WASH BASELINE

Assessment of Small and Medium Towns
(Leh-Ladakh)

2022

Ladakh Ecological Development Group

LEDeG

BORDA

ACKNOWLEDGEMENTS

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(Leh-Ladakh)

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List of Abbreviations

BORDA	Bremen Overseas Research and Development Association
CPHEEO	Central Public Health and Environmental Engineering Organisation
FHTC	Functional household tap connection
FS	Faecal sludge
FSTP	Faecal sludge treatment plant
GoI	Government of India
KLD	Kilo litres per day
LPCD	litres per capita per day
MCL	Municipal Committee Leh
MLD	Million litres per day
NRW	Non-revenue water
PHED	Public Health and Engineering Department
PWD	Public Works Department
STP	Sewage Treatment Plant
SWM	Solid Waste Management
TPD	Ton per day
ULB	Urban local body
UT	Union Territory

Figure 1: Location Map of Leh

01

Town Profile

The Union Territory (UT) of Ladakh was formed in 2019 and has two districts, Leh and Kargil. Leh district and its main town share the same name. Leh town is in the trans-Himalayas at coordinates 34.16 c°N 77.58 °E. Leh town is one of the largest towns located above an altitude of 3,500m. The town has an altitude of 3,310m in the south and 3,915 m in the north. The average slope is 10.1° from north to south.

Geography and Climate

Leh has a cold desert climate. During winter (November to April), average minimum temperatures drop as low as -15 °C (record low of -28.3 °C) and there is occasional snowfall, although it is sunny on most days. The weather in the remaining months is pleasant, with strong sunlight in the day and cool evenings. Average annual rainfall is only 102mm. In 2010 there were flash floods and mudslides that took over 100 lives and caused massive destruction.

Connectivity

Leh is connected via National Highway 1 to Srinagar in the southwest and to Manali in the south via the Leh-Manali Highway. These roads are open only from May-November, but local roads remain open throughout the year. Leh Kushok Bakula Rinpochee Airport has flights to Delhi, Srinagar, Jammu and Mumbai. Leh is not connected by rail.

(Leh Vision 2030, 2020)

1.1 Demography

The town comprises of 13 wards with a total population of 30,870. The habitation area is ~9 km2. with an average population density of 3,803 person/km2. Literacy rate is high at 90% and most people are engaged in hospitality service and self-employment. Major driver of the town's economy is tourism.

Leh municipality has experienced an exponential growth of population from 2,401 in 1921 to 30,870 in 2011. The annual average growth rate of population is 1.2% (2011-21), 7.7% (2001-2011) and 19% (1991-2001). (Census 2011)
The resident population drops down from summer to winter by 15-20% as many residents travel to warmer places.

Migrant Population

The shift in Leh Ladakh's economy from primary sector to secondary and even more to tertiary sector has resulted in an inflow of migrants to the town during the warmer months. There are two main types of migrants – from outside Ladakh and those from villages across Ladakh. It was estimated that up to 50,000 migrant workers arrived in Leh in 2019. (Leh Vision 2030, 2020)

(Leh Vision 2030, 2020)

Tourists

The Ladakh region was opened to foreign tourists in 1974. Since then, the tourist traffic started increasing and now over 300,000 tourists visit Leh annually and stay for 7 days on average.

The Indian Army

Apart from the migrant population, on any given day about 20,000 to 25,000 army personnel are stationed in Leh or are in transit through Leh from other parts of Leh and Kargil districts. While they do not live in the civilian parts of town, they share common water and other infrastructure resources.

(Leh Vision 2030, 2020)

Table 1: Town Profile

Name of the Town/City	Leh			
Town/City Leh UT/State	UT Ladakh		**District**	Leh
Area of the Town (Sq Km)	9.15			
Number of administrative division (Ward)	13 wards			
Total population	2011: **30,870** *(Census)*		2021: **34,798** *(MCL, 2021)*	
	Male - 21,669	**Female 9,201**	**Male**	**Female**
Population growth rate (%)	7.7% (2001-11)		1.27% (2011-21)	
Average HH size	5			
Floating population ***(If applicable)***	58,587 *per day* (Tourists 8,587/day, Migrant Workers 50,000/day) (Water in Liveable Leh, 2019)			
No. of Notified Slum	0			
No. of Non-Notified Slum	0			

1.2 Ward-wise Characteristics

Leh town has 13 wards. The Snemoling and Skampari wards of the municipality are settled on steeper slopes compared to the rest of the town. Ward 11(Snemoling) has the highest density since it is settled on a hill with less developable area, followed by Ward 13(Leh old town). Ward 1 has the lowest density.

Urban centers

Major commercial centers, with densest neighborhoods, they act as the town centre with diverse land uses, employment opportunity and major economic transactions take place in these areas.

Hub urban villages

These areas offer a balance of housing and employment but are generally less dense than urban centers. Hub Urban Villages provide a mix of goods, services, and employment for their residents and surrounding neighborhoods.

Residential areas

Areas with predominantly residential land use, these are where 70% of the town resides.

Urban villages

Areas with agricultural activities such as Ward No. 1 - Gonpa/ Gangles.

Tourist areas

Hotels and guest houses are concentrated in the commercial areas, oriented towards tourist needs and mostly dependent on them. Almost 70% of the tourist population is concentrated in 4 wards – Ward3(Changspa), 4(Tukcha) and 5(Shenam) and Ward13(Leh Main Market). These wards have the highest number of hotels and guesthouses.

Institutional areas

Areas with major government or semi-government institutions.

Manufacturing/ service industry areas

Areas with small-scale industrial units, workshops, automotive repair & service shops.

(Leh Vision 2030, 2020)

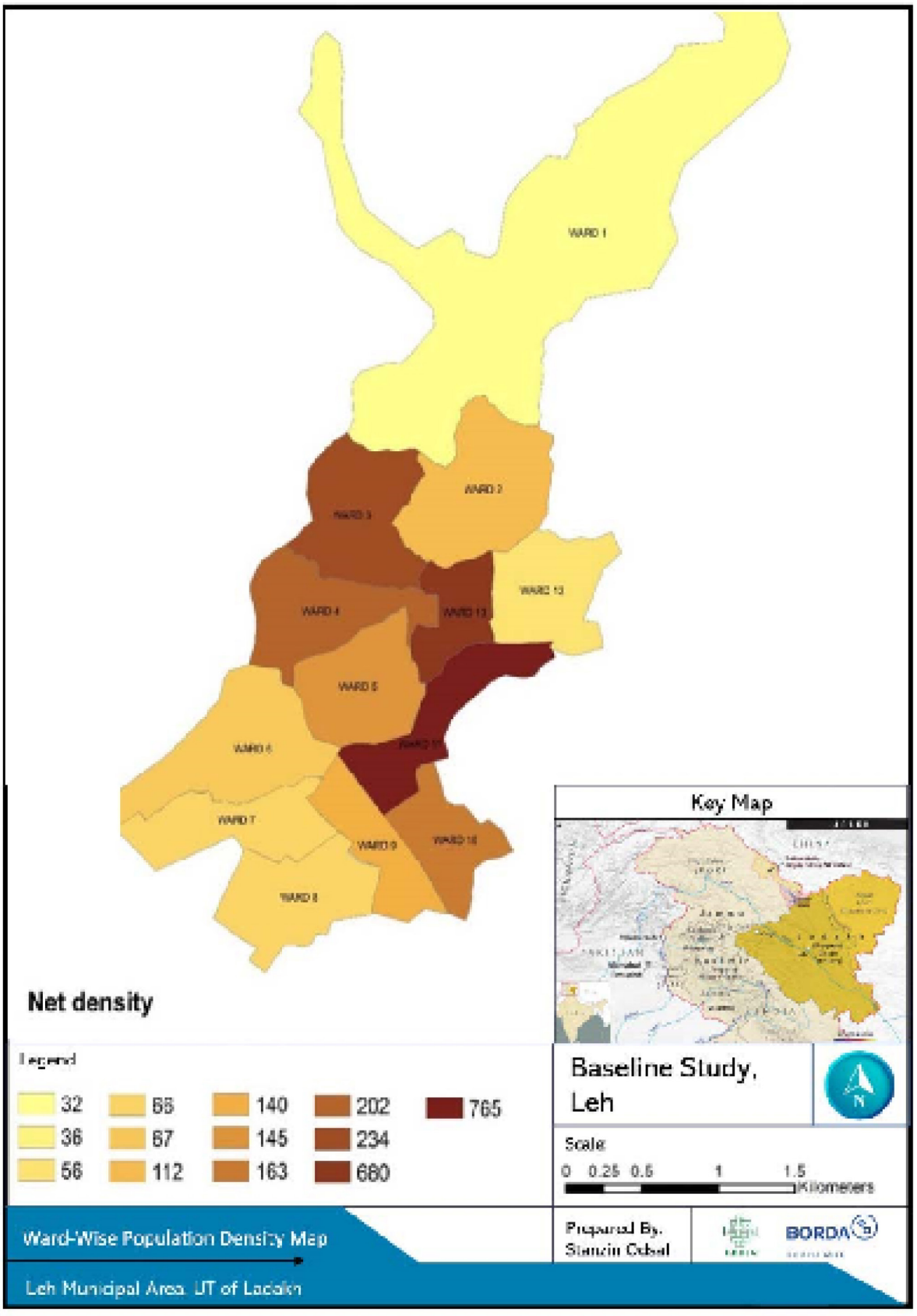


Figure 2 : Ward-wise Population Density (person per hectare)

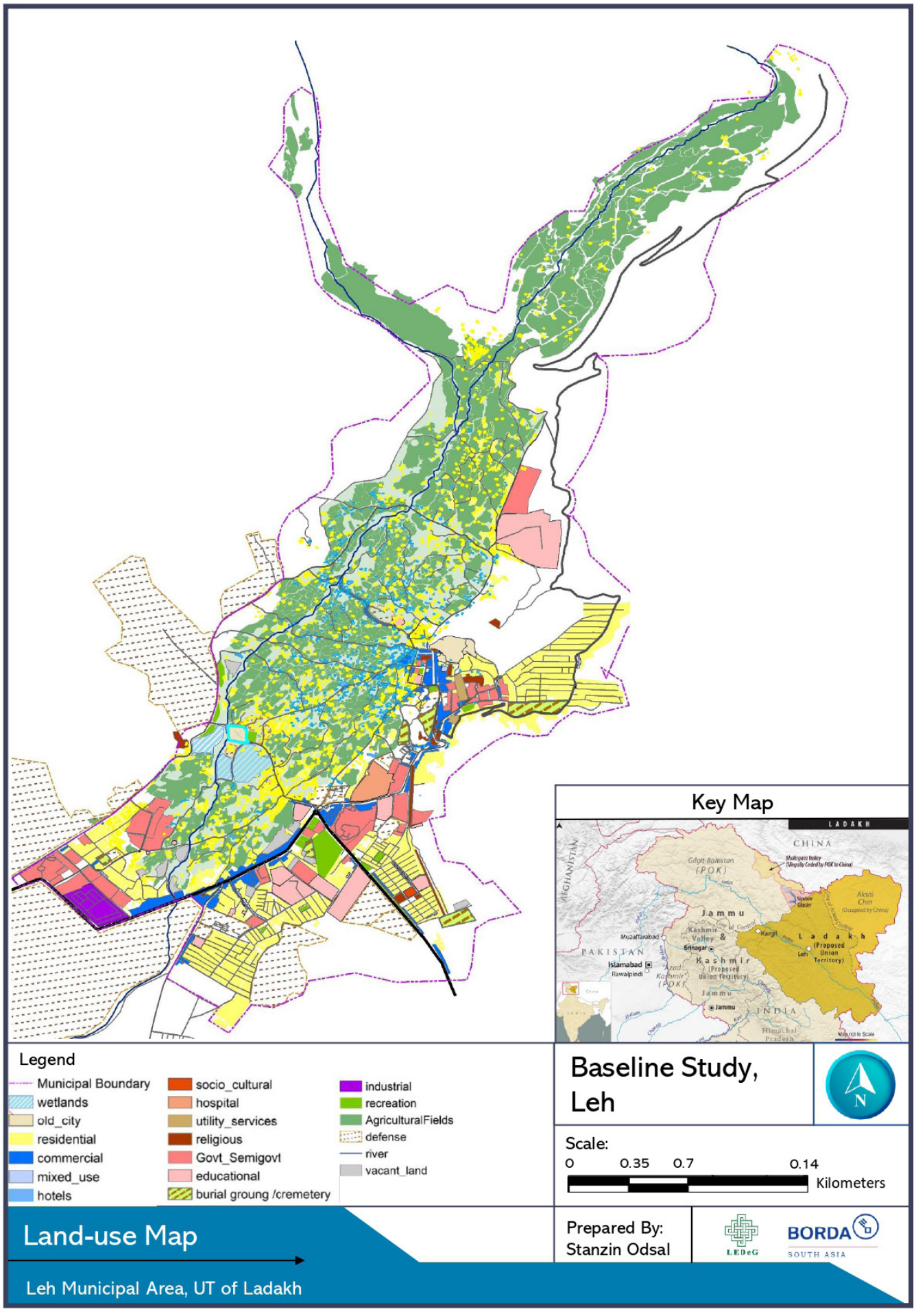


Figure 3(a) : Land use Map of Leh

Table 2: Ward-level Details

Ward Number	Name of the Ward	No. of Households	Population	Remarks
Ward no 1	Gonpa/Gangles	175	850	Lowest Density Urban Villages – Agricultural Lands
Ward no 2	Sankar/Yourtung	375	2,100	
Ward no 3	Changspa/Karzoo	180	1,080	Concentration of Tourist Population
Ward no 4	Tukcha	183	1,550	Concentration of Tourist Population
Ward no 5	Shenam	125	1,700	Concentration of Tourist Population
Ward no 6	Skara	574	2,870	
		97 (Industrial units)	480	Airport is in this ward
Ward no 7	Skalzangling	450	1,400	
Ward no 8	Murtsey	1711	8,473	Govt has leased out land to govt employees for a very long term.
Ward no 9	Housing Colony B	425	1,550	Most of the govt quarters are in this area
Ward no 10	Housing Colony A	778	3,580	Most of the govt quarters are in this area
Ward no 11	Maneytselding	865	4,325	Highest Density
Ward no 12	Skampari	950	2,370	Most of migrant workers live here.
Ward no 13	Zangsti Skynos	472	2,470	Concentration of Tourist Population
TOTAL		**7263+97**	**34,798**	

(MCL, 2021)

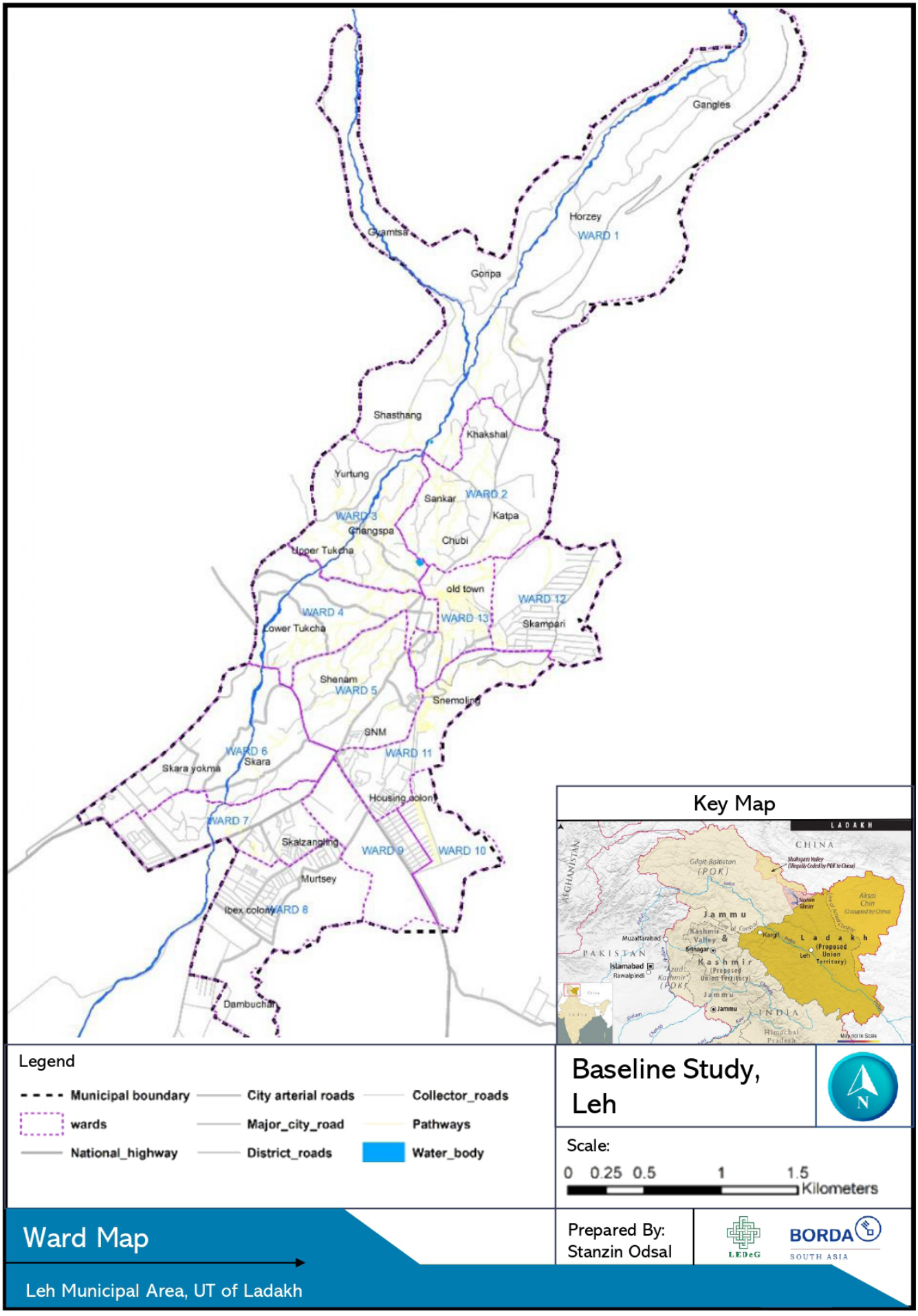


Figure 3(b) : Ward Map of Leh

02

Access to Toilet

2.1
Baseline Status

Table 3: ODF Status

Is the town open defecation free?	Leh has achieved ODF in 2017
If yes, what is the next status the city is trying to achieve? (Ex: ODF+, ODF++)	MC Leh has applied for ODF+ in August 2022. In 2021, Leh is participating in SafaiMitra Challenge in the category of towns > 3 L population. Could not qualify because of not being declared as ODF+.
If not, then how many more toilets need to be constructed and expected timeline.	NA

2.1.1
Individual toilets

The distribution of households in the 13 Municipal Wards of Leh City is presented in Table 2. Most households in Leh have toilets. The traditional Ladakhi dry compost toilet is commonly used. Thus, decentralized sanitation system is well adapted to the local conditions. The toilet is either integrated within the house or is built separately outside it. In a chamber beneath an elevated slab, the faecal matter is collected and stored. Fresh water is not consumed and polluted in the process, and only natural materials are used to mix with the faeces and urine to settle until decomposition results in the production of a rich organic fertilizer to be used in agriculture. Of late, the people of Leh are gradually replacing the traditional sanitation systemswith flush toilet systems as they are easier to maintain and require less space than dry toilets. The households invest in good insulations on plumbing lines and building a south facing trombe wall to conserve thermal energy which has enabled to use the flush toilets in winter. However, most of the population is still dependent upon local dry toilets in winters due to the freezing of water.

There are no individual household toilets (IHHLs) built under Swachh Bharat Mission in Leh. MC Leh does not have data on ward wise individual household level toilets. It is assumed that there is 100% IHHL toilets.

Figure 4: Traditional dry toilet, Public Toilet – near bus stand

Figure 5: Traditional dry toilet, public toilet inside a shopping complex near housing colony

Figure 7: Traditional dry toilet

Figure 6: Western type flush toilet at IHHL

2.1.2
Community Toilets & Public Toilets

There are no community toilets in Leh, all the toilets built by the MCL are under public toilet category only. The MCL department leases out the public toilets on a yearly basis to organizations/individuals for their operation and maintenance. The source of water for most of the public toilets are usually the municipal water tankers.

Figure 8: condition of Public toilet at Housing colony near highway

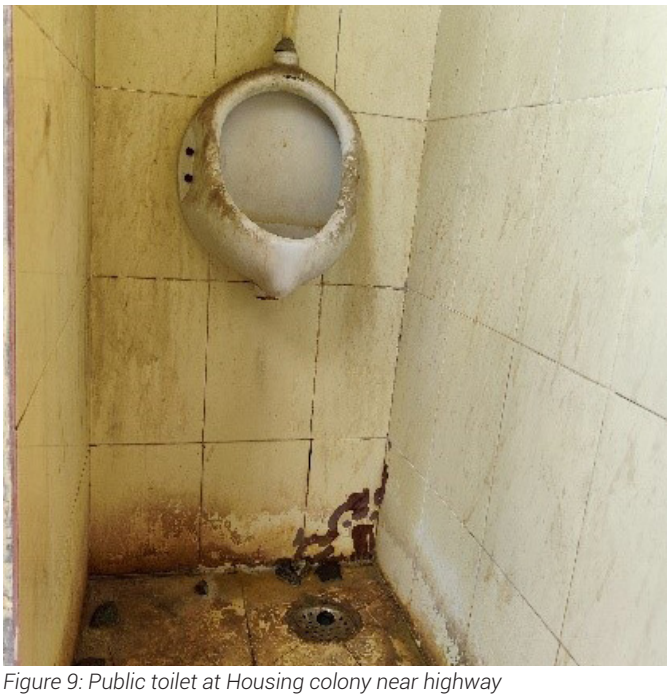


Figure 9: Public toilet at Housing colony near highway

Figure 10: Toilet built by MCL inside Degree college campus

Figure 12: condition of Public toilet near eco municipal park

Figure 13: Public toilet near eco municipal park

Figure 14: Another Public toilet near housing colony govt. quarters

Figure 15: Public toilet near housing colony govt. quarters

Figure16: Public toilet near old taxi stand parking

Table 4: Status of Public Toilet (Source: Primary Survey)

S.no	Location / Ward	Average number of users per day	No of Seats			Waste disposal arrangement	Functional status	Complaint redressal system available	Owned & Maintained by	User charges (Rs)	Cost Recovery (%)	Remarks
			Men	Men Urinals	Women							
1.	Zangsti Parking/13	60	7	4	4	Septic Tanks	Adequate lighting. Adequate water supply. All year functionality (winter-friendly toilet)	Complaint Book	Pagir	Rs 10		There is a traditional Ladakhi toilet in the Ladies section. It is café-cum-public toilet complex.
2.	Opp. J&K Bank /13	40	2	4	3	Septic Tanks	Adequate lighting. Adequate water supply. 1 Urinal is blocked. 2 flush tanks are non-functional in men's section. 1 toilet seat in women section non-functional		Owned by MCL and Leased out	Rs 5		
3.	Taxi Stand /13	80	3	3	3	Septic Tanks	Adequate water supply. Lighting is adequate but the electrical wiring is not proper in this facility. The septic tank size is very small and in peak times the septic tanks fills up in a weeks' time.		Leased out	Rs 5		
4.	Near Eco Municipal park /13	50	1	6	3	Septic Tanks	Adequate lighting. Adequate water supply.		Leased out	Rs 5		
5	Near D.C office Gate /13		10	7		Septic Tanks	Adequate lighting. Adequate water supply. Temporarily Closed as MCL said that this facility has not been leased out and they are not able to find an individual to run this facility.		MCL	Rs 5		
6.	Near B.S.N.L Office /05	120	2	4	4	Septic Tanks	Adequate lighting. Adequate water supply. The pressure pump is non- functional, but they are running the facility with overhead tanks	Complaint Book	BWC	Rs 5		
7.	Near 207 union Bombgarh /10		3	7		N/A	Non-Functional The toilet has not been opened for a long time		207 Union	Rs 5		
8.	Near Govt. quarter park H. colony 11		1	0	1	Septic Tanks	Non-Functional Temporarily closed		Leased out	Rs 5		

S.no	Location / Ward	Average number of users per day	No of Seats			Waste disposal arrangement	Functional status	Complaint redressal system available	Owned & Maintained by	User charges (Rs)	Cost Recovery (%)	Remarks
			Men	Men Urinals	Women							
9.	At EJM Degree college /09		3	6	3	Septic Tanks	Non-Functional		EJM College			This toilet is built by the MCL, and this toilet is inside the campus. Public do not use it.
10.	Near Transport Bus stand/ 05		4	4		Soak Pits	Temporarily closed because of shortage of water. The caretaker is running the toilet with very minimal water which is provided by MCL water tankers. and water from a tap outside the facility. There is a submersible pump installed but it is damaged and they have informed the MCL.		BWC	Rs10		
11.	Back side of Transport bus stand/ 05						Non-Functional It is traditional Ladakhi toilet. The condition is very worse, and nobody is using it.					
12.	Near H. Colony Govt Quarter /10		3	5		N/A	Non-Functional The P.T is locked, and the condition is unknown.		MCL			
13.	At 407 union Bombgarh /10		3	5		N/A	Non-Functional The toilet has not been opened for a long time		407 Union			
14.	H. Colony Highway park/9		2	1		Septic Tank	Non-Functional The P.T is locked, and the caretaker said that the wash basin installed outside the P.T is stolen and the urinal is broken and blocked. MCL is informed.		MCL			
15.	At N.D.S stadium/9						Non-Functional The P.T is locked and the condition is unknown. The wiring to the P.T from outside is broken and there is no water supply.					
16.	Near P.W.D office/11		1	6	2	Septic tanks	Functional -water is provided to this P.T by water tankers -Adequate electricity		PWD Department	Rs 5		

2.1.3 Hotspots

A "hotspot" is defined as either a component of the system that directly or indirectly contributes to plastic leakage and impact, or that can be acted upon to mitigate this leakage or the resulting impacts(UNEP).

In January 2021, MCL had identified sanitation hotspots in the following areas–

1. Housing colony
2. Nimoling
3. Skampari
4. Ibex Colony
5. Murtsey Colony
6. Skalzangling
7. Old Town Area

The reason observed for the existence of sanitation hotspots is primarily lack of public toilet which are winter friendly. Most of the public toilet in Leh town due to severe climatic conditions are closed during winter as it is very hard to maintain these public toilets in winters as water is frozen. Also, people are reluctant to pay the nominal fee of Rs 5 or 10, to use the public toilet which results in open urination in and around Leh town. It is observed that the practice of open defecation is in the areas like parking

Figure 17: Nowshar area near main market on the way to pologround

Figure 18: Polo ground shed near parking area

2.2 Gaps and Issues

- Out of the 16 public toilets 9 are non-functional.
- The public toilets are not winter friendly. During winter water in the pipes get frozen, it is difficult to operate toilets in such extreme climate conditions. Toilet operators use electric rod to boil water and then use hot water to clean toilets.
- People are reluctant to take job as a toilet operator because of prevalent social stigma, that's why MC Leh offered to operate toilets voluntarily to the sanitation workers, whatever they earned from operating these toilets they can keep as their source of revenue.
- Many of the time toilet users do not cooperate, and they do not pay the user charges.
- Open defecation/urination is practiced in different parts of the town.

03

Water Supply

3.1
Baseline Status

Traditionally 90% of the residents depended on snow melted water in the form of surface streams and the remaining 10% from natural springs. Now for 90% of the water supply, the main source is groundwater extracted through tubewells. Spring is another source of water supply for the town. The water from the source is pumped into reservoir tanks and is released under gravity to public stand posts (PSPs) and household connections. There are about 270 PSPs across Leh town. PHE water tankers supply water to unserved areas like Skampari, Agling, Ganglesm Gonpa and Khakshal. 8 public tankers are owned and operated by PHE; each tanker makes around 6-7 trips per day. (Leh Vision 2030, 2020)

The total water supplied for the town by PHE is 4.7 MLD including pipe water and tankers(excluding construction, agriculture, and armed forces). The main three source of spring are – Gyalung, Gangles and T-Trench which supplies 0.5 MLD. The are 8 public tubewells owned and operated by PHE which supplies 2.05 MLD. Under the old water supply scheme during mid-1990s 5 tubewells were planned in the banks of River Indus in Choglamsar. Currently, 3 out of the 5 are in operation(2 Leh and 1 Choglamsar). This supplies 2.1 MLD. The remaining 2 tubewells are under development, which will help to augment the existing water supply for Leh. Under the new water supply network being built the PHE has divided Leh in 12 zones. 80-90% supply network is completed and yet to be operational.(Refer Figure 19)
(Water in Livable Leh)

The total water consumption is estimated to be 6.7 MLD(4.7 MLD from PHE and 2 from private borewells). Estimated tubewells drilled by the private(guest house, Hotels and HH) is 1200 to 1700. The private tubewells are unregulated therefore there is no data for water extraction from these borewells.
(Water in Liveable Leh, 2019)

The water supply for the entire town is intermittent with 2 hours in the morning or evening. A pilot project of 24X7 water supply system in Gangles area(Ward 1) of Leh has been implemented in 2020 covering 125HH(exisitingly only 87HH are there, the remaining 38HH are projected for the future, and will be connected as soon as they are built). Household connections to 68HH(the remianing 19 households have their own private/ community borewells or are not feasable enough to be connected to the main distribution pipeline) has been made and meters have been installed. Currently the project is in monitoring stage. The project is expected to provide water supply 24x7 throughout the year including the harsh

winter months. On successful implementation and systematic monitoring of the project and gathering sufficient data, this pilot project is expected to be implemented across the town.

The user charge for domestic users is collected yearly at 2,400 per household. Commercial establishments are not paying any user charge as of now.

The water quality tests are conducted by Field Research Laboratory, and PHE(the laboratory of PHE has limited equipment to conduct water quality tests on physical, chemical and bacteriological parameters).

Table 5: Town water profile

Source of drinking water supply in the Town / City	90% water is supplied through Ground Water (33% of this is extract from Choglamsar borewell, rest from other part of Leh) 10% of water is supplied through Surface Water i.e., spring and stream.
Total water supplied to the town per day (KLD)	4.7 MLD
Total No. HH with Functional Household Tap Connection (FHTC)	5,200 HH
Total No. of HH without FHTC?	1,620 HH
No. of metered connection	68
Total length of water supply network? (Km)	Old water supply network was 60 Km. The new water supply network is 98 km and 78 km has been laid until 2018. (Water in Liveable Leh, 2019)
Existing arrangement for water supply in non-networked and slum area	PHE Water tankers, Community Stand Posts, Private Borewell (HH)
Per capita supply of water (lpcd)	70 lpcd
lpcdNumber of Water treatment Plant with capacity (or) Specify mechanism for treatment of raw water from the source	There is no water treatment plant in Leh town as of now.
Existing water usage charges for Residential and commercial use	Residential-Rs 2,400 per yearCommercial-The commercial rate has not been set yet
Are there any ground water recharge structure in the city?	There is no groundwater recharge structure in Lehas of now, PHE has made two proposals regarding constructing groundwater recharge structure at Gangles to the Government.

(PHED, 2021)

Table 6: Zonal water supply status

No.	Water source	Status of The Source	Water zone	Capacity (Gallons)	Areas served	No. of connections FHTC
1.	Lamdon Water Reservoir	Operational	Zone 5	150,000	Lamdon, Sankar,Yurtung, Upper Changspa, Changspa, Tukcha	265
2.	Khakshal Water Reservoir	Operational	Zone 3	150,000	Lamdon, Sankar, Yurtung, Upper Changspa, Changspa, Tukcha	197
3.	Skampari Water Reservoir	Operational	Zone 9	150,000	Skampari, Katmochey, Pologround, Old road	454
4.	Juma Bagh Water Reservoir	Operational	Zone 6	50,000	Fortroad, Upper shenam, Malpak, Oldroad	
5.	Stagophilog Water Reservoir	Operational	Zone 6 A	25,000	Old Leh, Stalam, Kharyok, Maneykhang, Main Bazaar, NewShar lane, Fort road	591
6.	Stagophilog (New) Water Reservoir	Under Construction	Zone 6 B	50,000	Fortroad, Uppershenam, Malpak, Oldroad	154
7.	Badami Bagh Water Reservoir	Operational	Zone 11	50,000	Nimoling, Govt Qtrs, Housing colony	513
8.	Skara (Opp. Hospital) Water Reservoir	Built, Not operational	Zone 12	150,000	OldSkara, Lower Skara, kartse, VIP Dak Bungalow, Industrial area	129
9.	Balasharam Water Reservoir	Operational	Zone 11	100,000	Nimoling, GovtQtrs, Housing colony	513
10.	Mini secretariat Water Reservoir	Operational	Zone 10	100,000	Targyasling, Skalzangling, Murtsey, Ibex	1353
11.	Manetselding Water Reservoir	Operational	Zone 10 and stage lift	100,000	Targyasling, Skalzangling, Murtsey, Ibex	1353
12.	Changspa Water Reservoir	Operational	Zone 7	100,000	Chnagspa, Upper tukcha, Main Tukcha, Lower tukcha	265
13.	Gyalung Water Reservoir	Operational	Zone 2	150,000	T-Trench	130
14.	Kartse Water Reservoir	Under Construction	Zone 12	50,000	Oldskara, Lowerskara, Kartse, VIP Dak Bungalow	129
15.	Gonpa Water Reservoir	Operational	Zone 1	50,000	Gangles, Horzey, Digur, Spurka	13
16.	AMRUT Water Reservoir	Under Construction	Bombgaurd	150,000		
17.	Skampari Phu Water Reservoir	Built, Not operational	Zone 8	50,000	Skampari, Leh Palace, pologround area, Kidarlane, Maneytselding	48
18.	Skara Water Reservoir	Built, Not operational	Zone 12	25,000		129
19.	Nezer Gonpa	Operational	Zone 4	229,000	Gonpa Village	76

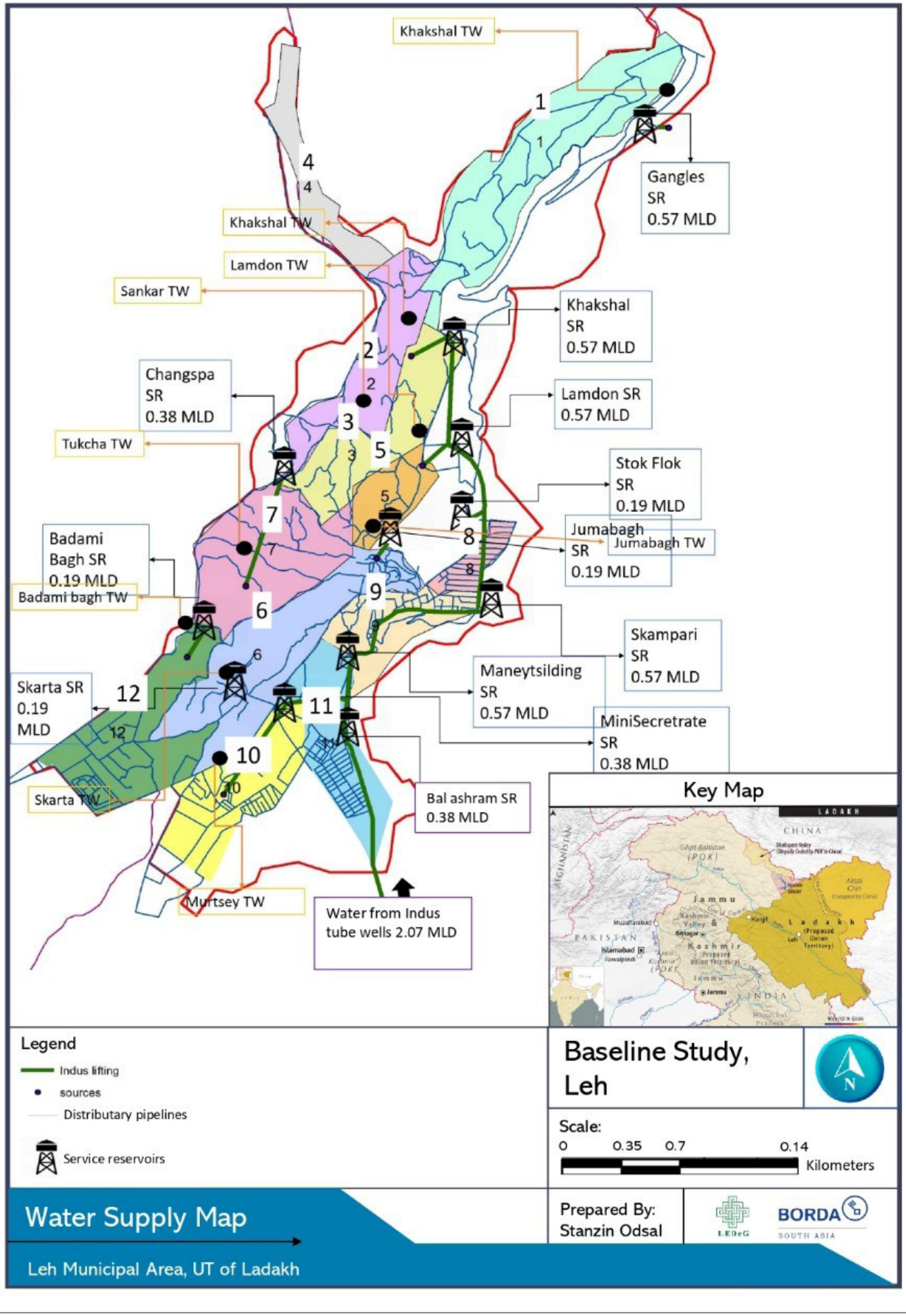


Figure 19 : Water Supply Zones of Leh

3.2
Gaps and Issues

Water demand vs Supply :

In Leh, water availability is very limited, during summer, locals use about 75 l of water per day, tourist use about 100 l per day and the migrants get only about 25-35 l of water. In winters consumption decreases with locals and tourist at 50 l and 60 l per day, respectively. Based on current usage, the total summer and winter domestic water demand in 2018 is 6.7 and 1.6 MLD respectively. As per CPHEEO standards, for an urban are the per capita water supply for a town with access to underground sewerage should be 135 lpcd. Applying CPHEEO standards, the total summer and winter domestic water requirement would be 12.7 and 4.2 MLD respectively. In the above computations the water extracted by Army and water used for agriculture and construction is not taken. Assuming the climate and lifestyle of Ladakhis need 100 LPCD, tourist need 100 lpcd and workers need 60 LPCD, then summer water requirement will be 7.4 MLD, 48% higher than current usage. (Water in Liveable Leh, 2019)

Zonal level water supply :

Inter zonal differences are there when it comes to water issues e.g., some zones have FHTC, public stand post, water tanker supply as well as private borewells whereas some other zones are only dependent on one source e.g., water tankers.

Water quality issues:

Some places have complained about scaling, this could be due increased alkalinity.

Non-Revenue Water (NRW):

Due to challenging terrain and climate, the pipelines of PHE are very much prone to breakage and leakage. This results in huge requirement of O&M cost as well as manpower. PHE has shortage of manpower for monitoring, skilled plumbers, etc. Due to poor revenue of the department, they face challenges in maintaining and repairing the supply network.

Out of the 5,200 HH connections only registered connections are 833 residential and 116 commercial connections. The true figures are not available with the concerned departments. An estimate is that 84% is non-revenue water. (PHED, 2021)

Currently there is a very high rate of leakages in the network pipelines laid by PHE department for distribution of water, the operating cost of the Department is Rs 1,65,00,000 INR annually, while only 9,54,225 INR is collected annually. Therefore, cost recovery is only 5.8%.

Complaint Redressal System:

There is no formal complaint redressal system in Leh.

Table 7: Cost recovery

Cost Recovery	2018	2019	2020
Operating Expenses (Rs.)	NA	1.65 crores	NA
Operating Revenues (Rs.)	NA	9,54,225	NA
Cost Recovery (%)	NA	5.78%	NA

Table 7: NRW status

04

Management of Local Water Resources

The main water resources in Leh town are mainly the springs and water from melting glaciers flowing as streams.

4.1 Baseline Status

Departments responsible for the water channel cleanliness is MCL, but due to shortage of manpower they are not able to frequently clean the channels. But the channels are getting cleaned at community level by organizing cleanliness drives occasionally.

Figure 20: Mixing of waste streams in water channels.

4.2 Gaps and Issues

The main source of water body in Leh town is from the melting water glaciers, the water quality near the source is very good, and as the water runs through distance, the contamination starts, the contaminations are from mixing of black water, greywater and solid waste. Often the channels get blocked due to accumulation of solid waste. Lot of cleanliness drives at community level are organized and these channels gets cleaned a few times in a year.

- Encroachment into the water channel by people living adjacent have made them very narrow, due to which there is a very high risk of overflow and may result in water logging.

- Dumping of solid waste in the water channel hampers smooth flow of the water in the channels and increases the risk of channel being blocked.

- Construction of concrete water channels has hampered the ground water recharge mechanism by reducing the water penetration into the ground.

- Extinction of traditional water system (Churpon system) has resulted in the deterioration of the water bodies (ponds).

Table 8: Water Resources and status

Type of water resource	Area	Presentcondi-tion (Visual observation)	Quality of water	Current use	Identify existing Problem. (If any)	Any initiative taken towards conservation of water resource. (Yes/No) If yes, please note
Pond (zing)	N/A	Near extinction	N/A	Leisure (Summer for swimming & in winter for ice-skating)	Ignorance of traditional method of irrigation and water channeling	Ponds and streams in Leh are degrading due to the death of the "Chhurpon System in Leh Town" Chu=water, spon=manager/lord. These water managers used to control and regulate ponds and streams in the town to supply water for irrigation, however now this practice is no longer prevalent in the town. Rural Ladakh still has this system.
Stream	21.5 km	Polluted	The water is polluted by greywater and solid waste	Not drinkable and solid waste but used for agricultural purposes.	Due to availability of tap water at doorstep for consumption people ignored the importance of keeping stream clean,	
Spring	N/A	Drying up		Gyalung (0.2MLD) T-trench (0.2MLD) Gangles (0.1MLD) Gyalung and T-trench supply water to Lamdon S.R.	There used to be many springs in Leh Town. Most of them have dried up due to many reasons such as illegal construction, climate change etc. The PHE has access to three spring sources mentioned above. Apart from that there are certain springs in the upper wards of Leh such as gangles where certain Households use the water for drinking purpose.	

05

Waste-Water Management

5.1 Baseline Status

The most common method of the wastewater disposal arrangement in Leh town is onsite sanitation system, which constitutes a soak pit (read as lined pit with permeable walls often with open bottom), holding tanks (read as fully lined tanks) and very few households have properly designed septic tanks. As the city is unplanned and growing at rapid rate, the onsite sanitation system cannot be catered to all the households in Leh town due to space constraints.

There is no data at household level on various sanitation systems.

Sewage management

Leh town does not have a sewerage system as of now. The project for sewerage system in Leh was prepared in 2008 and was sanctioned by Ministry of Urban Development (GoI) in 2013.In 2016, the Public Health Engineering Department (PHED) initiated the construction of a sewerage network in Leh. The complete network covers 40% of the town, with 61 km of pipelines (Please refer Table 9).

Construction of 3 MLD STP is already under process and is expected to get commissioned in August 2021. The 3-MLD STP of SBR technology has a cost of Rs 15 Crores including 3 years of O&M.

The sewerage system is not operational as the construction of Sewage Treatment Plant (STP) is ongoing. However, some households have connected to the sewer system and the sewage is collected in an open pit near the STP site.

60% of the town does not even have a sewer network, the left-out areas are areas with difficult topography or very low feasibility.

Figure 21 : Typical soak pit for Grey Water

Figure 22: A soak pit

Figure 23: A septic tank

Table 9: Status of Sewerage in Leh (March 2021)

Name	Proposed Length (km)	Achieved Length (km)	Areas Covered
Network – 1	12	6.05	Shenam, Fort Road, Tukcha, Skara
Network – 2	93	49.26	Gangles, Horzey, Katpa, Chubi, Changspa left side, Leh main Market, Skampari, Stalam, Old Leh Town, Katmochey, Maneytsilding, Old Road, Norgais ling, Targais Ling, Murtsey colony, Ibex colony & Skalzangling.
Network – 3	7	6.28	Nimoling, Housing colony & Govt Quarters.

Table 10: STP Status (April, 2021)

Name of STP	Treatment Technology	Installa-tion year	Plant Capacity (MLD)	Operational status	O&M done by	Reuse arrangement
STP, Leh	Sequential batch reactor (SBR) technology	2020	3.0 MLD	Under construction	PHE	TBD

Septage/Fecal sludge (FS) Management

Most of the households in Leh have fully lined tanks or lined tanks with open bottom. Some commercial units collect blackwater and greywater in separate tanks. The septage/FS from these are collected by desludging truck of MCL. The trucks convey the septage to the FSTP (12KLD) located near the housing colony. The FSTP is operated by a BWC company introduced double boosting pump system, which can be used to collect the wastewater into the suction truck from a much larger distance increasing the accessibility to septic tanks which were earlier inaccessible. The FSTP is not functional during the winter months (November – March).

Figure 24: FSTP at Leh

Table 11: FSM Status

Type of containment systems in town	In Leh all type of containment system is constructed, most of the containments are either fully lined or lined tank with open bottom. Very few septic tanks as per the design standards.			
Existing mechanism for emptying of containment unit?	Desludging truck used for emptying septic tank. Manual emptying is practiced for emptying dry sludge from traditional dry toilets.			
No. of desludging trucks owned	By ULB	3 (MC Leh), 1(BORDA has sponsored to FSTP)	By Private Operator	NA
Capacity of the Truck	By ULB	1) 3500 l (the truck has two sections; one section is for feacal sludge capacity 3000 l and 2nd one is for jetting capacity 500 l) 2) 7000 l (3500 l for feacal and 3500 l for jetting) 3) 2 trucks have capacity of 8000 l (5000 l for Feacal and 3000 l for jetting)	By Private Operator	NA
Avg No. of desludging trips in a month	By ULB	Approximate 350 KL a month (suction truck capacity is 3500 ltr, daily approx. 100 trips are done)	By Private Operator	NA
Is there a Faecal Sludge treatment unit in the town?	Yes	FSTP, MC Leh	Capacity of FSTP? (If yes)	12 KLD
Where does the sludge get emptied? (If No)	FSTP, Leh			
End use/Disposal of treated waste	Solid	Soil conditioner	Liquid	The nutrient water is used only for not edible plants. Currently being used at FSTP site only. The excess treated water goes to the soak pit installed at FSTP site.

Table 12: FSTP Status

Name of STP	Treatment process / technology	Installa-tion year	Capacity (KLD)	Operation-al status (Functional/ Non-Functional)	O&M done by	Reuse arrangement (Solid/Liquid)
Feacal Sludge treatment plant Leh	It is a gravity-based system on natural and biological treatment without the use of chemicals.	Aug, 2017	12 KLD	Functional but only in summer (April – October)	BWC (blue water company)	1.Soil conditioner 2.Nutrient water

5.2.1 Gaps and Issues in Sewerage Management

Wastewater generation vs Treatment:

Considering CPHEEO norms, Leh produces about 5.36 MLD for wastewater in summers while the STP only has a capacity of 3 MLD (exclusive of Army). If we consider the floating population or otherwise the treatment capacity is inadequate.

Sewer network & Pumping stations:

- There is no mechanical pumping station, as the sewerage line is based on gravity.
- The sewer network covers only 40% of the town, rest is unserved areas due to difficult topography.
- Leh town faces numerous blockages of sewer mainly in ward no. 12, ward no. 9 and ward no. 10 of Leh town.
- There are challenges to detect the blockages in the sewer lines. For example: The manhole distances, irregular inspection, etc.
- Leh is not a planned town due to which it is difficult to lay sewer line in many areas as often it cuts across existing buildings and people are reluctant to cooperate.

Sewage Treatment Plants (STPs):

- The STP is functional.
- The sewage collected through the sewers are currently being treated at STP.
- Inadequate design capacity of STPs to handle present / future sewage.
- Currently the STP is located close to Indus River and treated water cannot be re-used for productive purpose as there is no plan for treated water lifting, as all the settlements are above the STP.

5.2.2 Gaps and Issues Related to FSM/Septage Management

FS/Septage collection & conveyance:

- Hotels and households are not ready to change their existing structure of their holding tanks because they must pay again to construct septic tank. If they do not get any compensation, they are no willing to do so.
- Grease traps are not installed in septic tank in most household and hotels. If the grease traps are not installed there is a formation of oily layer which blocks seepage and in turns the soak pits are filled quickly and emptying needs to be done often
- Lack of trained mason to construct septic tanks as per design standards
- Desludging is done on demand from customers.
- Manual emptying of dry toilet is practiced.
- Insanitary dumping of waste from dry toilets.
- Due to poor construction of septic tank, desludging tanker often encounter pebbles and dirt and because of this suction machine gets damaged.
- Desludging tankers pipes are short, and these tankers cannot reach out to some location because of narrow

FS/Septage treatment & disposal / Reuse:

- FS capacity is inadequate for treating the FS treatment demand.
- FSTP is not functional during winters months from November to March.
- Absence of recycling of wastewater and reuse of sludge
- Reuse of dry sludge from traditional toilets is reducing due to decreasing agricultural land.
- There is a lot of army settlements in municipal area, and they have their own desludging trucks, and they do not have proper treatment plants. Their operators are not trained properly and authorized to dispose their feacal sludge, and they dispose of in open areas.

06

Grey Water Management

6.1 Baseline Status

There is no arrangement by the government departments in managing the greywater coming out of the households in Leh town. As there is no operational sewer network in the town, almost all the households have separate soak pits. Many households dispose their greywater in the water channel adjacent to their houses. In the past people used to drink water from the same channel as it was not contaminated by such practices. Most of the commercial units have separate soak pits for the grey water, there is no greywater treatment plant for the commercial units.

6.2 Gaps and Issues

- Lack of technical knowledge on greywater management.
- There is separate outlet for black and grey water, most of the HH have soak pits which is not built properly for grey water discharges. And the black water is collected in septic tanks.
- Grey water is directly discharged into open drains and fields.
- Mixing of grey water with local water bodies polluting them.
- There is not treatment mechanism at HH, community or at town level.

Table 13: Status of Grey water management

Does HH have different discharge point for grey water and black water?	Yes
What is the common practice in the town w.r.t grey water management?	Have separate soak pits not properly built, and mostly discharged directly into the field, streams and open drain in some areas e.g ibex colony.
Are there any grey water treatment units in the town?	Yes, two grey water treatment unit at HH level in town, both are in Gangles, but only functional during summer time. Only one of them is functional throughout the year.
How grey water is managed in areas without sewerage network?	Discharge into soak pit or open drain/water streams
Is there any common discharge point in the town for grey water collection?	No
Any special initiative taken in the town towards grey water management?	No

07

Solid Waste Management

7.1 Baseline Status

As per DPR for construction of solid waste management plant prepared in 2017, the anaylsed data indicate that a total quantity of 13.53 TPD of which 6.27 TPD is biodegradable, 3.27 TPD is recyclable and 1.84 TPD is construction waste. The data collected through primary sources is given below:

Table 14: Solid waste management status

Quantity of waste generated from the town (MT/D)	In winter 7 to 8 tons per day (average waste of 1 truck is 700 to 800kg) In summer 20 to 30 tons per day (average waste of 1 truck is 400 to 500 kg)
Does the town have D2D collection system/Primary collection?	Yes, the town have D2D collection system
Coverage of Door-to-Door waste collection (%)	100%
D2D Waste collection frequency	15 truck each 2 trips per day in summer 8 truck each 2 trips per day in winter
Number and type of equipment present for Solid waste management	1) Picking belt 2) Trammel machine for deeply segregate, for less than 50mm waste 3) MLP machine for shredding of paper. 4) Glass shredding machine 5) In-vessel compost (IVC) for biodegradable waste
Number of community bins available for secondary collection	There are no community bins in Leh town, waste is directly collected from D2D.
Quantity of waste collected from the town per day (MT)	In winter 7 to 8 tons In summer 20 to 30 tons

Source: (MCL, 2021)

Processing (Treatment) of solid wastes:

Solid waste treatment plant at Skampari, technology used- shredding machine, IVC (In-vessel composting) machine, glass shredding machine, cardboard shredding machine, trammel machine, MLP machine, baling machine.

Disposal of Solid wastes:

Scientific landfill facility is under construction, currently solid wastes are dumped at open landfill at SWM Plant. Solid wastes like paper, plastic bags, plastic bottles etc. are burnt by many households in all wards of Leh town.

Legacy Waste:

Leh has a legacy waste volume of 1,39,000 cum at Bombgarh. The project has been tendered out and bio-mining of the legacy waste has started.

Financial information:

No user charge is collected from households. User charges collected from shops and hotels are Rs.1200 per annum.

Figure 25 (a): Solid Waste Segregation Unit

Figure 25 (b): Solid Waste Segregation Unit

7.2 Gaps and Issues

The Municipal Committee Leh faces various challenges when it comes to managing the waste generated in the city. While the waste generated in the winter months is about 7-8 tons per day, it rises to almost 20-30 tons per day in the summer months owing to tourist and migrant worker population. In addition, the waste generated by the army and air force population get sent to the MRF for processing since they do not have their own waste processing facility. Below are a few challenges faced by the Municipality when it comes to collection, transportation, and processing of the city waste:

Primary and secondary collection:

- There is no proper segregation at source – household level (only dry and wet waste segregation is mandated by MCL at household level as opposed to the SWM rules 2016 that mandates segregation in at least three categories dry, wet, and domestic hazardous waste).
- Inadequate and improper use of dustbins provided by MCL for waste storage at HH level.
- Lack of infrastructure and manpower for daily collection.
- Construction and demolition waste is not being collected separately.
- Dry leaves/paper occasionally burnt at source
- The garbage collectors do not use proper PPE and safety kits while collecting garbage's.

Conveyance (Transportation) to Treatment facility:

Municipality vehicles are being used to transport the town's waste to a Material Recovery Facility (MRF), which is approximately 15 kms from the town center and 5 kms from the nearest habitation. Vehicles are not fully covered during transportation, which results in spillage of waste from trucks since the road to the yard is bumpy as it is not paved. At times, these vehicles drive over sharp objects like broken glass, which result in maintenance stops. The loading and unloading of wastes in trucks is done manually and at most times the trucks are over loaded. The staff of Municipal Committee, Leh operates these vehicles under the supervision of the Assistant Sanitation Officer. The four tipper vehicles have a single compartment to carry different categories of waste while the three smaller vehicles have different compartments for dry and wet waste.

Processing (Treatment) of Solid wastes:

- There are approximately 100 waste pickers who are present in bombgarh and Leh town. However, there is a tendency to pick high valuable waste like cardboards, PET bottles, tin cans at source and at bombgarh. Some waste generators like hotels/restaurants often store such high value waste on the premises and disposed/sold at a later stage. However, indiscriminate dumping means valuable items are not being picked up by rag pickers as fresh waste often gets tipped over old waste at the landfill.
- There are many stray animals like dogs, who create chaos by picking up animal waste, hospital waste and human waste. This makes the work of waste pickers more challenging and results in low recycling of high value waste as compared to other towns and municipalities.

Main issues of Solid waste management:

- Clothes waste, construction waste, carcass of animals cannot be segregated, as people dump such waste in waste collection trucks without segregation.
- There are separate waste collection trucks for different waste, but people are unaware about waste segregation and dump all waste without proper segregation.
- Eco friendly biodegradable plastic bags are used by many shopkeepers, hotels, though it claims it is biodegradable but because of unique climatic conditions of Ladakh these plastic bags do not get decompose. (as per 3R company operation manager Mr. Tsewang Dorjey)
- Due to mixing of all waste by the public in same bins, the employees of solid waste management spent more time segregating these waste and due to lack of manpower wastes gets piled up.

08

Health & Hygiene of Sanitation Workers

There is as such no infrastructure to support the sanitation workers working in Leh town, but after intervention of LEDeG-BORDA, special focus has been given to improve the life of the sanitation workers, video documentation on the daily life of a sanitation worker has also been released in the public forum to create awareness among citizens of the difficulties faced by the sanitation workers, and the mental pressure they suffer from the stigma.

8.1 Baseline Status

Water and sanitation related facilities:

Last year BORDA in collaboration with MCL has constructed 1 wash facility at Skampari for sanitation worker, the facilities are hand wash, bathing, toilets, changing room, laundry, and recreational room.

Use of PPE Kits:

Last year BORDA supported MCL to distribute full sets of 115 kits to MC Leh sanitation worker and related equipment's like wheelbarrows, spades, gum boots etc.)

Training on safety:

A training was organized by MCL with the support of LEDeG-BORDA to the sanitation workers from Leh and Kargil by experts. In this training, the target participants were made aware of what facilities and benefits they can avail from government, safety and precautions they should take while performing sanitation related works.

Existing living/housing condition:

Around 20 sanitation workers have been provided government quarters, rest of them live in rented room.

Health services/Benefits provided to sanitation workers:

There are no Health benefits provided to the sanitation workers, but a training and awareness programme was held at LEDeG office, in which the sanitation workers were made aware of the facilities from the government that they can avail.

Table 15: Manpower engagement details under Helath & sanitation

Total number of sanitation workers working in the town	122 (sweepers and street cleaners)
Under SWM (Specify contractual employees separately)	15 employees working at SWM and all are 3 R company employees
Under wastewater management (Specify contractual employees separately)	2 Employees of MCL (1 driver and 1 helper) driver is permanent and helper is contractual, along with BWC employees.
Operators under Water Supply	28 Gangles TW – 1, Gonpa TW- 1, Khakshal TW- 1, Lamdon TW- 1, Sankar TW- 1, Juma bagh TW- 1, Tukcha TW- 1, Murtsey TW- 1, Skara TW- 1, Badami Bagh Tw-1, Stage 1st choglamsar-3, Stage 2nd tyarey rong -4, Stage 3rd New Bus stand-2. (Operators under indus water lifting). 9 water tankers 9 employees.
Others (Dry sludge worker)	45

8.2
Gaps and Issues

The life of sanitation workers apart from the sanitation workers who are engaged in MC departments are not satisfactory, as their housing conditions are not good and day to day life is very difficult, they mainly rely on sanitation related activities of households which include cleaning of local toilets, and they also engage themselves in labor activities also.

They lack awareness on safe working procedure, but through LEDeG-BORDA's intervention they are made aware of the health hazards if they do not follow safe practices of sanitation work.

The municipality department can't provide PPE kits and other sanitation supporting equipment's because of lack of funds, but LEDeG-BORDA has intervened and provided PPE Kits and other sanitation related equipment's to the sanitation workers from Leh town.

The sanitation workers do have poor living condition without access to basic services, but with the intervention of LEDeG-BORDA, a WASH facility for them was constructed with all the modern facilities.

Because of lack of technology the local sanitation workers do engage in manual scavenging of local toilets (dry toilets) of Leh Town's households.

09

Institutional Arrangement

9.1 Baseline Status

The water supply and sewerage system are looked after by the PHE department and the MCL looks after the solid waste management. The SWM plant is operated and managed by private operator, 3R Management and the FSTP is operated by private operator, Blue Water Company (BWC).

Institutional Arrangement

Table 16: Institutional roles and responsibility under WASH

Urban Services	Institutions in charge of planning	Institutions in charge of implementation	Institutions in charge of O&M	Institutions in charge of collecting user charges
Water Supply	PHE	PHE	PHE	PHE
Sewerage	PHE	PHE	PHE	PHE
Septage/FS management	MCL	MCL	MCL	MCL
Storm Water Drainage	MCL	MCL	MCL	MCL
Solid waste management	MCL	MCL	MCL	MCL
Public Toilets	MCL	MCL	MCL	MCL

9.1.1
Organisational Structure

Figure 26 : Organogram of ULB

9.2
Gaps and Issues

- Vacant post related to sanitation sector in the ULB,

- Poor inter-institutional coordination mechanism (ULB, Parastatals, PHED, NGOs, SPCB),

- Overlapping / diffused / unclear roles & responsibilities (with respect to planning, implementation, O&M and M&E) concerning water supply, public toilets, wastewater, septage management, storm water, water bodies & solid waste management.

10

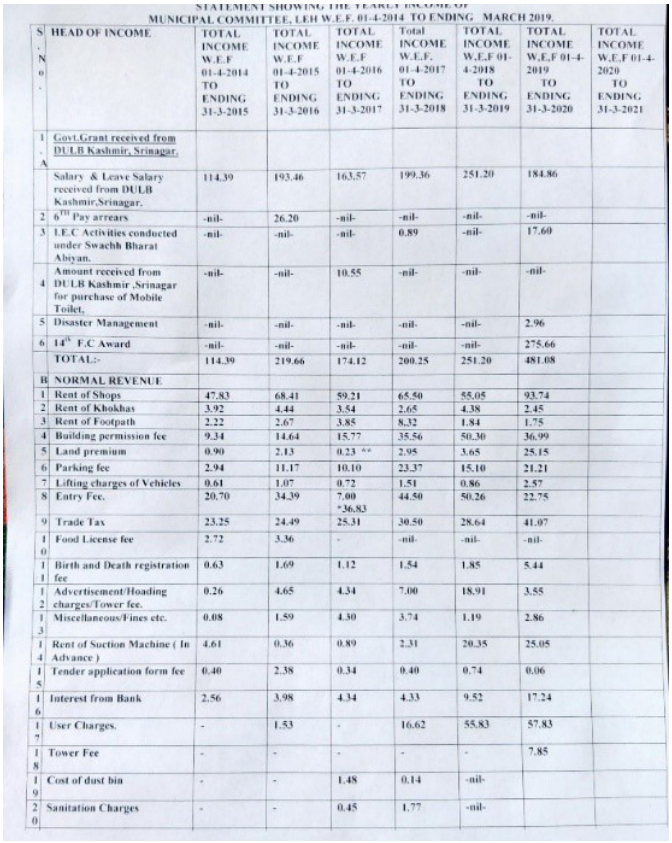
Municipal Finance

10.1
Baseline Status

Table 17: Overview of Municipal Budget under WASH

Particulars		Amount (Rs. in Lakhs)		
		2017-18	2018-19	2019-20
Revenue Income				
1	Income from Trade Taxes	30.5	28.64	41.07
2	Income from Non-Taxes (This includes revenue from Rent of Shops, rent of khokhas, rent of footpath, building permission fees, land premium, parking fees, lifting charges of vehicles, entry fees etc	222.21	289.83	423.1
3	Income from Assigned Revenue	-	-	-
	Total Revenue Income (1+2+3)	252.71	318.47	464.17
Capital Income				
4	Govt. Grants and Salaries + D.A. arrears	-	-	-
	Total Capital Income (4)	272.9	328.13	446.51
	Total Income (1+2+3+4)	525.61	646.6	910.68
Revenue Expenditure				
5	General, Establishment and Other Revenue Expenditure	104.1	130.03	157.21
6	O&M of Sanitation	8.33	3.39	2.66
	Total Revenue Expenditure (5+6)	112.43	133.42	159.87
Capital Expenditure				
7	Capital Expenditure			
	Total Capital Expenditure (7)	272.9	328.13	446.51
	Total Expenditure (5+6+7)	385.33	461.55	606.38
	Revenue Surplus/Deficit (1+2+3-5-6)	140.28	185.05	304.3
	Capital Surplus/Deficit (4-7)	-	-	-
	Overall Surplus/Deficit (1+2+3+4-5-6-7)	140.28	185.05	304.3

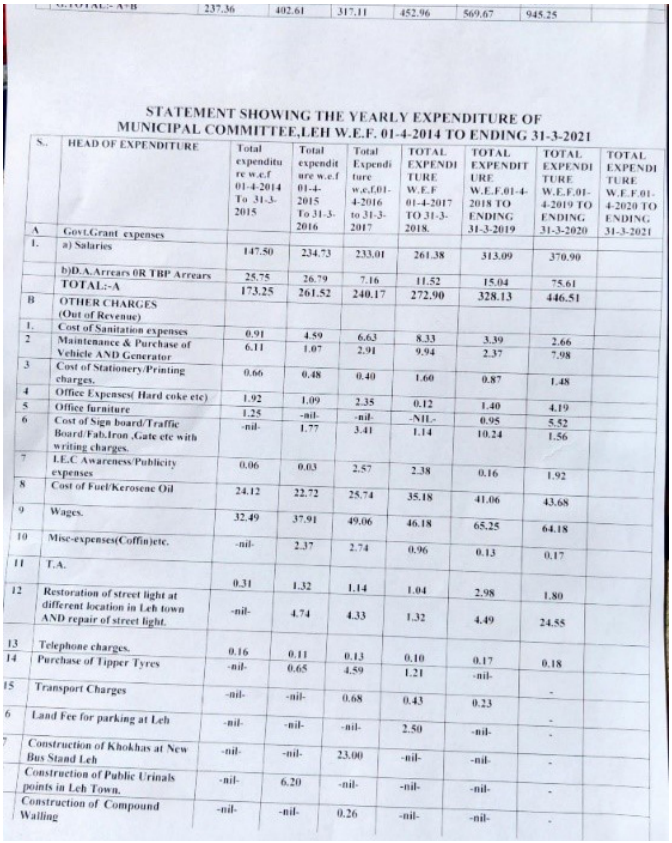
ULB's budget year marked for next 3 years under water and Sanitation	-	-	-
Name the schemes running in your city that includes sanitation/ water supply funding as one of their components?	Jal Jeevan Mission (approx. 370 Cr), UIDSSMT (approx. 70 Cr), Amrut water supply (approx. 5Cr), These are the ongoing projects. And there is no data for the following years for the PHE. SBM-nil, PMAY 87.66 Lakhs, (remaining amount Rs 32,756).		
Has the city received any funds from external funding agency for WASH projects (CSR?)			



STATEMENT SHOWING THE YEARLY INCOME OF MUNICIPAL COMMITTEE, LEH W.E.F. 01-4-2014 TO ENDING MARCH 2019.

S. No.	HEAD OF INCOME	TOTAL INCOME W.E.F 01-4-2014 TO ENDING 31-3-2015	TOTAL INCOME W.E.F 01-4-2015 TO ENDING 31-3-2016	TOTAL INCOME W.E.F 01-4-2016 TO ENDING 31-3-2017	Total INCOME W.E.F. 01-4-2017 TO ENDING 31-3-2018	TOTAL INCOME W.E.F 01-4-2018 TO ENDING 31-3-2019	TOTAL INCOME W.E.F 01-4-2019 TO ENDING 31-3-2020	TOTAL INCOME W.E.F 01-4-2020 TO ENDING 31-3-2021
1. A	Govt.Grant received from DULB Kashmir, Srinagar.							
	Salary & Leave Salary received from DULB Kashmir,Srinagar.	114.39	193.46	163.57	199.36	251.20	184.86	
2	6TH Pay arrears	-nil-	26.20	-nil-	-nil-	-nil-	-nil-	
3	I.E.C Activities conducted under Swachh Bharat Abiyan.	-nil-	-nil-	-nil-	0.89	-nil-	17.60	
4	Amount received from DULB Kashmir ,Srinagar for purchase of Mobile Toilet,	-nil-	-nil-	10.55	-nil-	-nil-	-nil-	
5	Disaster Management	-nil-	-nil-	-nil-	-nil-	-nil-	2.96	
6	14th F.C Award	-nil-	-nil-	-nil-	-nil-	-nil-	275.66	
	TOTAL:-	114.39	219.66	174.12	200.25	251.20	481.08	
B	NORMAL REVENUE							
1	Rent of Shops	47.83	68.41	59.21	65.50	55.05	93.74	
2	Rent of Khokhas	3.92	4.44	3.54	2.65	4.38	2.45	
3	Rent of Footpath	2.22	2.67	3.85	8.32	1.84	1.75	
4	Building permission fee	9.34	14.64	15.77	35.56	50.30	36.99	
5	Land premium	0.90	2.13	0.23 **	2.95	3.65	25.15	
6	Parking fee	2.94	11.17	10.10	23.37	15.10	21.21	
7	Lifting charges of Vehicles	0.61	1.07	0.72	1.51	0.86	2.57	
8	Entry Fee.	20.70	34.39	7.00 *36.83	44.50	50.26	22.75	
9	Trade Tax	23.25	24.49	25.31	30.50	28.64	41.07	
10	Food License fee	2.72	3.36	-	-nil-	-nil-	-nil-	
11	Birth and Death registration fee	0.63	1.69	1.12	1.54	1.85	5.44	
12	Advertisement/Hoading charges/Tower fee.	0.26	4.65	4.34	7.00	18.91	3.55	
13	Miscellaneous/Fines etc.	0.08	1.59	4.30	3.74	1.19	2.86	
14	Rent of Suction Machine (In Advance)	4.61	0.36	0.89	2.31	20.35	25.05	
15	Tender application form fee	0.40	2.38	0.34	0.40	0.74	0.06	
16	Interest from Bank	2.56	3.98	4.34	4.33	9.52	17.24	
17	User Charges.	-	1.53	-	16.62	55.83	57.83	
18	Tower Fee	-	-	-	-	-	7.85	
19	Cost of dust bin	-	-	1.48	0.14	-nil-		
20	Sanitation Charges	-	-	0.45	1.77	-nil-		

Figure 27: Municipal Finance (Income)



STATEMENT SHOWING THE YEARLY EXPENDITURE OF MUNICIPAL COMMITTEE,LEH W.E.F. 01-4-2014 TO ENDING 31-3-2021

S.	HEAD OF EXPENDITURE	Total expenditure w.e.f 01-4-2014 To 31-3-2015	Total expenditure w.e.f 01-4-2015 To 31-3-2016	Total Expenditure w.e.f.01-4-2016 to 31-3-2017	TOTAL EXPENDITURE W.E.F 01-4-2017 TO 31-3-2018.	TOTAL EXPENDITURE W.E.F.01-4-2018 TO ENDING 31-3-2019	TOTAL EXPENDITURE W.E.F.01-4-2019 TO ENDING 31-3-2020	TOTAL EXPENDITURE W.E.F.01-4-2020 TO ENDING 31-3-2021
A	Govt.Grant expenses							
1.	a) Salaries	147.50	234.73	233.01	261.38	313.09	370.90	
	b)D.A.Arrears 0R TBP Arrears	25.75	26.79	7.16	11.52	15.04	75.61	
	TOTAL:-A	173.25	261.52	240.17	272.90	328.13	446.51	
B	OTHER CHARGES (Out of Revenue)							
1.	Cost of Sanitation expenses	0.91	4.59	6.63	8.33	3.39	2.66	
2	Maintenance & Purchase of Vehicle AND Generator	6.11	1.07	2.91	9.94	2.37	7.98	
3	Cost of Stationery/Printing charges.	0.66	0.48	0.40	1.60	0.87	1.48	
4	Office Expenses(Hard coke etc)	1.92	1.09	2.35	0.12	1.40	4.19	
5	Office furniture	1.25	-nil-	-nil-	-NIL-	0.95	5.52	
6	Cost of Sign board/Traffic Board/Fab.Iron ,Gate etc with writing charges.	-nil-	1.77	3.41	1.14	10.24	1.56	
7	I.E.C Awareness/Publicity expenses	0.06	0.03	2.57	2.38	0.16	1.92	
8	Cost of Fuel/Kerosene Oil	24.12	22.72	25.74	35.18	41.06	43.68	
9	Wages.	32.49	37.91	49.06	46.18	65.25	64.18	
10	Misc-expenses(Coffin)etc.	-nil-	2.37	2.74	0.96	0.13	0.17	
11	T.A.	0.31	1.32	1.14	1.04	2.98	1.80	
12	Restoration of street light at different location in Leh town AND repair of street light.	-nil-	4.74	4.33	1.32	4.49	24.55	
13	Telephone charges.	0.16	0.11	0.13	0.10	0.17	0.18	
14	Purchase of Tipper Tyres	-nil-	0.65	4.59	1.21	-nil-		
15	Transport Charges	-nil-	-nil-	0.68	0.43	0.23	-	
6	Land Fee for parking at Leh	-nil-	-nil-	-nil-	2.50	-nil-	-	
7	Construction of Khokhas at New Bus Stand Leh	-nil-	-nil-	23.00	-nil-	-nil-	-	
	Construction of Public Urinals points in Leh Town.	-nil-	6.20	-nil-	-nil-	-nil-	-	
	Construction of Compound Walling	-nil-	-nil-	0.26	-nil-	-nil-	-	

Figure 28: Municipal Finance (Expenditure)

20	Construction of ATM Booth at D.C Office Complex Leh.	-nil-	-nil-	-nil-	-nil-	1.30	-
21	Chainling fencing of M.C Land near Truck Terminal Leh	5.87	-nil-	-nil-	-nil-	-nil-	-
22	Construction of ECO-Park of Municipal Committee,Leh	-nil-	-nil-	-nil-	9.97	-nil-	-
23	Dismantling charges of existing old toilet at Zangsti Leh.	-nil-	-nil-	-nil-	-nil-	0.73	-
24	Installation of submersible pump and bore well.	-nil-	-nil-	-nil-	-nil-	4.48	-
25	Honorarium	-	0.05	0.11	0.13	0.28	9.89
26	Purchase of Strychnine Tablets	1.20	-nil-	-nil-	-nil-	-nil-	-
27	Purchase of Batteries	0.22	-nil-	-nil-	-nil-	-nil-	-
28	Litigation / Council fee	-	-	0.05	0.02	0.06	-
29	Cost of Mobile Toilet	-	-	21.10	-nil-	-nil-	-
30	Cost of Uniform.	-	-	1.33	0.43	-nil-	0.16
31	Expenditure incurred during the Swatch Bharat Mission.	-	-	-	-	0.86	19.83
32	Cost of Hard coke.	-	-	0.85	0.76	-nil-	3.74
33	Hot & Cold	-	-	-	0.12	0.04	0.30
34	*Insurance of Vehicles.*	-	-	-	-	0.79	3.12
35	Dislodging Charges	-	-	-	1.89	14.36	20.92
36	Purchase of Laptop.	-	-	-	-	-	0.37
	Total:-B	75.28	85.10	153.38	125.75	156.60	217.20
	G.Total:-A+B+C+D	248.53	346.62	393.55	398.65	484.73	663.71

Figure 29:Municipal Finance (Expenditure)

10.2
Gaps and Issues

This section will identify gaps and issues related to Municipal finances with relevance to sanitation related sectors. The issues may include.

- poor cost recovery from water supply, public toilets, wastewater, and solid waste management,
- poor collection efficiency for cost of services,
- lack of budget for efficient O&M of existing assets,
- poor asset management,
- dependency on state / central support for implementing / improving sanitation services,
- excessive expenditure for managing solid waste,
- high establishment cost for managing sanitation services,
- lack of financial reforms (eg. double entry accounting) & monitoring mechanisms for transparency
- lack of incentive & punitive measures to increase fund flow.

Main issues of Municipal Finance:

- Poor cost recovery from water supply, public toilets, wastewater, and solid waste management.
- Poor collection efficiency for cost of services
- Lack of budget for efficient O&M of existing assets
- Poor asset management

11

Capacity Enhancement

11.1 Baseline Status

The ULB personnel have received trainings in solid waste management, water supply, wastewater, governance, project management, etc. Please refer below table for the trainings received.

Table 19: Training and Workshop under WASH

Solid waste management	Water supply/ Management	Wastewater management	Governance	Any other
Workshop on Solid Waste Management with the theme, 'Save Ladakh and Say No to Plastic Campaign' on 15th August 2019.	Workshop on 'Future of Water in Leh' 10th September 2018	Principles and Methods on the Laboratory Analysis of Septage and Wastewater' 24th to the 26th of June 2020	Future Leadership Programme (FLP) 1: Conducted from 26th – 28th December, 2018	Project Management Training Conducted on 11th December, 2019
Residential Workshop on Solid Waste Management for Municipal Committee Leh Safai Karamcharis 24th and 25th of September 2020	Workshop on Conservation of Water 16th September 2019	O&M training on Safety and hygiene of waste workers 1st December 2020	FLP 2: Conducted from 1st – 3rd August, 2019	Project Management Training – Conducted on 18th December, 2
Workshop on Cleanliness Drive under Swachh Bharat Mission in Leh 2nd October 2020	O&M Training on Ductile iron Pipes and Household Service Connection November 26, 2018		FLP 3: Conducted from 4th – 7th October, 2019	Project Management Training – Conducted on 10th July, 2020

Workshop on Solid Waste Management for Safai Karamcharis of Kargil 6th October 2020	Training on the continuous water supply to PHE officials from Leh and Kargil 12th to 14th December 2019		FLP 4: Conducted from 24th – 26th January, 2020	Project Management Training Conducted on 11th of august 2020
O&M training for MCL workers on source segregation of municipal solid waste July 24	Drinking water supply and management for Leh town - training on underground water management and water tariff structure 10th and 11th September 2020		FLP 5: Conducted from January 23 to 24, 20	
O&M training on SWM City-wide Planning Tools 2nd September 2020.	Drinking water quality analysis - Drinking water supply and management for Leh town 12th September 2020			
O&M training on Waste-Sorting in Leh City 2nd December 2020				

References

- Company, B. W. (2021, Feb 8). Fecal Sludge Management in Leh. (LEDeG, Interviewer)
- LEDeG. (2019). Water in Liveable Leh. Leh: Bremen Overseas Research and Development Association (BORDA).
- MCL. (2021, February 4). Existing WASH Situation in Leh. (LEDeG, Interviewer)
- PHED. (2021). Current Situation of Water Supply & Sewerage in Leh. (LEDeG, Interviewer)
- Strategic Planning Committee (SPC). (2020). Leh Vision 2030. Leh: Ladakh Autonomous Hill Development Council (LAHDC).

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