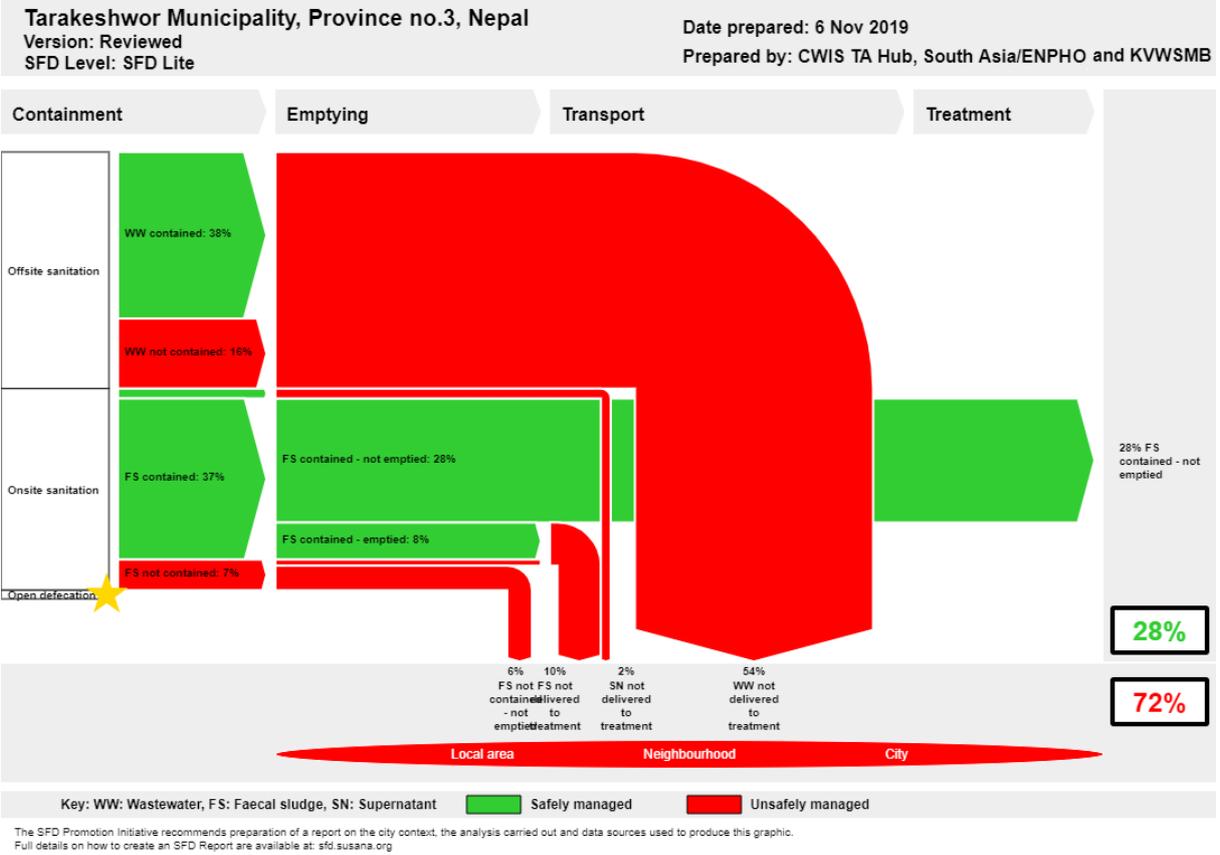
SFD Lite Report

Tarakeshwor 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: 06/11/2019

1 The SFD Graphic



2 SFD Lite information

Produced by:

- The Shit Flow Diagram for Tarakeshwor 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 tool available on the SuSanA Website.

Collaborating partners:

- Eco Concern Pvt. Ltd.
- DevCon

Date of production: 06/11/2019

3 General city information

Tarakeshwor Municipality is located in Kathmandu district in Province no. 3 of Nepal. The municipality was formed in 2071 (2014 in Georgian calendar) by merging former Village Development Committee (Saangla, Kavresthali, Jiturphedi, Goldhunga, Dharmasthali, Phutung and Manamaiju) consisting of eleven wards covering an area of 35 km², with an altitude of 1,345 metres. The municipality is surrounded by Tokha Municipality in the east, Nagarjun Municipality in the west, Nuwakot district in the north and Kathmandu Metropolitan city in the west (Policy, Programme and Budget, 2019)

The total population of the municipality is 81,443 people residing on 20,133 households (Policy, Programme and Budget, 2019). Mostly, the population of Tarakeshwor Municipality are dependent on public water supply. People who do not have access to public water supply rely on well and tap water (bore water) (KII1, 2019).

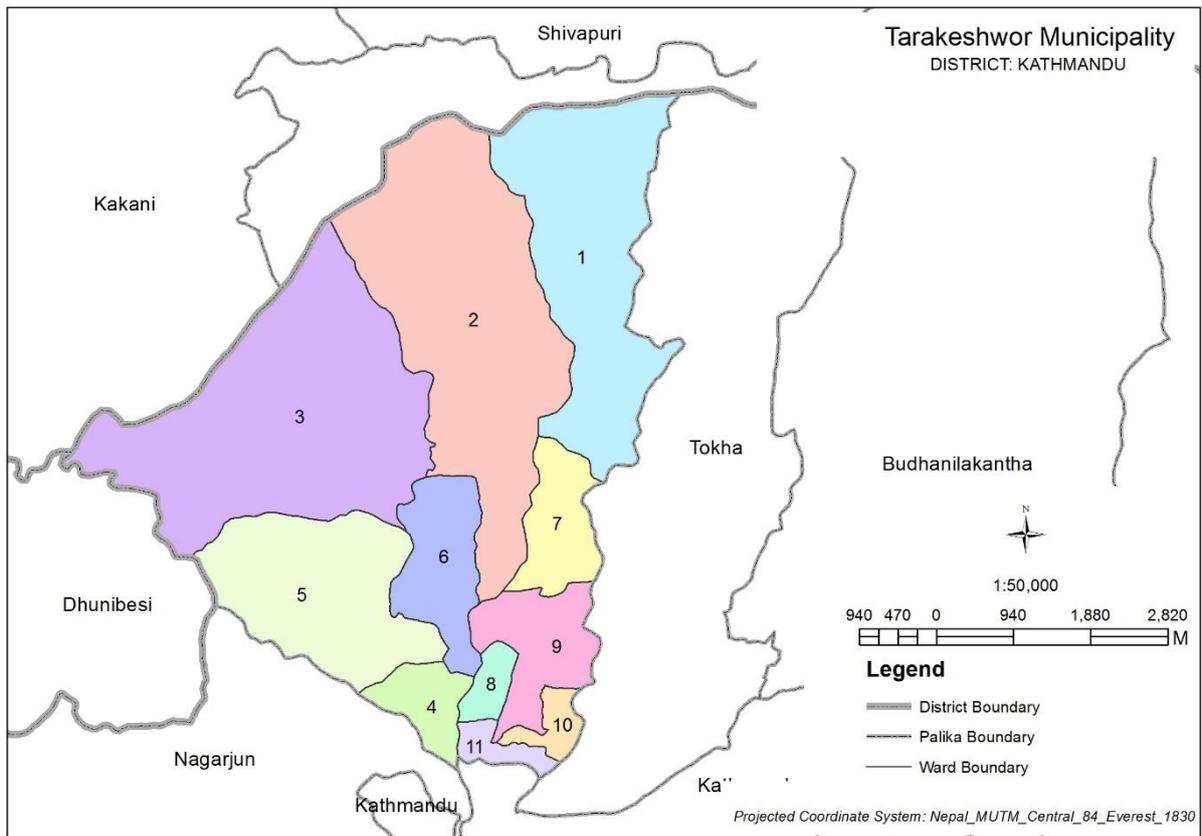


Figure 1: Map of Tarakeshwor Municipality (Source: Ministry of Federal Affairs and General Administration).

4 Service outcomes

Table 1: SFD Matrix for Tarakeshwor Municipality.

Tarakeshwor Municipality, Province no.3, Nepal, 6 Nov 2019. SFD Level: SFD Lite

Population: 81443

Proportion of tanks: septic tanks: 100%, fully lined tanks: 100%, lined, open bottom tanks: 84%

System label	Pop	W4a	W5a	W4c	W5c	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 wastewater in open sewer or storm drain system, which is delivered to treatment plants	Proportion of wastewater delivered to 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	38.0	0.0	0.0							
T1A1C6 Toilet discharges directly to open drain or storm sewer	16.0			0.0	0.0					
T1A3C10 Fully lined tank (sealed), no outlet or overflow	1.0					21.0	0.0	0.0		
T1A3C5 Fully lined tank (sealed) connected to a soak pit	1.0					17.0	0.0	0.0		
T1A4C1 Lined tank with impermeable walls and open bottom, connected to centralised combined sewer	14.0					20.0	0.0	0.0	0.0	0.0
T1A4C10 Lined tank with impermeable walls and open bottom, no outlet or overflow	14.0					21.0	0.0	0.0		
T1A4C5 Lined tank with impermeable walls and open bottom, connected to a soak pit	5.0					17.0	0.0	0.0		
T1A4C7 Lined tank with impermeable walls and open bottom, connected to a water body	1.0					60.0	0.0	0.0		
T1A4C8 Lined tank with impermeable walls and open bottom, connected to open ground	1.0					23.0	0.0	0.0		
T1A4C9 Lined tank with impermeable walls and open bottom, connected to 'don't know where'	5.0					17.0	0.0	0.0		
T1A5C10 Lined pit with semi-permeable walls and open bottom, no outlet or overflow	4.0					75.0	0.0	0.0		

4.1 Containment

As presented in Table 1, 38% of population are dependent on sewer system (T1A1C1), followed by user interface directly connected to open drain (T1A1C6, 16%), lined tanks with impermeable walls and open bottom (T1A4C1, 14%; T1A4C5, 5%; T1A4C7, 1%; T1A4C8, 1%; T1A4C9, 5% and T1A4C10, 14%), lined pits with semi-permeable walls and open bottom with no outlet or overflow (T1A5C10, 4%) and a small percentage of people use fully lined tanks (T1A3C5, 1% and T1A3C10, 1%). As per the household survey (2019), the average size of the containment is 7m³.



Figure 2: Containment system alongside wall of house (HHs Survey, 2019).

4.2 Emptying and transportation

There is no standard design guidelines for the construction of containments in Tarakeshwar Municipality. So, the emptying frequency widely varies as the containments are not built in a standard way (KII1, 2019). The proportions of emptied faecal sludge for different types of containment connected to different technologies (variable F3) were estimated on the basis of data collected from the household survey and Key Informant Interviews.

Both manual (59%) and mechanical emptying (41%) were found prevalent in Tarakeshwar Municipality. The mechanical service is provided by private desludging service provider (HHs Survey, 2019), whereas manual emptying is done by labour or household member. There are no municipal services in the municipality so, the municipality depends on neighbouring municipality. The mechanically emptied faecal sludge is transported with a desludging vehicle, a tank equipped with movable centrifugal pump on a truck. The supernatant and wastewater are transported through sewer system (Figure 3).



Figure 3: Desludging vehicle: a tank equipped with movable centrifugal pump on a truck.

4.3 Treatment

The municipality lacks treatment facilities for treating wastewater and faecal sludge.

4.4 Reuse and Disposal

All the wastewater, supernatant and emptied faecal sludge get finally discharged in Sangle and Mahadev Rivers (KII2, 2019).

4.5 SFD Graphic

As shown in the SFD graphic, 72% of Faecal Sludge (FS) and wastewater is not safely managed and 28% of FS is safely managed. Out of the 54% of wastewater, 38% of contained wastewater is discharged from sewer system and 16% of wastewater not contained in technology is directly discharged to the open drain, both disposed in the open environment untreated. 2% of supernatant is not delivered to treatment and 10% of FS contained in the technology is emptied and gets discharged into the environment without any treatment. 6% of the FS is not contained in the technology and not emptied and considered as unsafely managed. 28% of FS contained is attributed to the FS contained in the technology which is not emptied and safely managed.

4.6 Groundwater Contamination

There is no published data available regarding groundwater table and soil profile of Tarakeshwar Municipality. So, the information was collected from KII1 (2019). Less than 25% of population rely on groundwater sources of water which are from protected boreholes extracted from a depth of greater than 10 metres consisting of medium sand 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% (KII2, 2019). So, it has been estimated that there is low risk of ground water pollution in Tarakeshwar 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 Tarakeshwor Municipality.

The proportions of FS in septic tanks, fully lined tanks and lined tanks with impermeable walls and open bottom were set to 100%, 100% and 84% respectively, 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

- *Tarakeshwor 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, Tarakeshwor Municipality.*
- *KII2, October 2019, Interview with Engineer of Environment and Emergency Department, Tarakeshwor Municipality.*
- *KII3, September 2019, Interview with Private desludging service provider, Lalitpur Municipality.*

SFD Tarakeswor 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

