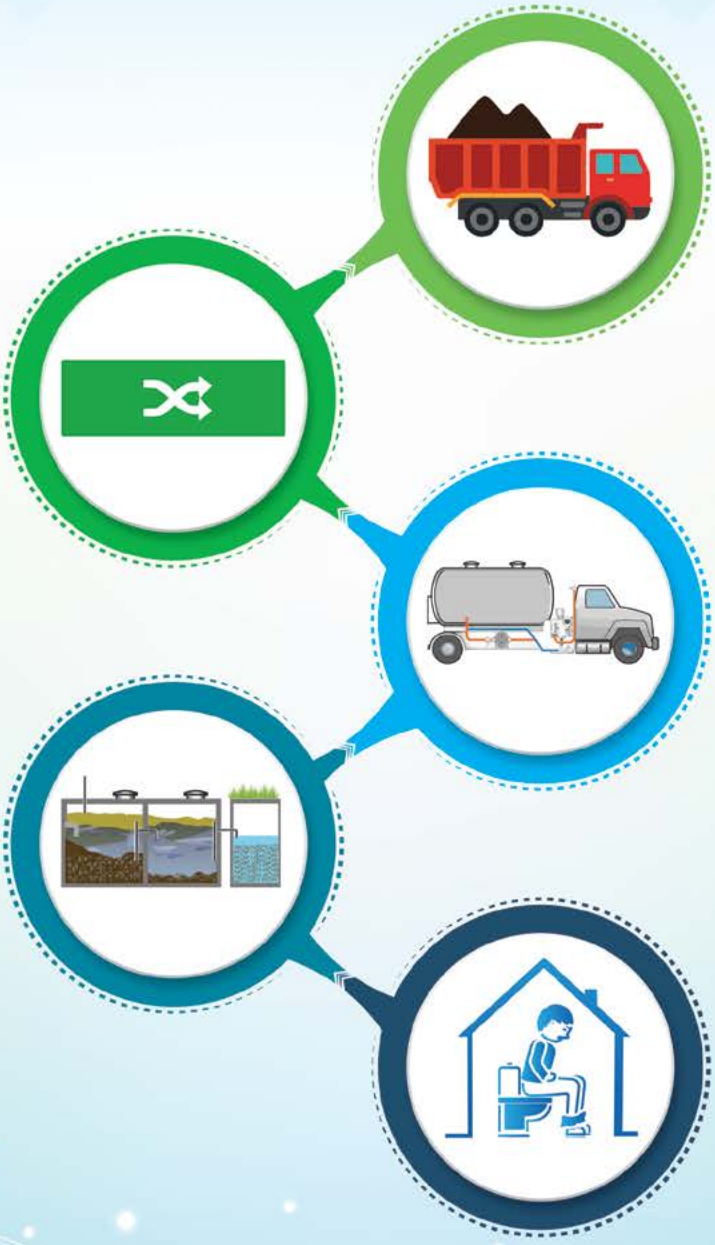
Municipal Sanitation Synopsis of Karnali Province, Nepal -2024



Municipalities Network Advocacy on Sanitation in South Asia Phase II (MuNASS-II)

BILL & MELINDA GATES foundation

UCLG ASPAC United Cities and Local Governments Asia Pacific

Municipal Association of Nepal 2050

ENPHO Creating Eco Societies

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Disclaimer: The content presented in the Municipal sanitation synopsis relies on the data available (on the date of the survey) and further validated with respective municipalities. Please note that the information and suggestions may be revised due to dynamic circumstances, updated surveys, or alterations in municipal policies. It is recommended that readers validate and compare the data with the most recent sources to ensure precision and accuracy. While the overviews strive to offer a broad perspective and recommendations, it is important to recognize that specific local conditions can differ, and stakeholders are encouraged to undertake additional research or seek guidance from local authorities for thorough decision-making.

ACKNOWLEDGEMENT

We extend our sincere gratitude to Mr. Yagya Prasad Dhakal, Mayor of Bheriganga Municipality; Mr. Prakash Bhandari, Mayor of Shaarada Municipality; Mr. Chandra Prakash Gharti, Mayor of Bheri Municipality; Mr. Bishnu Kumar Bham, Mayor of Chhayanath Rara Municipality, along with all deputy mayors, ward chairpersons and municipal staffs, for their unwavering support and invaluable feedback throughout the study. Special thanks to respective Chief Administrative Officers (CAO), for efficiently coordinating and mobilizing team during the study.

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Furthermore, we are grateful to Mr. Bhim Prashad Dhungana, President from Municipal Association of Nepal (MuAN) for his gracious support.

Orientation program to conduct household survey for the enumerators appointed by the respective municipalities during SFD survey

Enumerator conducting household survey using a mobile application

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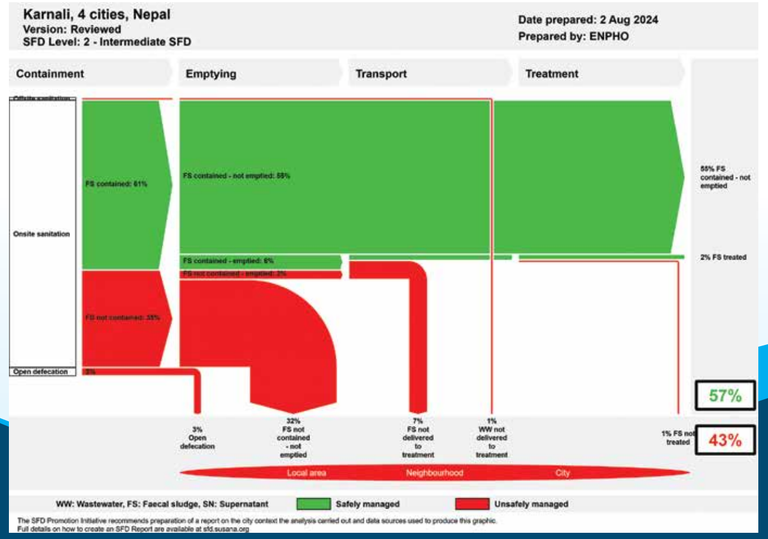
Enumerator conducting household survey, capturing photographs of containment

Municipal council members and stakeholders participating in SFD validation workshop to review and discuss findings.

SHIT FLOW DIAGRAM (SFD)

The shit flow diagram (SFD) represents the sanitation status of the municipalities across the sanitation value chain. FS generated by 57% of the municipality's population is safely managed (Green). Initially, 61% of the FS is safely contained and the percentage decreases to 55% when FS generated by 6% of the population is emptied. This implies that 55% of FS are considered safely managed and remains safe until emptied, furthermore among 6% emptied FS, only 2% is considered treated, primarily from biogas digesters. The emptied FS remains safe depending on the emptying mechanism and the available treatment options/facilities.

Further, FS generated by 43% of the population is managed unsafely (represented in red). This includes 1% of WW not delivered to treatment plant. Additionally, 7% FS is emptied (4% FS contained and 3% FS not contained) but not transported for treatment. Another 32% of FS is neither safely contained nor emptied which possess the increased environmental risks. Furthermore, 3% of the population still practice open defecation, exacerbating sanitation challenges. These findings highlight critical gaps that must be addressed to mitigate environmental contamination and public health risks associated with inadequate FS management practices.



RECOMMENDATIONS

Infrastructure Upgrade:

Retrofit and replace unsafe containment systems with appropriate techniques and technologies such as septic tanks, biogas digesters, and twin pits.

Promote Mechanical Desludging:

Advocate for providing desludging services within the municipality, along with its formal registration and proper regulation.

Regulate Sanitation Service:

Promote regular emptying of containments, ideally at least once every 3 to 5 years, to prevent overflow and ensure proper functioning.

Formulate and enforce policies and regulations mandating the use of safe sanitation technologies in new construction or renovations.

Ensure safe disposal:

By establishing FS treatment facilities and ensuring proper operation and maintenance of the facilities.

SANITATION SYNOPSIS OF KARNALI PROVINCE, NEPAL -2024

DEMOGRAPHICS

AREA : 30,211 KM²

HOUSEHOLDS (HHS) : 366,255

POPULATION : 1,688,412
MALE : 823,761
FEMALE : 864,651

MUNICIPALITIES : 25

POPULATION GROWTH RATE : 0.7%

STUDIED MUNICIPALITIES : 4

SOURCE: CENSUS, 2021

ABOUT

A study on faecal sludge management was conducted in 65 municipalities across Nepal as part of the Municipalities Network Advocacy on Sanitation in South Asia II (MuNASS II) program. Out of 65, four municipalities have been selected from Karnali Province. These municipalities include Bheriganga, Shaarada, Bheri and Chhayanath Rara Municipality.

OBJECTIVE OF THE STUDY

The study aimed to assess the sanitation condition with a focus on the faecal sludge management (FSM) and develop intermediate level Shit Flow Diagram (SFD) for these 65 municipalities in Nepal.

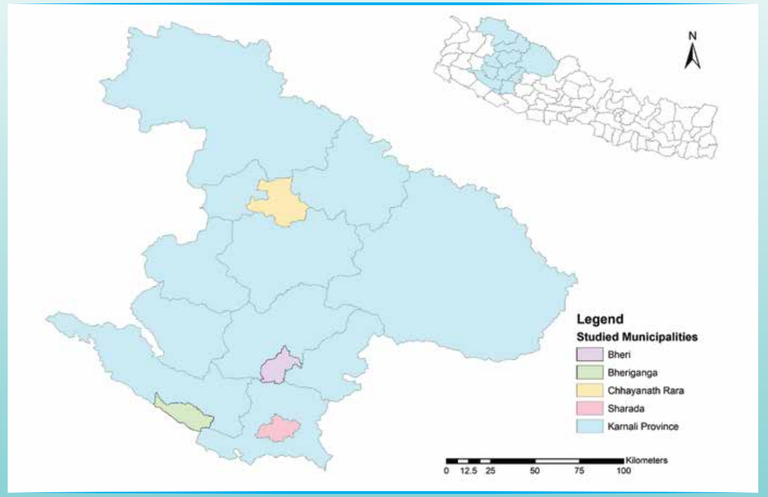
METHODOLOGY OF THE STUDY

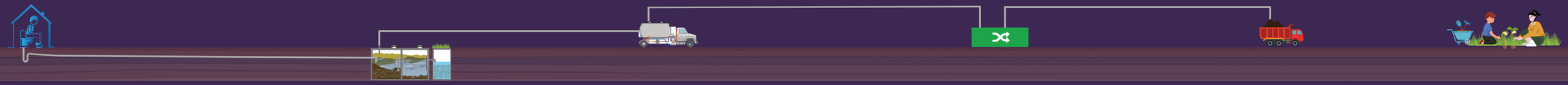
The methodology involved conducting a random questionnaire survey using the KOBO mobile application. Proportionate stratified random sampling was applied to determine the sample size of the households. Local enumerators selected by respective municipalities were mobilized for the survey. The enumerators, trained intensively for two days, were mobilized by respective municipalities to collect survey data. Additionally, Key Informant Interview (KII) was done with concerned stakeholder of the municipalities. Analysis included computing frequency distributions, means and cross tabulations.

PROVINCE PROFILE

Karnali is the largest province of Nepal with an area of 30,211 square km, comprising 21.6% of the total area of the country. It is extended from 28°10'07" N to 30°26'50" N latitude and 80°58'58"E and 83°40'57"E longitude. It is bordered by Lumbini Province on the south, China on the north, Sudurpaschim Province on the west and Lumbini and Gandaki Province on the east.

MAP LOCATING STUDIED MUNICIPALITIES IN KARNALI PROVINCE





संकलन
(User Interface)

भण्डारण
(Containment)

रित्याउने र ढुवानी
(Emptying & Transportation)

प्रशोधन
(Treatment)

पुन: प्रयोग वा सुरक्षित विसर्जन
(Re-use or Safe Disposal)

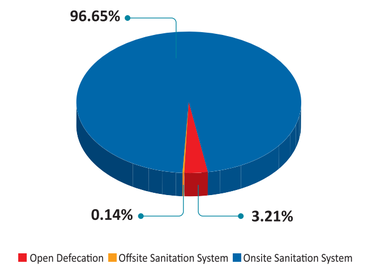
The Sanitation Service Chain (SSC) is a comprehensive service framework delineating the sequential stages of faecal sludge management from excreta generation to safe disposal. It encompasses five key phases: collection, containment, emptying and transportation, treatment, and reuse/safe disposal.

USER FACILITY

The sanitation facility, commonly referred to as toilet, serves as collection point for human waste and direct it to either offsite or onsite sanitation system.

In Karnali province, 96.65% of the households' (HHs) toilets are connected to onsite sanitation systems. Notably, there is no sewered sanitation system. Despite laws prohibiting the direct connection of blackwater to stormwater/open drains, 0.14% of toilets have such illegal connections, representing offsite sanitation in the province. Meanwhile, 3.20% of HHs lack access to improved sanitation facilities, resorting to Open Defecation (OD).

Sanitation Facilities

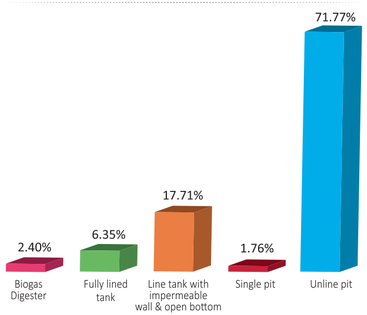


CONTAINMENT

In the areas without sewer network or offsite sanitation, human wastes from toilet are stored in various types of tanks like septic tanks, biogas digesters, pits, holding tanks, etc., for a specific period, which is known as containment and the stored human waste is known as faecal sludge (FS).

In the province, only a small proportion of HHs have installed safe containment, such as biogas digesters and fully lined tanks. The majority of HHs use unsafe containment, such as unlined pits 71.77%, lined tanks with impermeable walls and open bottoms 17.71%, and single pits 1.76%. These unsafe containments possess high risk of groundwater contamination due to leachate percolation through the permeable bases.

Types of Containments



EMPTYING AND TRANSPORTATION

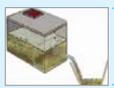
Regular emptying is essential for maintaining the functionality of containments. The survey revealed that only 9.69% of the HHs have emptied their containments at least once since its installation.

About 35.34% of the containments are emptied at an interval of 3 to 5 years. But usually, it is emptied at an interval of more than 5 years. This suggests that most of the constructed unlined pits lead to leachate seepage delaying the filling of such containments.

Notably, there are no private desludging service providers within the studied municipality, but Birendranagar Municipality is providing on-demand service in Bheriganga Municipality and other neighboring municipalities. Meanwhile, Bheri Municipality has its own municipal desludging vehicle with a capacity of 3,500 litre.

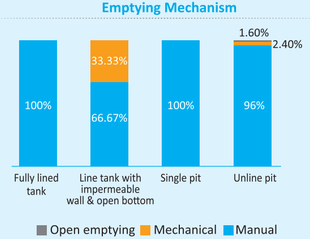
3.73% of HHs empty FS mechanically by municipal or private desludging service providers.

94.78% of HHs empty FS manually (self or traditional sanitation worker)



1.49% of HHs practice open emptying (Disposed into open drain during rainy season)

Emptying Mechanism



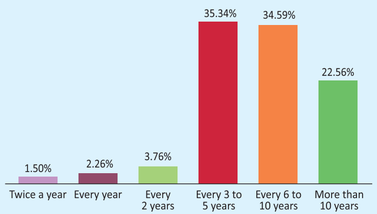
TREATMENT

Biogas digesters, if functioning properly, are regarded as safe and considered capable of treating faecal sludge. However, FS stored in other types of containments requires treatment. None of the surveyed municipalities have a dedicated faecal sludge treatment plant (FSTP). The mechanically emptied sludge from Bheriganga Municipality, collected by the desludging vehicle of Birendranagar Municipality, is treated at the treatment plant in Birendranagar, Surkhet.

FSTP of Birendranagar Municipality which also serves to treat faecal sludge of Bheriganga Municipality.

Biogas digester

Emptying Interval

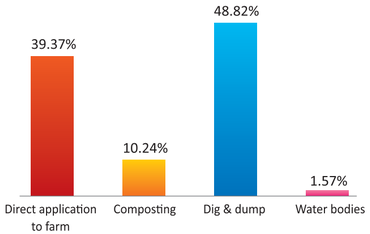


Service Provider	Municipality (Bheri)	Private
No. of service providers	1	1
No. of vehicles	1	2
Capacity of vehicle (Litres)	3,500	8,000
Average trips per month per vehicle	5	2
Average service charge per trip (NPR)	3,500	8,000 - 9,000

SAFE DISPOSAL OR REUSE

Almost half of the HHs that have manually emptied the containments simply dig and dump the FS while some HHs apply it directly to farms. A smaller proportion of HHs practice composting. Meanwhile, some HHs illegally dispose the FS into nearby open or stormwater drains, and some dump it directly into water bodies, which exacerbates environmental conditions.

Disposal practice of FS after manual emptying



ESTIMATION OF FAECAL SLUDGE

The estimation of faecal sludge production in the Karnali province was derived based on containment volume and average emptying frequency. Notably, faecal sludge from biogas digesters, which does not require emptying, like other containments, was excluded from the calculation.

Total estimated volume of FS generation in the 25 municipalities of Karnali Province: 2,11,348m^3 per year which is 579.0m^3 per day

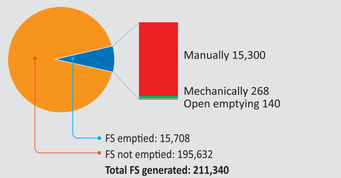
Total estimated volume of FS emptied: 15,708m^3 per year which is 43m^3 per day.

Total estimated volume of mechanically emptied FS: 268 m3 per year which is 0.7 m^3 per day.

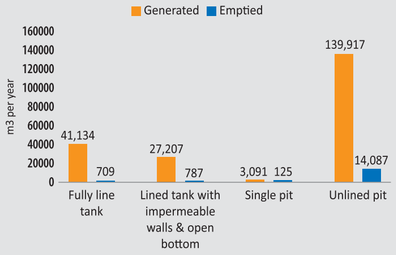
Total estimated volume of manually emptied FS: 15,300 m3 per year which is 41.9m^3 per day.

Total estimated volume of FS emptied by open emptying: 140 m3 per year which is 0.4m^3 per day.

Summary on faecal sludge produced, emptied, and transported in Karnali province (cubic metre)



FS Generated and Emptied



BHERI MUNICIPALITY

Municipal Sanitation Synopsis, Study Year-2023

Jajarkot Durbar

DEMOGRAPHICS

Area : 219.77 km²

Household : 8,874

POPULATION : 37,892
Male : 18,376
Female : 19,516

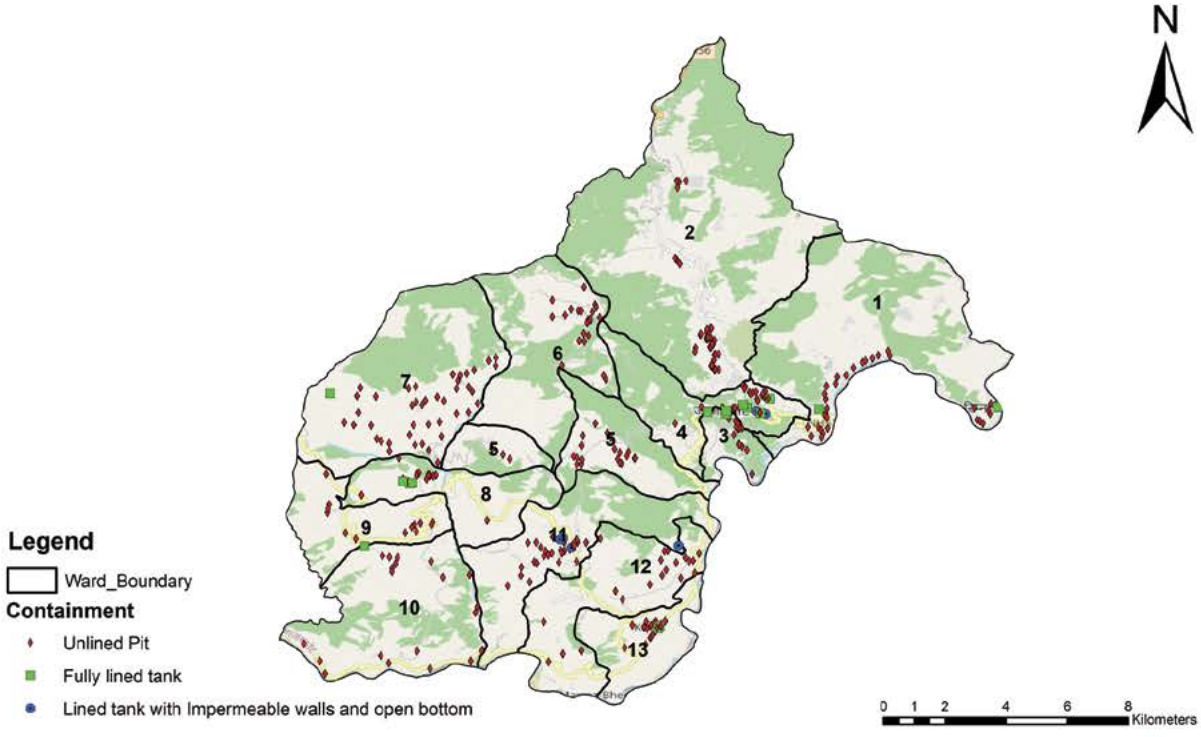
Wards : 13

Source: Census 2021

CITY PROFILE

Bheri is an urban municipality located in Jajarkot district of Karnali Province. It was established on 10 March 2017. It is extended from 28°36'30" N to 28°48'30" N latitude and 82°04'30" E to 82°17'0" E longitude with an elevation ranging from 624 m-2620 m above sea level.

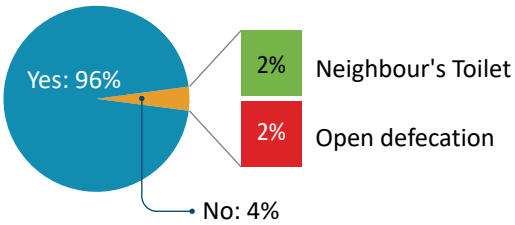
Sanitation technologies installed at the household level in Bheri Municipality



USER INTERFACE FACILITY

The municipality was declared an open defecation free municipality in 2014 A.D. However, the household (HH) survey revealed that 4% of the HHs in the municipality still do not have access to toilets, resorting to open defecation and use of neighbor's toilet.

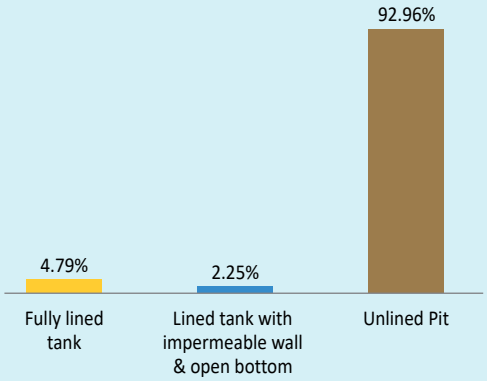
Sanitation Facility



CONTAINMENT

The survey showed that the majority of the HHs in the municipality have opted for unlined pits which possess high risk of leachate percolation and potential groundwater/ spring source contamination. Only a small proportion of HHs have constructed fully lined tanks and lined tanks with impermeable walls and open bottoms.

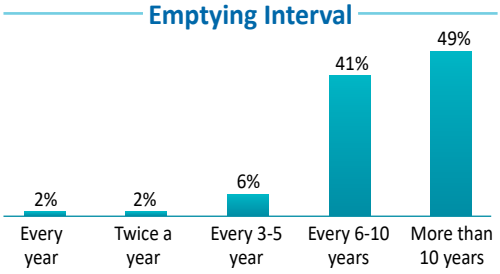
Types of containment



EMPTYING AND TRANSPORTATION

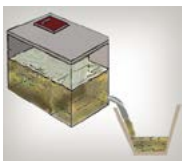
The survey revealed that 13% of the HHs have emptied their containments at least once since installation. Almost half of the containments are being emptied at an interval of more than 10 years.

Emptying Interval



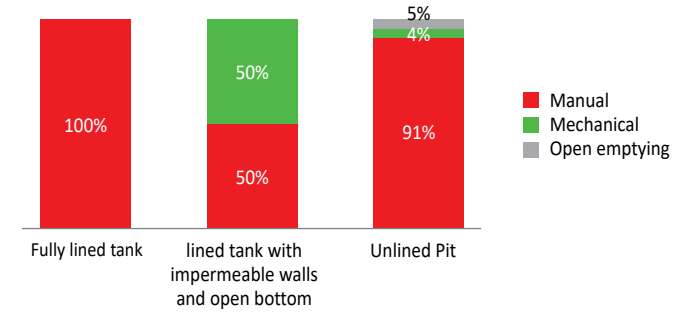
6.10% of HHs emptied FS mechanically by municipal desludging vehicle.

89.80% of HHs emptied FS manually (self or traditional sanitation workers.



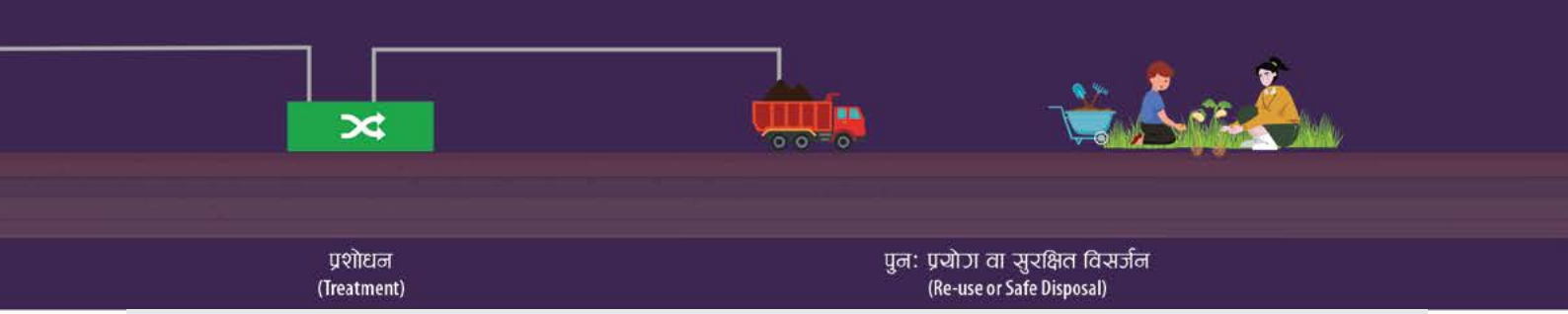
4.10% of HHs practice open emptying (Disposed into open drain during rainy season).

Emptying Mechanism



Details of desludging service provider

Service Provider	Municipality
No. of vehicles	1
Capacity of vehicle (Litres)	3,500
Average trips per vehicle per month	5
Average Service Charge (NPR)	3,500



ESTIMATION OF FAECAL SLUDGE

Total estimated volume of FS generation in the municipality: 6,572 m^3 per year or 18.0 m^3 per day

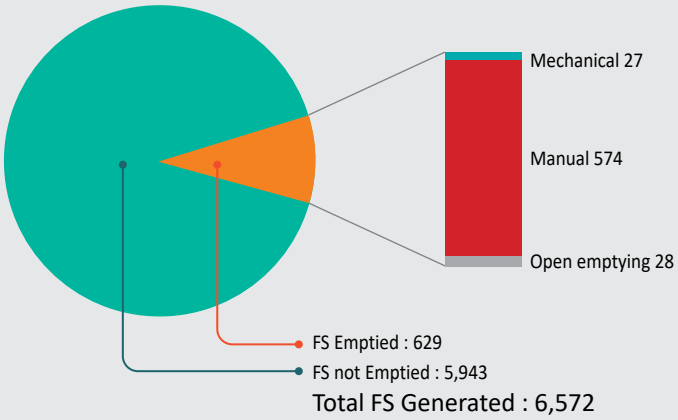
Total volume of FS emptied in the municipality: 629 m^3 per year or 1.8 m^3 per day.

Total volume of mechanically emptied FS: 27 m^3 per year or 0.1 m^3 per day.

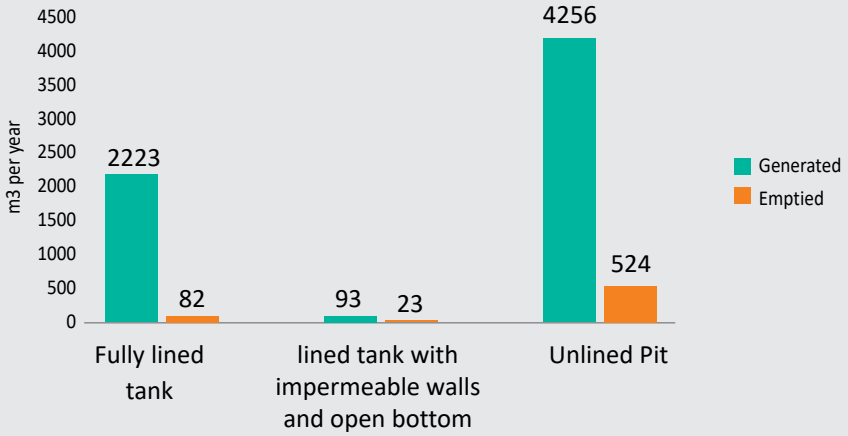
Total volume of manually emptied FS: 574 m^3 per year or 1.6 m^3 per day.

Total volume of FS emptied by open emptying: 28 m^3 per year or 0.1 m^3 per day.

Summary of faecal sludge produced, emptied and transported in Bheri Municipality (cubic meter)



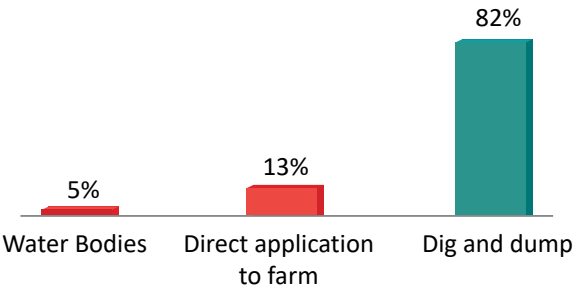
FS Generated and Emptied



SAFE DISPOSAL OR REUSE

The municipality does not have faecal sludge treatment plant (FSTP). Mechanically emptied FS is disposed in the designated disposal site within the municipality. Manually emptied FS is mostly dug and dumped, some are directly applied in farmland, and few proportions are directly discharged into water bodies. However, direct application to farm and discharged into water bodies possesses risk to environment and public health

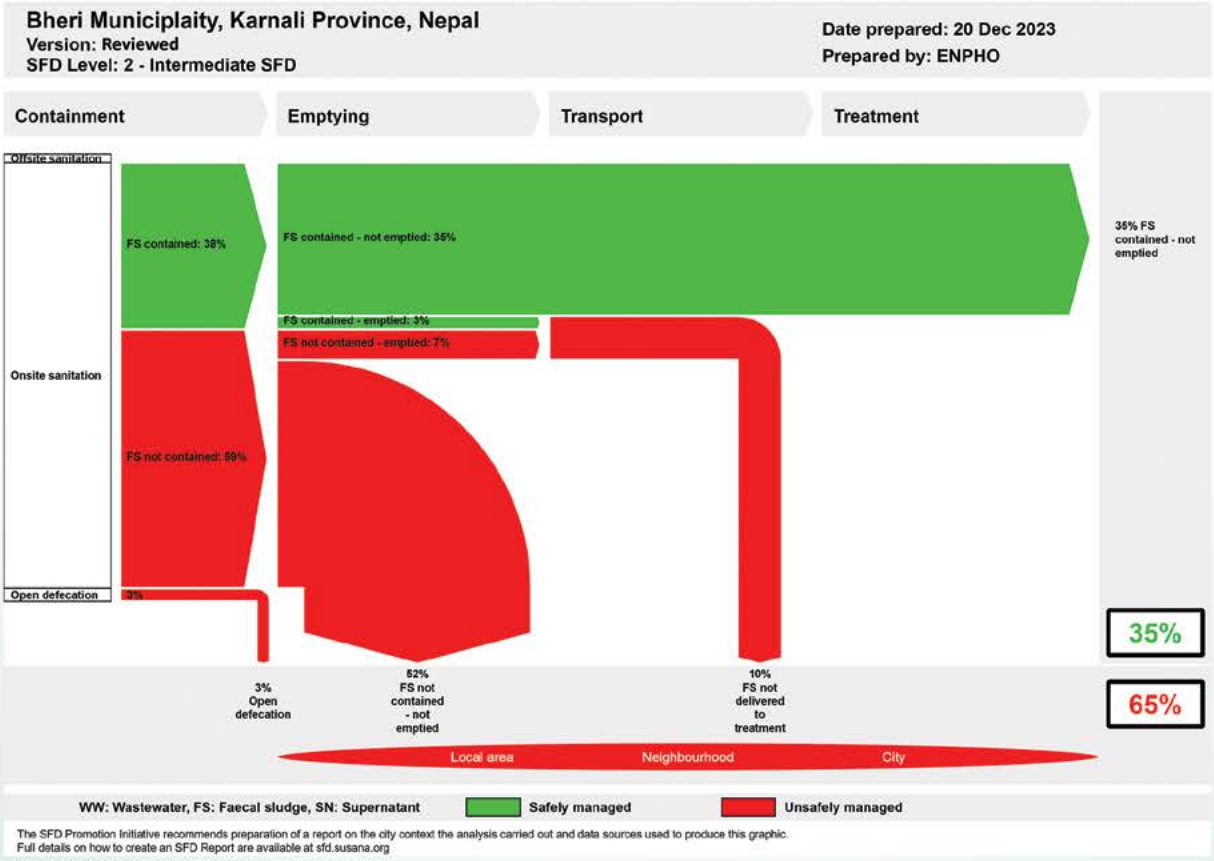
Disposal practice after manual emptying



SHIT FLOW DIAGRAM (SFD)

The SFD of Bheri visually represents the status of sanitation practices across the municipality through the entire sanitation value chain. The diagram illustrates overall FS generated by 35% of the population is safely managed (Green). Initially, 38% of FS is safely contained and this proportion drops to 35% which can be considered safe until emptied. The emptied FS remains safe depending on the nature of the emptying mechanism and available treatment facilities. This underlines the necessity of safe disposal and treatment facilities.

Furthermore, FS generated by 65% of the population is unsafely managed (Red). It includes 10% of emptied FS (7%-not contained, 3% -contained) not delivered to treatment plant, and 52% of FS that is neither safely contained nor emptied. Additionally, 3% of the population still practice open defecation exacerbating sanitation challenges. It highlights the significant gaps that must be addressed to mitigate environmental and public health risks associated with inadequate FS management practices.

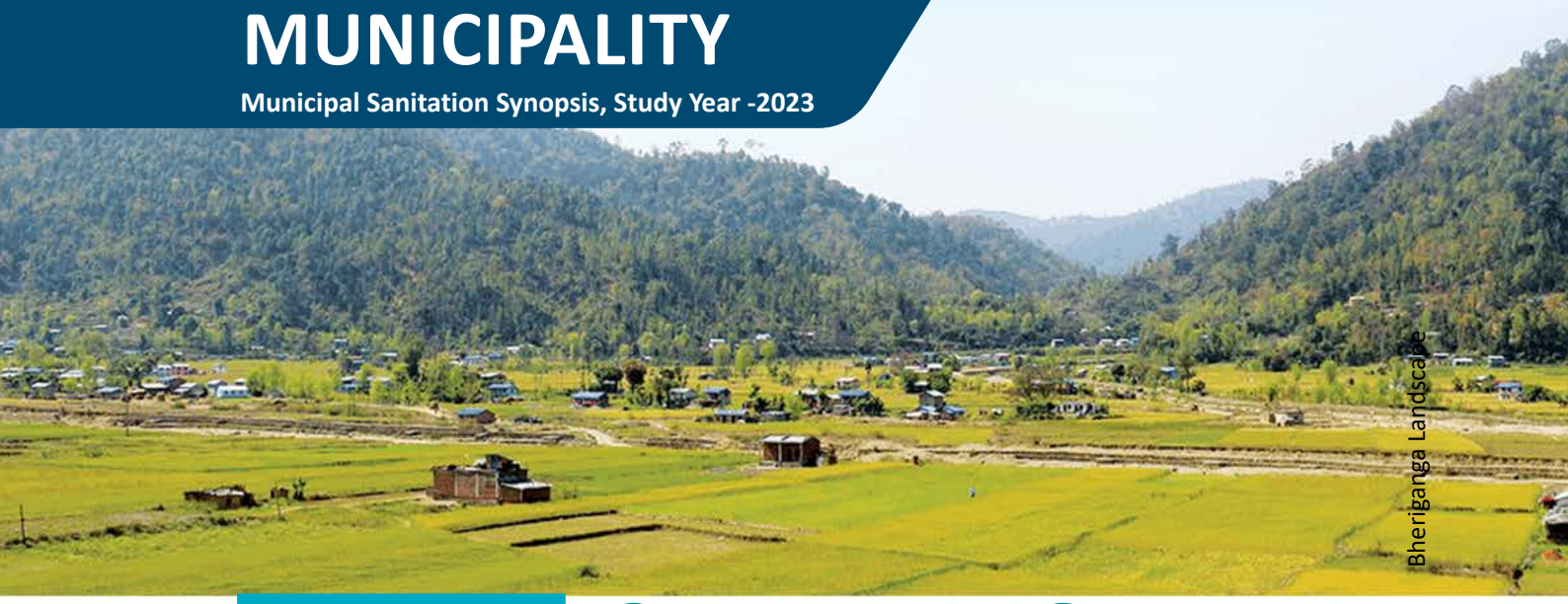


RECOMMENDATIONS

- Retrofit and replace unsafe containment systems to appropriate techniques and technologies such as septic tanks, biogas digesters and twin pits.
- Promote the use of municipal mechanical desludging services in accessible areas.
- Construct a faecal sludge treatment plant to manage FS effectively, reduce environmental pollution, and safeguard public health.
- Formulate and enforce sanitation policies and regulations to ensure the safe sanitation practices in the municipality.

BHERIGANGA MUNICIPALITY

Municipal Sanitation Synopsis, Study Year -2023



Bheriganga Landscape

DEMOGRAPHICS

Area : 256.2 km²

Household : 11,539

POPULATION : 48,203
Male : 22,538
Female : 25,665

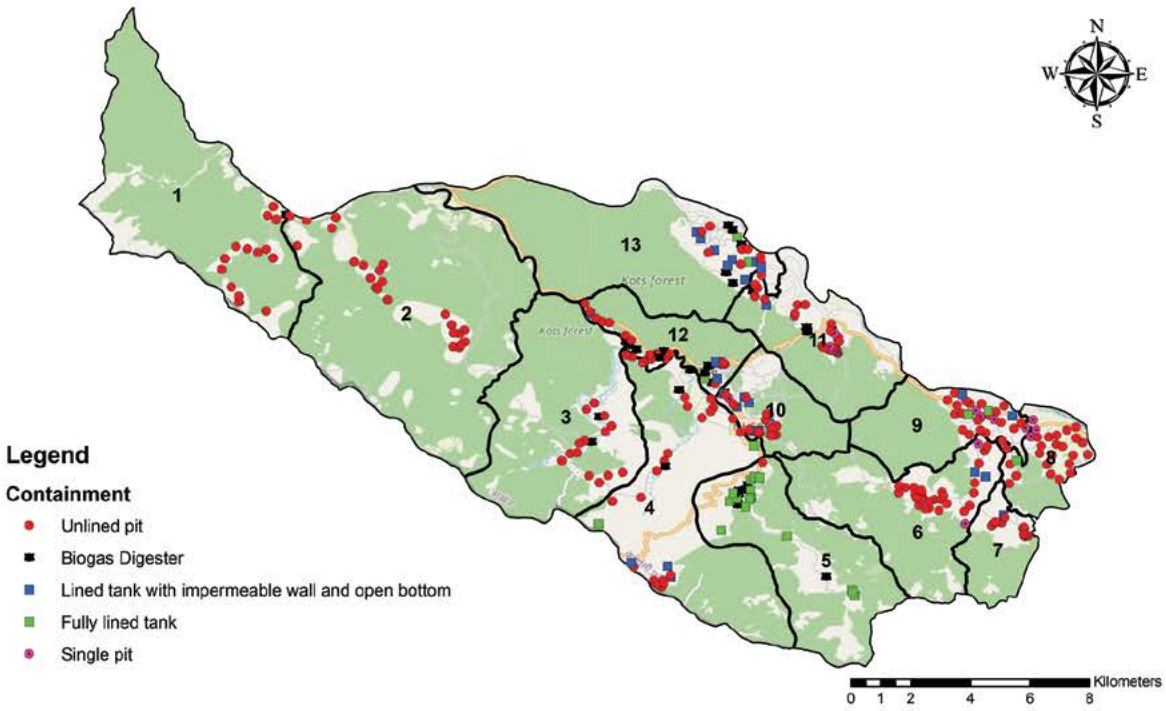
Wards : 13

Source: Census 2021

CITY PROFILE

Bheriganga Municipality is in Surkhet District, Karnali Province of Nepal. It was established on 2 December 2014. It is extended from 28°22'11" N to 28°34'08" N latitude and 81°31'51" E to 81°50'16" E longitude with elevation ranging from 500 m to 1,400 m above mean sea level. The municipality has major rivers such as Bheri and Babai.

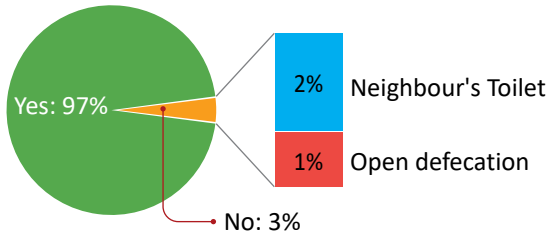
Sanitation technologies installed at the household level in Bheriganga Municipality



USER INTERFACE FACILITY

The HH survey revealed that 3% of the HHs in the municipality lack access to toilet and practice open defecation, while some use neighbours' toilet.

Sanitation Facility

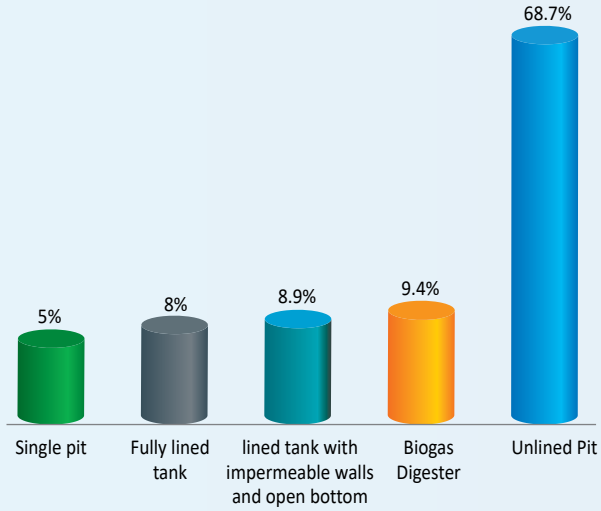


CONTAINMENT

The survey showed that the majority of the HHs in the municipality have opted for unlined pits which possess high risk of leachate percolation and potential groundwater/spring source contamination. A significant proportion of HHs have installed biogas digesters which are onsite treatment technology and considered safe.

Biogas Digester

Types of containment



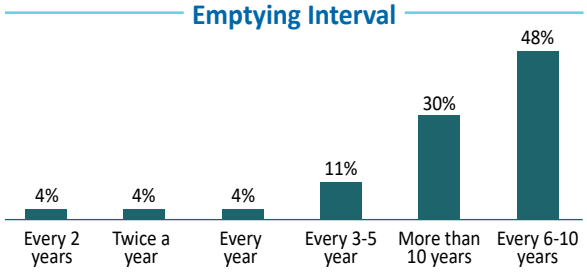
EMPTYING AND TRANSPORTATION

The study showed that 8% of HHs have emptied their containment at least once since installation. The containments are usually emptied at an interval of 6 to 10 years. The on-demand desludging services in the municipality are provided by private service provider from Birendranagar Municipality.

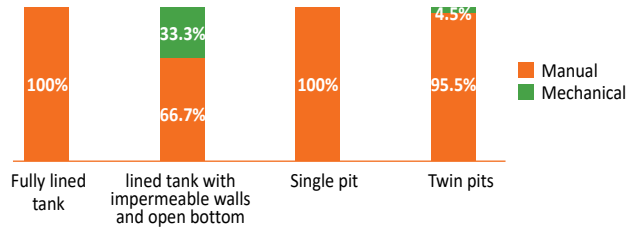
7.40 % of HHs emptied FS mechanically by private desludging service providers.

92.60% of HHs emptied FS manually (self or traditional sanitation workers.

Emptying Interval



Emptying Mechanism



Details of desludging service provider

Service Provider (Birendranagar Municipality)	Private
No. of vehicles	2
Capacity of vehicle (Litres)	8,000
Average trips per vehicle per month	2
Average Service Charge (NPR)	8,000-9,000

ESTIMATION OF FAECAL SLUDGE

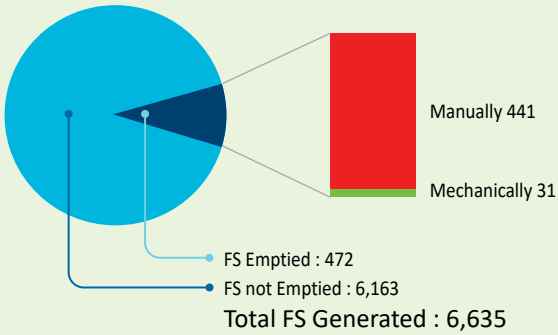
Total estimated volume of FS generation in the municipality: 6,635m^{3}per year which is 18.2 m^3 per day.

Total volume of FS emptied in the municipality: 472 m^3 per year which is 1.3 m^3 per day.

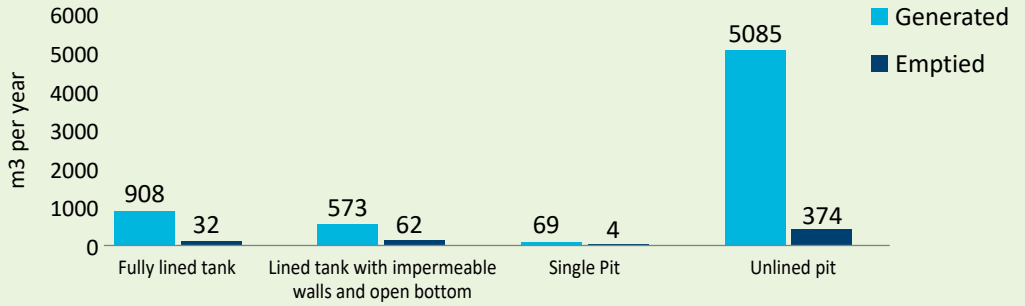
Total volume of mechanically emptied FS in the municipality: 31 m^3 per year which is 0.1 m^3 per day.

Total volume of manually emptied FS in the municipality: 441 m^3 per year which is 1.2 m^3 per day.

Summary of faecal sludge produced, emptied and transported in Bheriganga Municipality (cubic meter)



FS Generated and Emptied

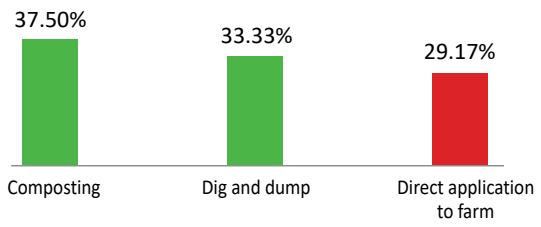


TREATMENT, SAFE DISPOSAL OR REUSE

The municipality lacks faecal sludge treatment plant. However, the mechanically collected FS is treated in the FSTP at Birendranagar Municipality. Furthermore, manually emptied FS is used in composting, dig and dump, and some directly apply it to farm. However, direct application to farm possess risk to environment and public health.

FSTP of Birendranagar municipality

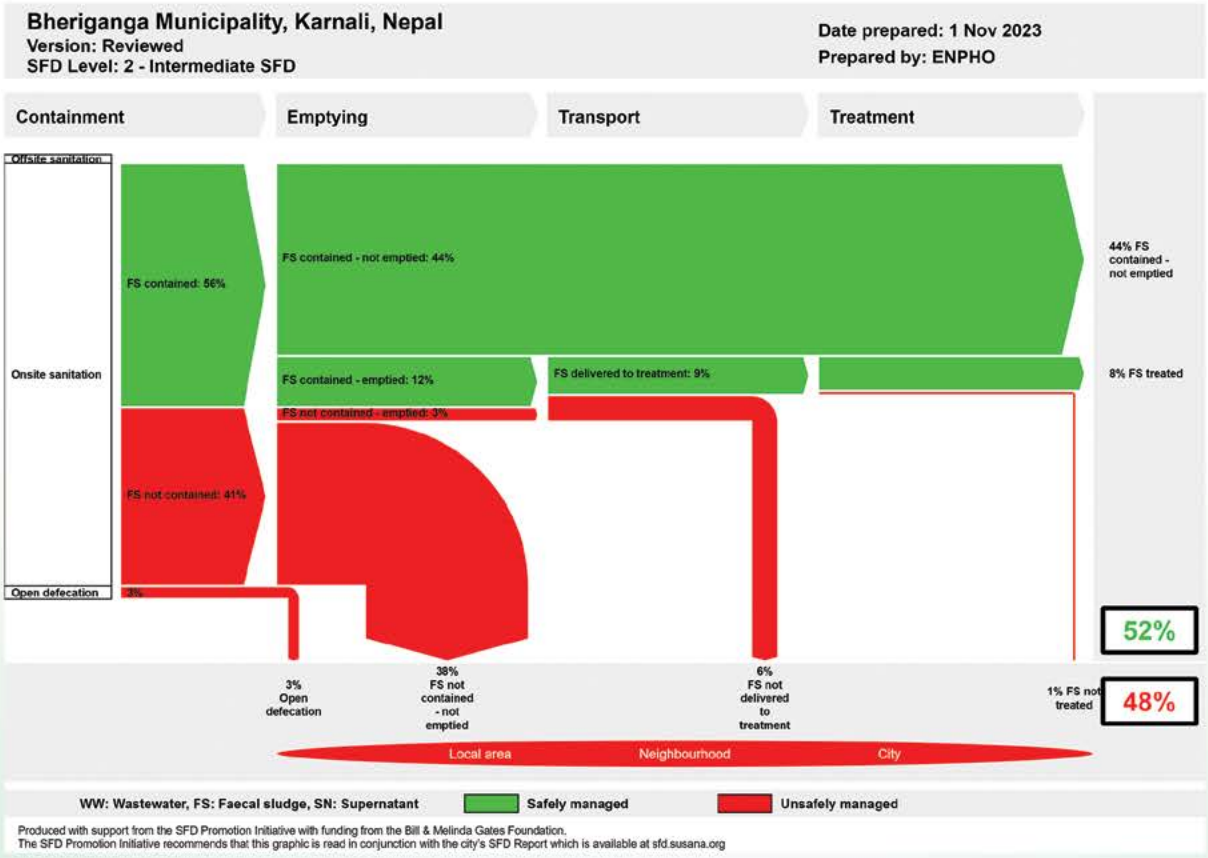
Disposal practice after manual emptying



SHIT FLOW DIAGRAM (SFD)

The SFD of Bheriganga Municipality visually represents the status of sanitation practices across the municipality through the entire sanitation value chain. The diagram illustrates that FS generated by 52% of the population is safely managed (Green). Initially, 56% of FS is safely contained and this proportion drops to 44% when 12% of FS is emptied. Of the 9% emptied FS delivered to the treatment plant, 8% of FS is treated which primarily comes from biogas digesters. This underlines the necessity of safe emptying and treatment. The emptied FS remains safe depending upon the nature of the emptying mechanism and available treatment facilities.

Furthermore, FS generated by 48% of the population is unsafely managed (Red). It includes 1% of untreated FS, 6% of emptied FS (3% FS contained, 3% FS not contained) not delivered to treatment plant, possessing risks of pollution. Further, 38% of FS are neither contained nor emptied, and 3% of the population still practice open defecation exacerbating sanitation challenges. This highlights the significant gaps that must be addressed to mitigate environmental and public health risks associated with inadequate FS management practices.



RECOMMENDATIONS

- Retrofit and replace unsafe containment systems to appropriate techniques and technologies such as septic tanks, biogas digesters and twin pits.
- Advocate for private desludging services within the municipality.
- Construct a faecal sludge treatment plant to manage FS effectively, reduce environmental pollution, and safeguard public health.
- Formulate and enforce sanitation policies and regulations to ensure the safe sanitation practices in the municipality.

CHHAYANATH RARA MUNICIPALITY

Municipal Sanitation Synopsis, Study Year -2023

Rara Lake

DEMOGRAPHICS

Area : 480.67 Km²

Household : 4,952

POPULATION : 24,527
Male : 12,390
Female : 12,137

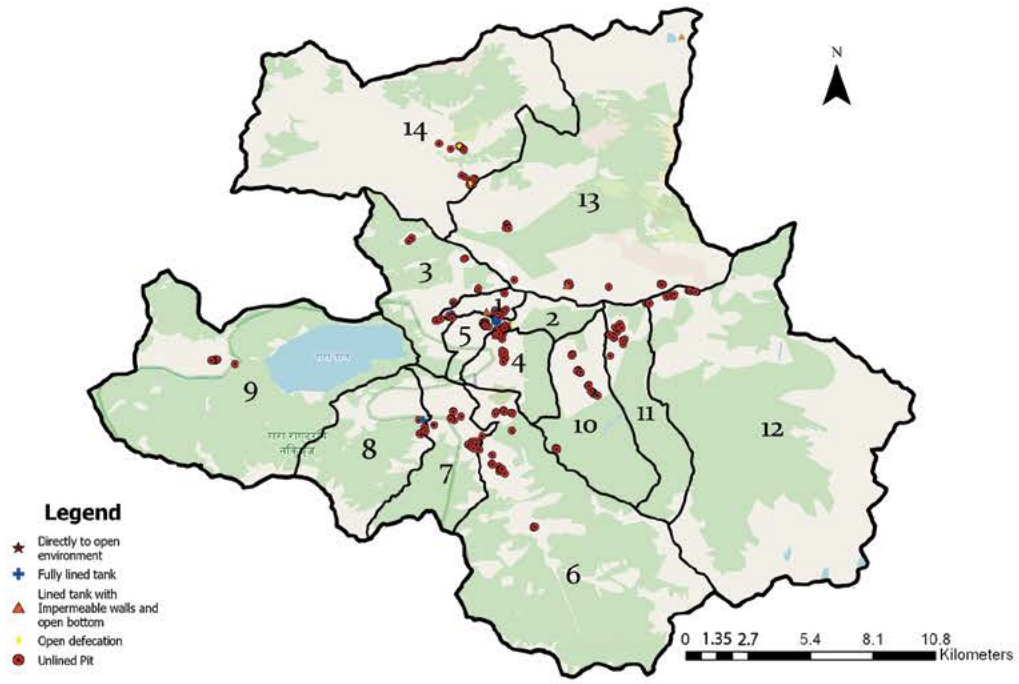
Wards : 14

Source: Census 2021

CITY PROFILE

Chhayanath Rara is an urban municipality located in the Mugu district of the Karnali Province, Nepal. It lies at 29°32'02"N latitude and 82°09'27"E longitude with an elevation of approximately 2,115 meters above sea level. The Rara Lake, one of Nepal's largest lakes, lies in this municipality.

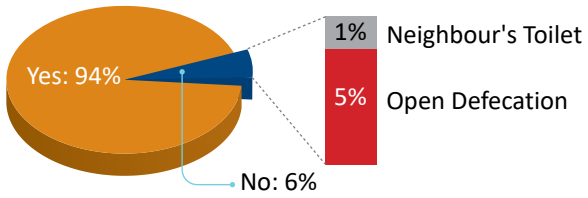
Sanitation technologies installed at the household level in Chhayanath Rara Municipality



USER INTERFACE FACILITY

Despite the municipality being declared as open defecation free, a survey revealed that 6% of the HHs do not have access to toilet. Among these HHs, some practice open defecation, while others use their neighbor's toilet.

Sanitation Facility

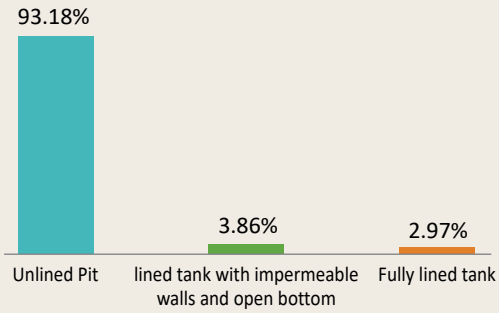


Household Toilet

CONTAINMENT

The survey revealed that a small proportion of HHs have fully lined tanks which can be considered safe. However, the majority of the HHs have built unlined pits, and some have constructed lined tanks with impermeable walls and open bottoms. These unlined pits and lined tank possess a risk of groundwater pollution due to leachate percolation through their permeable bases.

Types of containment



Unlined pit in the Municipality

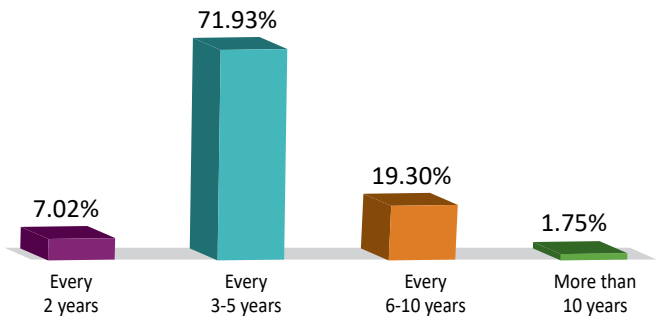
EMPTYING AND TRANSPORTATION

The survey revealed that 17% of the HHs have emptied their containment at least once since installation. The containments are usually emptied at an interval of every 3 to 5 years.

Mechanical desludging service is unavailable in the municipality. Thus, all the containments are emptied manually.

100% of HHs emptied FS manually- self emptying and traditional sanitation worker.

Emptying Interval



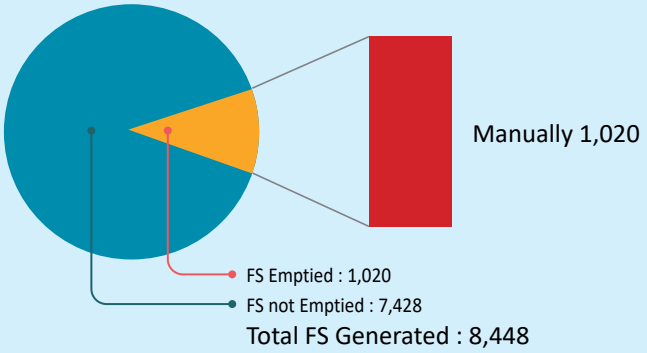
ESTIMATION OF FAECAL SLUDGE

Total estimated volume of FS generation in the municipality: 8,448 m^3 per year which is 23.1 m^3 per day.

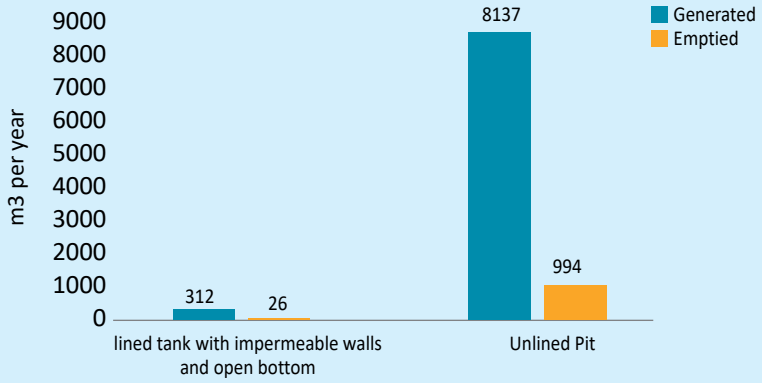
Total volume of FS emptied in the municipality: 1,020 m^3 per year which is 2.8 m^3 per day.

Total volume of manually emptied FS: 1,020 m^3 per year which is 2.8 m^3 per day.

Summary of faecal sludge produced, emptied and transported in Chhayanath Rara Municipality (cubic meter)



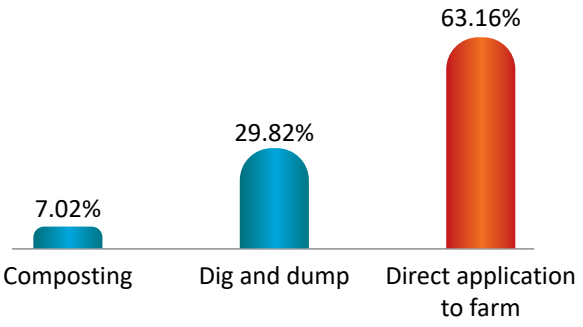
FS Generated and Emptied



SAFE DISPOSAL OR REUSE

In the municipality, faecal sludge remains untreated due to the lack of treatment facilities. The majority of manually emptied FS is directly applied to farms, while some HHs adopt dig-and-dump, and few HHs practice composting. However, direct application to farm possess risk to the environment and public health.

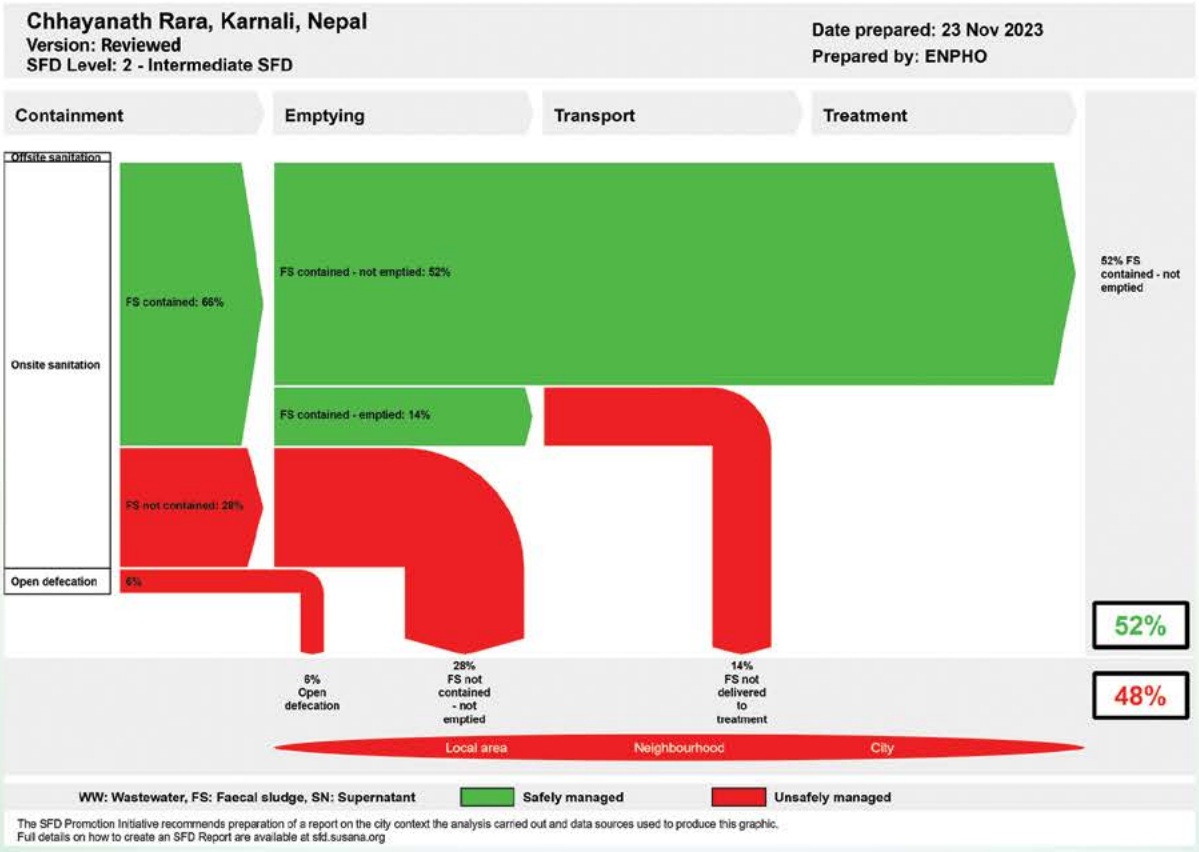
Disposal practice after manual emptying



SHIT FLOW DIAGRAM (SFD)

The SFD of Chhayanath Rara municipality visually represents the status of sanitation practices across the entire sanitation value chain. FS generated by 52% of the municipality's population is safely managed (Green). Initially, 66% of FS is safely contained, but this proportion drops to 52% when 14% of safely contained FS are emptied. The emptied FS remains safe depending upon the emptying mechanism and available treatment options/facilities. Since there is no mechanical desludging service and 14% emptied FS are not delivered to treatment plant, it becomes unsafely managed. This highlights the necessity of safe emptying and its subsequent treatment.

Furthermore, FS generated from 48% of the population is unsafely managed (Red). It includes 14% of emptied FS not delivered to treatment plant, 28% of FS which is neither safely contained nor emptied, and 6% of the population still practice open defecation, exacerbating sanitation challenges. Overall, this highlights the critical gaps that must be addressed to mitigate environmental contamination and public health risks associated with inadequate FS management practices.

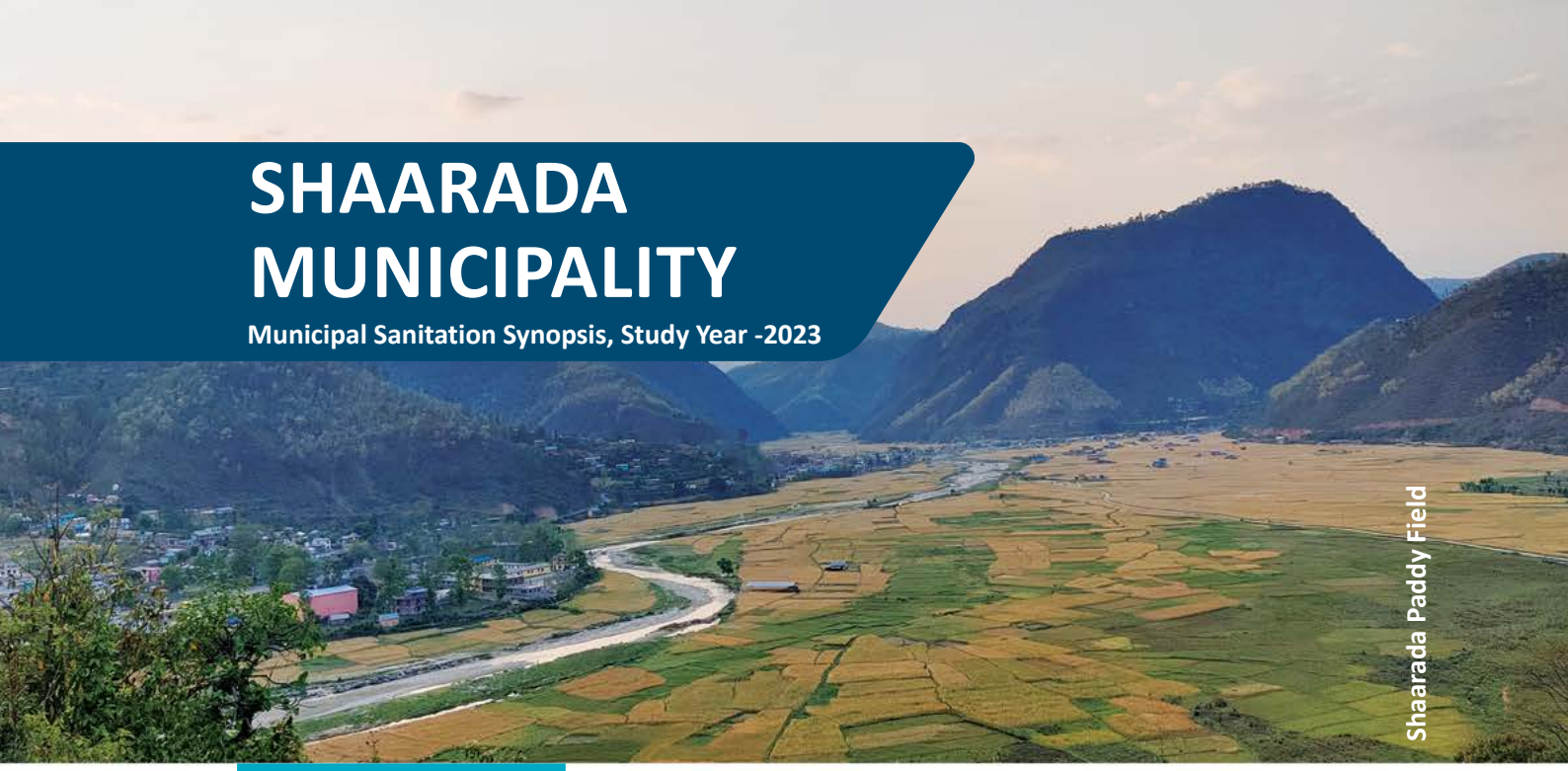


RECOMMENDATIONS

- Strengthen enforcement of ODF acyivities and provide targeted support to households without toilets to ensure complete access and eliminate open defecation.
- Retrofit and replace unsafe containment systems to appropriate techniques and technologies such as septic tanks, biogas digesters and twin pits.
- Advocate for mechanical desludging service within the municipality, along with its formal registration and proper regulation.
- Construct a faecal sludge treatment plant to manage FS effectively, reduce environmental pollution, and safeguard public health.
- Formulate and enforce sanitation policies and regulations to ensure the safe sanitation practices in the municipality.

SHAARADA MUNICIPALITY

Municipal Sanitation Synopsis, Study Year -2023



Shaarada Paddy Field

DEMOGRAPHICS

Area : 198.34 km²

Household : 8,898

POPULATION : 34,663
Male : 16,388
Female : 18,275

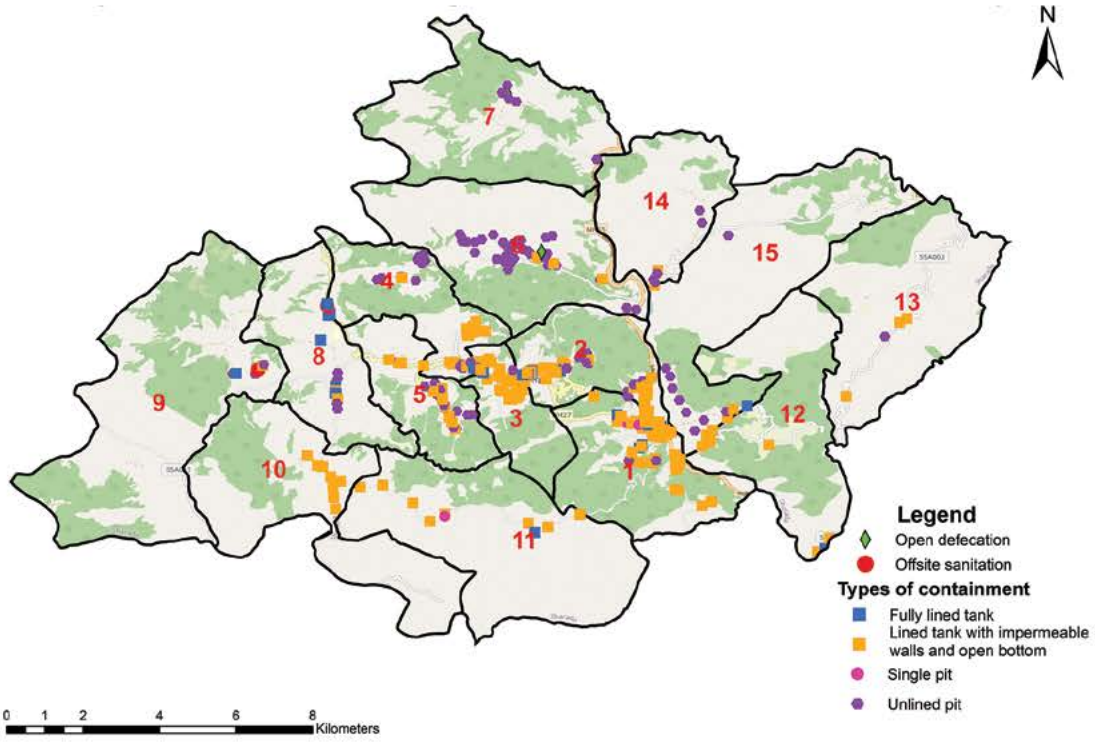
Wards : 15

Source: Census 2021

CITY PROFILE

Shaarada Municipality is in Salyan district of Karnali Province in Nepal. It is named after the major river of the Salyan district, the Shaarada river. It lies between 28°18'51" N to 28°27'44" N latitude and 82°02'40" to 82°16'36"E longitude with an elevation ranging from 1,210 m to 1,830 m above sea level.

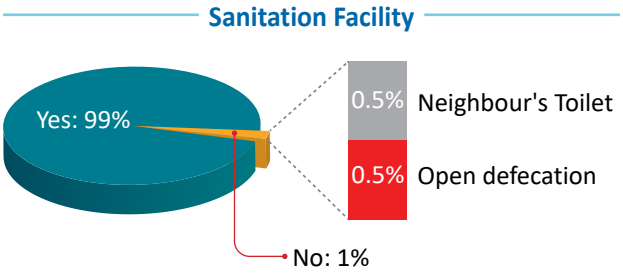
Sanitation technologies installed at the household level in Shaarada Municipality

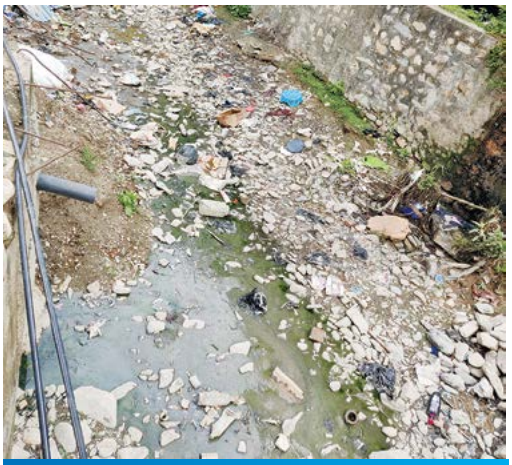


USER INTERFACE FACILITY

The survey revealed that almost all HHs, i.e. 99%, have access to basic sanitation facilities in the municipality, while 1% of HHs either defecate in open space or use the neighbor's toilet.

Moreover, HHs with basic sanitation facility, 1% of HHs have discharged the effluent directly into an open drain from their toilets.

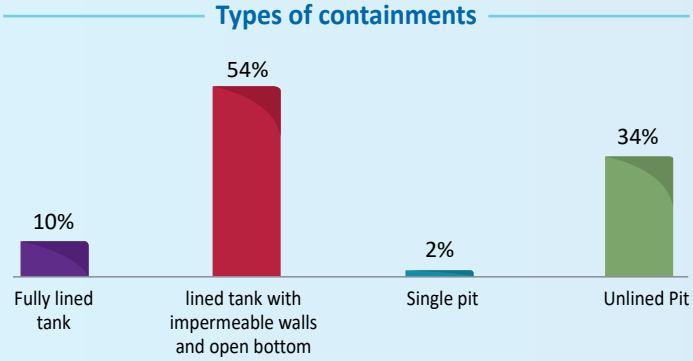




Open drain as seen in municipality

CONTAINMENT

In the municipality, a low percentage of HHs have safer containment for faecal sludge (FS) collection as fully lined tank. The majority of HHs have constructed lined tanks with impermeable walls and open bottoms followed by unlined pits through which leachate can infiltrate possessing risk to groundwater/spring source contamination.

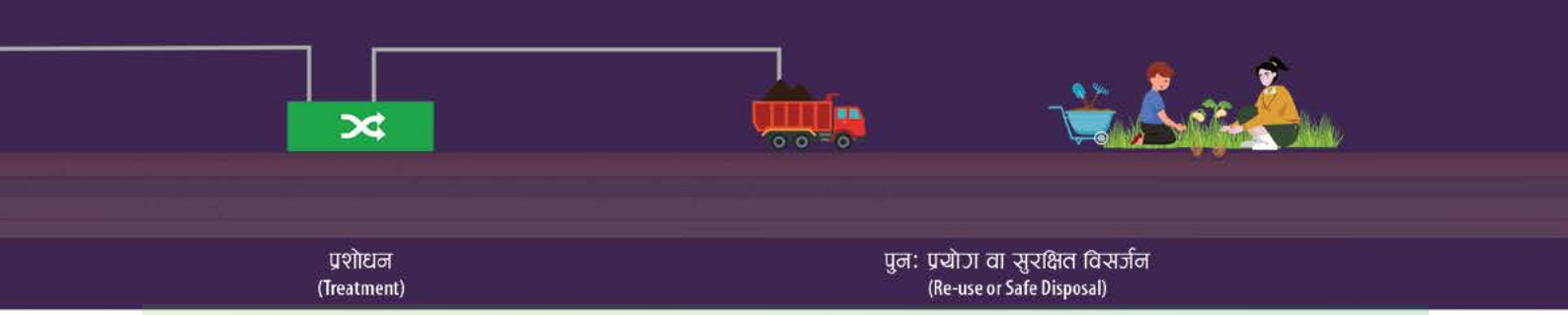


Lined tank with impermeable walls and open bottom

EMPTYING AND TRANSPORTATION

The study showed that a mere 1% of HHs have emptied their containments. The containments are emptied in an on-demand emptying practice after filling. Poorly constructed containments consequently lead to leachate seepage delaying the filling of containments.

100% of HHs emptied FS manually- self- emptying or traditional sanitation workers.



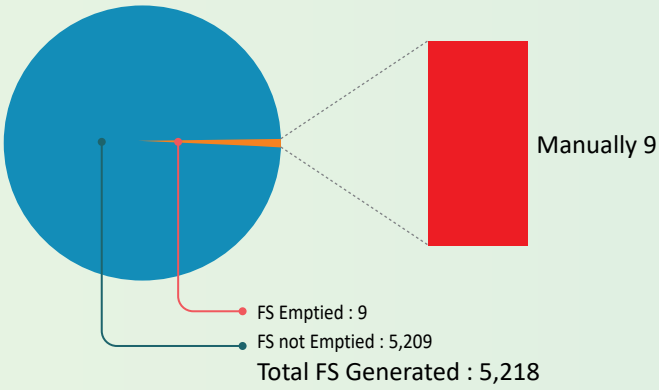
ESTIMATION OF FAECAL SLUDGE

Total estimated volume of FS generation in the municipality: 5,218 m^3 per year which is 14.30 m^3 per day.

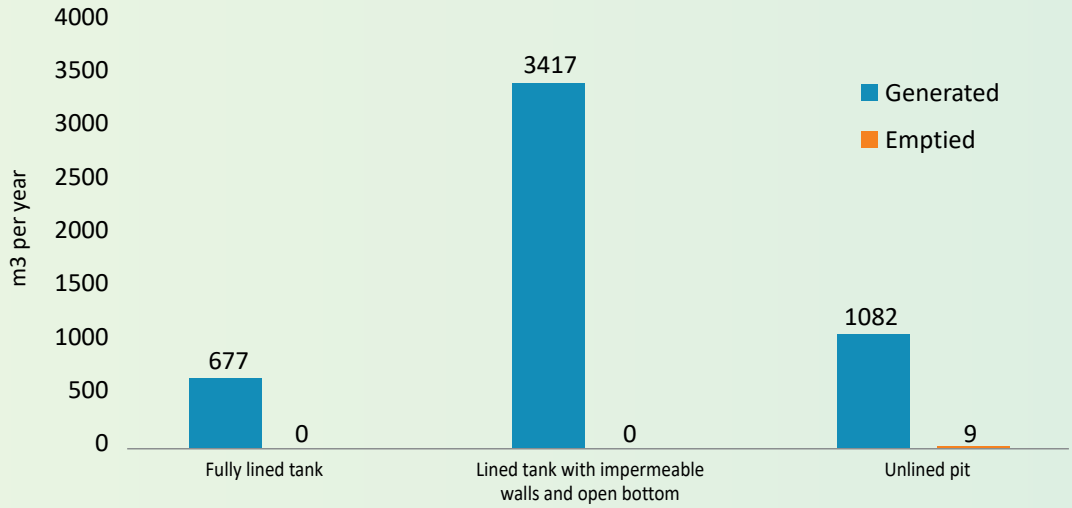
Total volume of FS emptied in the municipality: 9 m^3 per year which is 0.02 m^3 per day.

Total volume of manually emptied FS in the municipality: 9 m^3 per year which is 0.02 m^3 per day.

Summary of faecal sludge produced, emptied and transported in Shaarada Municipality (cubic meter)



FS Generated and Emptied



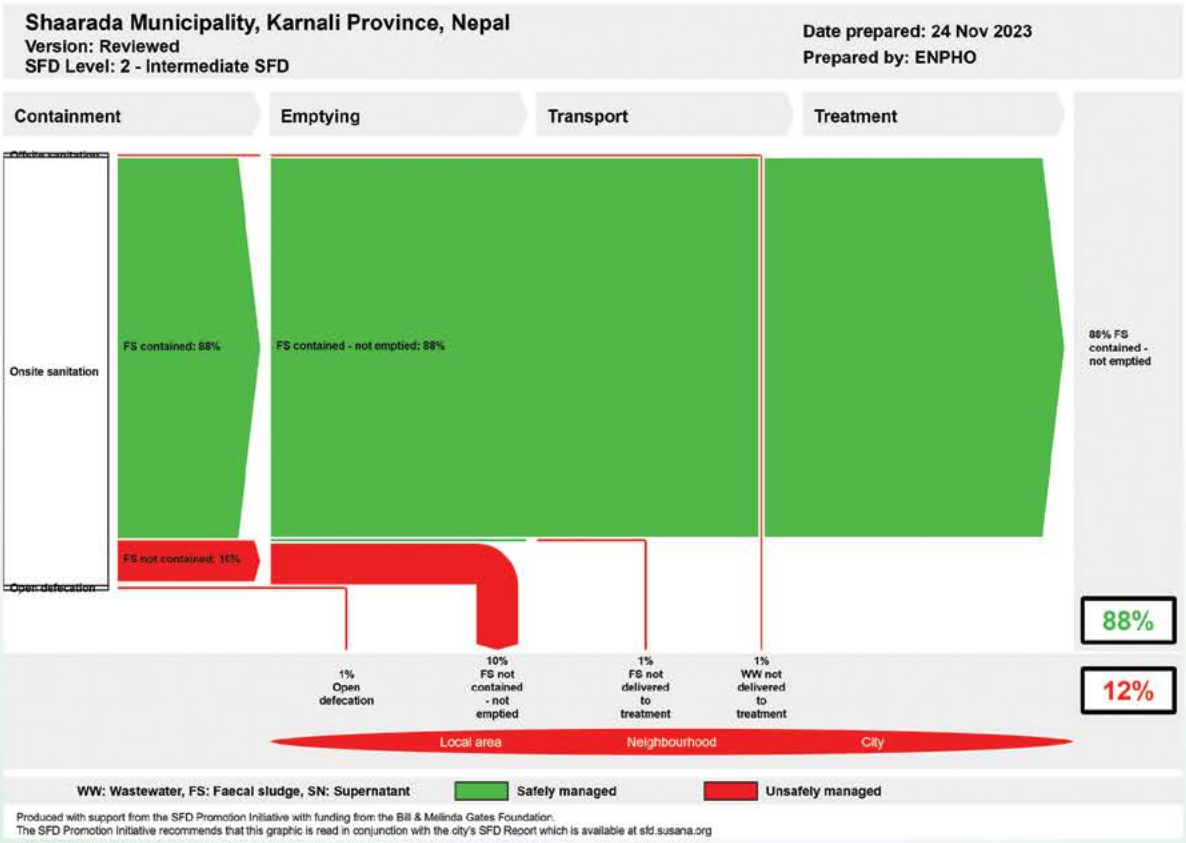
SAFE DISPOSAL OR REUSE

Since the municipality does not have a treatment plant, there is high risk of unsafe disposal of emptied faecal sludge. The study showed that manually emptied FS is dug and dumped in farmlands. However, direct application to farm possess risk to environment and public health.

SHIT FLOW DIAGRAM (SFD)

The SFD of Shaarada municipality visually represents the status of sanitation practices in the municipality across the entire sanitation value chain. In the municipality, FS generated by 88% of population is safely managed (Green), which can be considered safe until it is emptied. After emptying, the FS remains safe depending on the emptying mechanism and available treatment options. Only 1% of FS is emptied but not delivered to a treatment plant.

Overall, FS generated by 12% of the population is managed unsafely (Red). It includes 1% of the wastewater discharged directly into an open drain which does not undergo a treatment, 10% of FS neither safely contained nor emptied, and 1% FS not delivered to treatment plant. Additionally, 1% of the population still practice open defecation, further exacerbating the sanitation challenges. Since FS generated by majority of the population remains to be emptied, lack of safe transportation mechanisms and treatment options for FS possesses an increased risk of unsafe disposal of FS in the future. This indicates the urgent need to develop safe emptying mechanisms and treatment options to prevent future public health risks and environmental pollution associated with inadequate FS management practices.



RECOMMENDATIONS

- Retrofit and replace unsafe containment systems to appropriate techniques and technologies such as septic tanks, biogas digesters and twin pits.
- Promote emptying of the containments and safe disposal of faecal sludge.
- Establish an appropriate capacity of faecal sludge treatment plant with reuse options.
- Formulate and enforce sanitation policies and regulations to ensure the safe sanitation practices in the municipality.
- Strengthen enforcement of ODF activities and provide targeted support to households without toilets to ensure complete access and eliminate open defecation.

ABOUT THE PROJECT:

Municipalities Network Advocacy on Sanitation in South Asia phase II (MuNASS-II)

Executing Agency	: United Cities and Local Governments Asia-Pacific (UCLG ASPAC)
Implementing Agency	: Municipal Association of Nepal (MuAN)
Technical Partner	: Environment and Public Health Organization (ENPHO)
Funded By	: Bill & Melinda Gates Foundation (BMGF)
Program Duration	: November 2021 – December 2024

In 2017, phase I of "MuNASS program" was implemented to support the roll-out of the Institutional and Regulatory Framework (IRF) for Faecal Sludge Management in Nepal. After implementation of Phase I of the MuNASS program, a need to scale up the program was recognized. In this prospective Phase II of MuNASS program was launched to support meet SDG target 6.2. The project was initiated with the objectives to determine the sanitation status of 65 municipalities and to generate national and provincial level SFD, to enhance knowledge and skill of municipal staffs on installation and operation of FSTP and to enhance capacity of elected representatives and municipal officials regarding the need for FSM/CWIS.

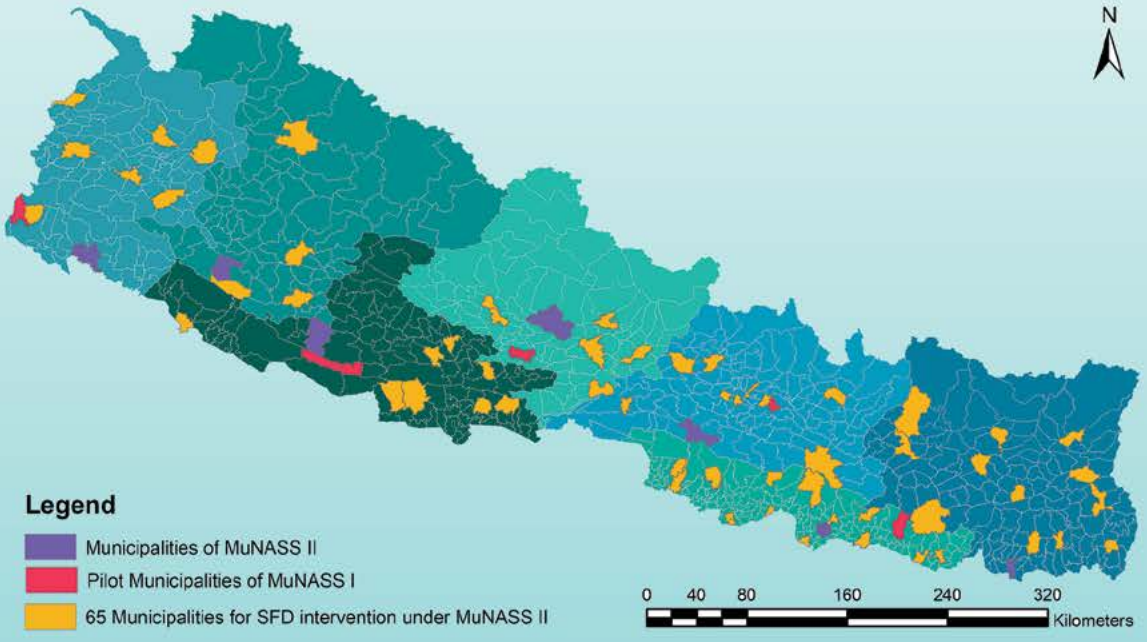
GOAL

The goal of MuNASS Phase II is to develop and demonstrate innovation on safely managed sanitation to achieve SDG 6.2 and mainstream into regional agenda, paying special attention to the needs of women and girls and those in vulnerable situations.

OUTCOMES/OBJECTIVES:

- Demonstrate innovation on SDG 6.2 measurement by mobilizing cities in South Asia
- Documentation of the Municipal-led investment for CWIS and FSM in South Asia is available
- SDG 6.2 are mainstreamed into the regional agenda through advocacy, knowledge exchange and joint activities among municipalities in the Asia-Pacific region.

Program Locations of MuNASS I and MuNASS II in Nepal



FOR FURTHER INFORMATION

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