2nd Consultation Meeting of City Sanitation Task Force

21st February, Rotary Club, Shimla

Prepared for:

Municipal Corporation of Shimla

Technical Assistance:

German International Cooperation - ASEM

Prepared by:

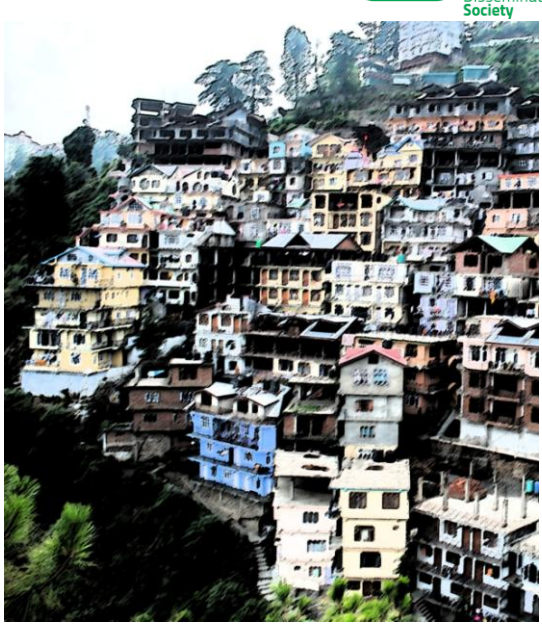
Consortium for DEWATS Dissemination Society

CEPT

1

What can you expect from us?

1. Where do we stand now?
2. What has been achieved?
3. Where do we want to go?



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The Queen of the Hills……

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3

…does not stand on top…

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RANK OF CITIES ON SANITATION 2009-2010:
NATIONAL URBAN SANITATION POLICY

Serial No	City	State	TOTAL
1	Chandigarh	CHANDIGARH	73.480
2	Mysore	KARNATAKA	70.650
3	Surat	GUJARAT	69.080
4	N.D.M.C.	DELHI	68.265
5	Delhi Cantt.	DELHI	61.367
6	Tiruchirapalli	TAMIL NADU	59.020
7	Jamshedpur	JHARKHAND	57.960
232	Vadodara	GUJARAT	33.625
233	Bilaspur	CHATTISGARH	33.606
234	Mira-Bhayandar	MAHARASHTRA	33.469
235	Ambattur	TAMIL NADU	33.460
236	Bhagalpur	BIHAR	33.406
237	Faridabad	HARYANA	33.252
238	Karnal	HARYANA	33.250
292	Shimla	HIMACHAL PRADESH	29.583
293	Puruliya	WEST BENGAL	29.567
294	Alappuzha	KERALA	29.480

Ranked 292 out of 423 Cities Surveyed in India

- **Rating based on**
  - **Access to toilets and level of open defecation**
  - **Collection, treatment, disposal and reuse of waste water**
  - **Collection, treatment, disposal and reuse of solid waste**
  - **Quality of water supply**

Shimla is in the brink of public health & environmental emergency and needs immediate remedial action

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Why is Shimla ranked No. 292?

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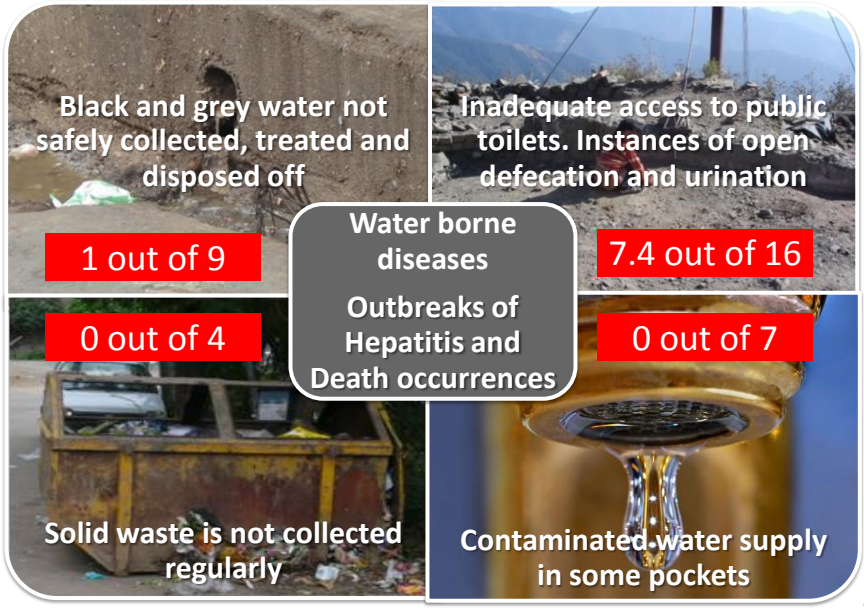

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National Urban Sanitation Policy

"All Indian cities and towns become totally sanitized, healthy and live-able and ensure & sustain good public health & environmental outcomes for all the citizens with a special focus on hygienic and affordable sanitation facilities for the urban poor and women"

- **Objectives of NUSP**
  - Awareness generation and behavioral change
  - Open defecation free cities
  - Integrated city wide sanitation

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City Sanitation Plan for Shimla

- **Objectives**
  - Adopt demand-based sanitation strategy
  - Use locally suitable methods, technology and materials
  - Encourage community and private participation
  - Ensure coordination between various departments
  - Ensure an optimum and coordinated use of funds
  - Promote novel ideas in mobilization of funds

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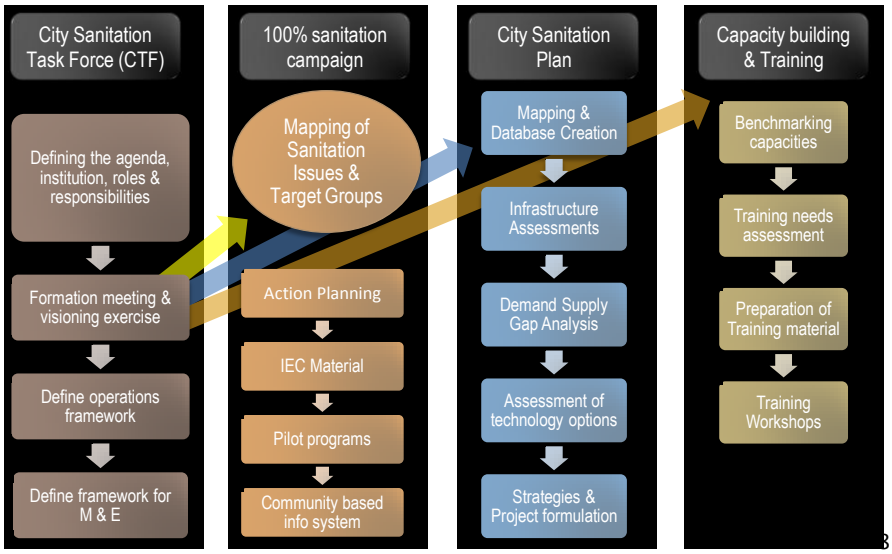
City Sanitation Plan for Shimla



Key Figures

Area until 2006:
19km²
Area until 2010:
28 – 29 km²

Wards: 25

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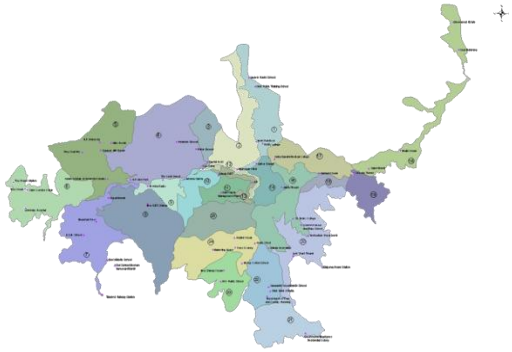

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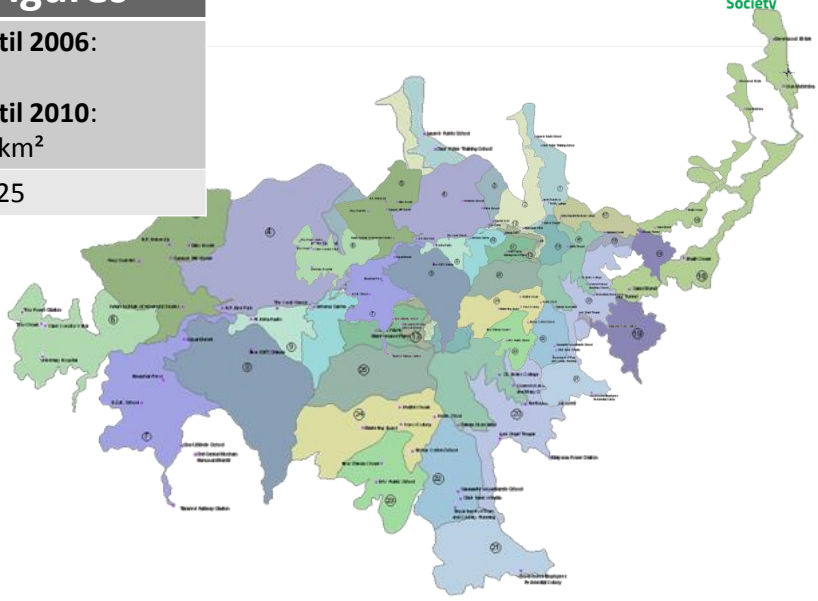

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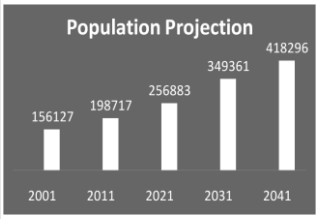
Demography

Present Population:
1,98,717 (resident)
76,000 (floating)
1,00,000 (floating estimated for 2021)

Average decadal growth rate: 35%



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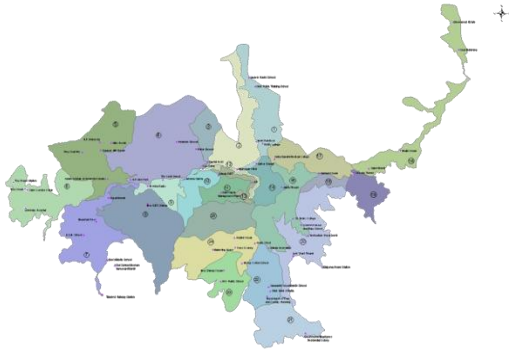

11

Demography

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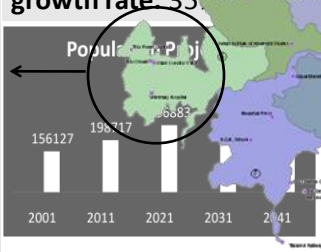
Growth Directions



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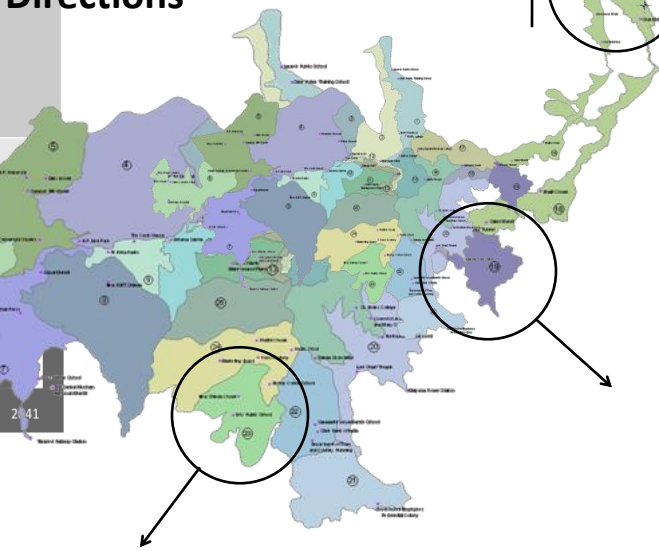

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Water Supply

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List of indicators	Max.Rating Points	Shimla Rating Points
Outcome-related indicators	**20**	**6.0**
i) Improved quality of drinking water in city compared to baseline	7	0.0
ii) Improved water quality in water bodies in and around city compared to baseline	7	0.0
iii) Reduction in waterborne disease incidence amongst city population compared to baseline	6	6.0

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Water supply

Department responsible: Irrigation & Public Health MCS – Water Supply and Sewerage Department

System age: 135 years

Water sources: 6 surface water sources (rivers, streams)

Designed capacity: 61 MLD

Coverage: 90%

Storage Reservoirs: 32
Capacity: 33.13 MLD

City divided into **14 Zones** for water distribution

Water supply coverage

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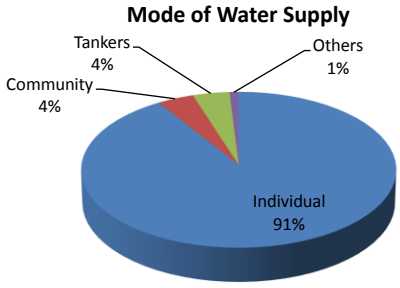

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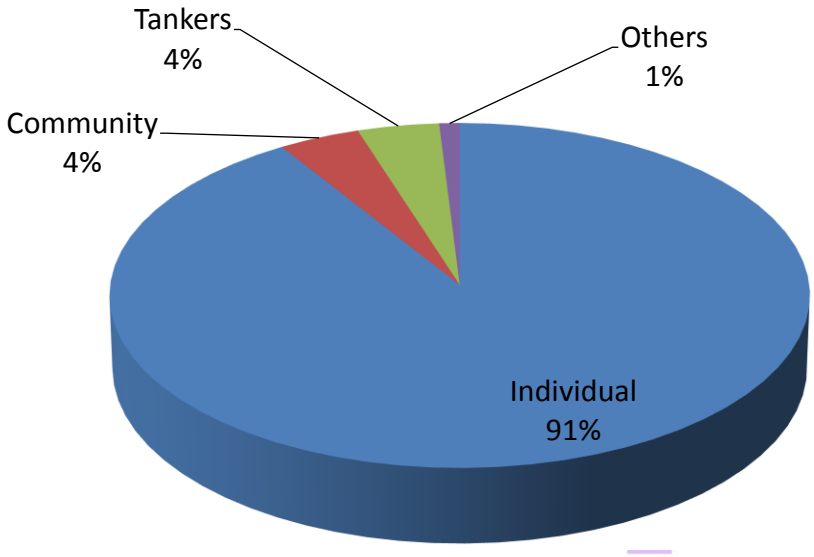
Mode of Water Supply



Water Supply
Demand Supply Gap

Duration of water supply
1 - 1.5 hours (daily), alternate days in lean period

Per capita supply:
85 – 110 lpcd

Water demand (2011)
38 MLD (normal)
50 MLD (tourist season)

Water Supply at source:
37.68 MLD (normal per.)
30.75 MLD (lean period)

Actual Supply after losses:
28 – 30 MLD (normal per.)
23 – 25 MLD (lean period)

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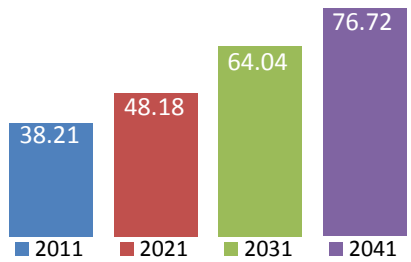
Estimated Water Demand 2011-2041 during normal days in MLD



Demand supply gap (2011)
Normal period - 7-9 MLD
Lean Period – 12-14 MLD

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Issues pertaining to Water Supply: MCS perspective

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Reducing water levels at source

High influx of tourists and other floating population affects the water supply to local residents

Poor metering system – loss in revenue

High unaccounted losses

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Issues pertaining to Water Supply: MCS perspective

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Shortage of man-power, lack of proper O&M

Ineffective land zoning and building regulations

Water theft and illegal connections

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Issues pertaining to Water Supply: Citizen perspective

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Proximity of sewer lines to water supply lines resulting in contaminated water supply

Erratic water supply – summer and tourist season

Low water pressure, inadequate supply

Hepatitis A & E due to contaminated water

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Proposed Interventions for Improvement Water Supply

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If 62 MLD water available at source	• Demand can be catered until 2025 (post unaccounted losses)
If proposed Pabber scheme (45 MLD) sanctioned	• Total supply will be 107 MLD • Will Cater the demand until 2041 (post unaccounted losses)
Detailed Project Report sanctioned for Water Supply	• Strengthening distribution system • Replacement of pumping mains • Additional water storage structures

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Sewerage System

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List of indicators	Max.Rating Points	Shimla Rating Points
Output-related indicators	**50**	**10.4**
ii)Proportion of total human excreta generation that is safely collected	6	0
iii)Proportion of total black wastewater generation that is treated and safely disposed off	9	1.0
iv)Proportion of total grey wastewater generation that is treated and safely disposed off		
v)Proportion of treated wastewater that is recycled and reused for nonpotable applications	3	0
Process-related indicators	**30**	**13.2**
ii)All sewerage systems in the city are working properly and there is no ex-filtration	5	2.5
iii)Septage/sludge is regularly cleaned, safely transported, and disposed after treatment, from on-site systems in the city	5	0.0

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Sewerage System

Department responsible: Irrigation & Public Health/ MCS – Water Supply and Sewerage Department

Sewerage generation: 27 – 28 MLD (present)

Network length: 221km
Coverage: 65%

Sewerage Zones: 6
Lalpani, Summer Hill, Snowdon, North Disposal, Dhalli, Sanjauli Malyana

Totu and Jutog not served by sewerage system

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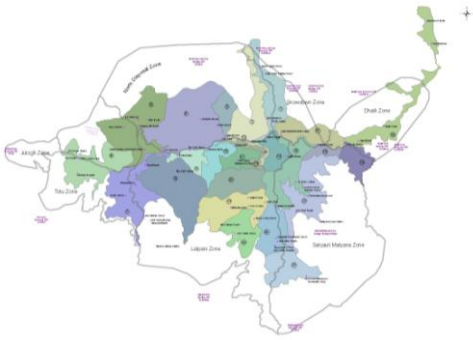
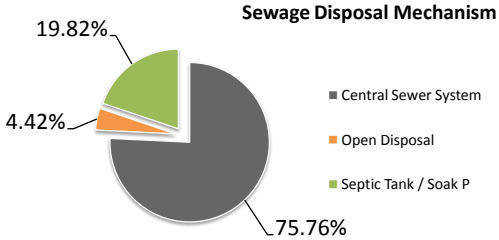


Sewage Disposal Mechanism



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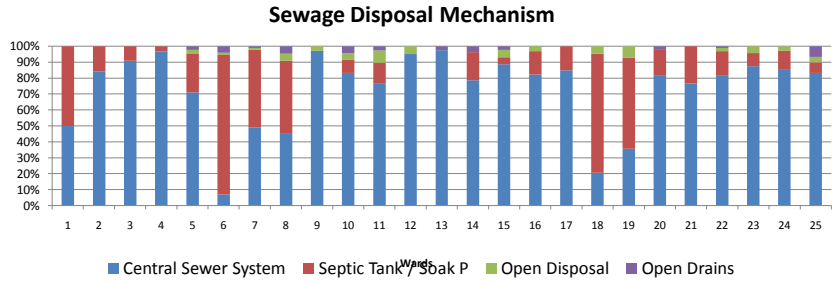

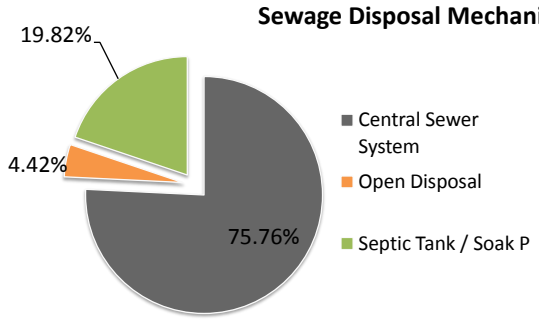

Sewerage System

Sewage treatment:
6 Treatment Plants

Treatment capacity:
35.63 MLD
(avg.inflow 3.5-4 MLD)

Sewerage Connections:
12,131 (40,000 properties)

Connection Charges:
Domestic – Rs.1000/seat
Commercial – Rs.3000/seat

Sanitation Cess:
Domestic – Rs.25/seat
Commercial – Rs.100/seat

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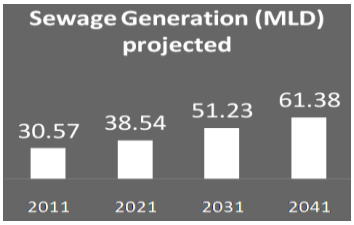
Septage Management

Treated wastewater discharged into open drains	Overflow from septic tanks discharged into open drains
Sludge dewatered through sludge filter press and dried in sludge beds	Desludging – 5 to 10 years
Dried sludge given to farmers for agriculture	Manual desludging
Reuse of treated water not practised	Sludge disposal into open drains
	Desludging cost – Rs.8000 – 10,000
	Desludging by private operators

Sewerage System
Demand Supply Gap

Sewer coverage:
Only 50 – 70%

Sewage Treatment
Existing STPs may cater to the needs until 2020. Additional treatment capacities needed to cater the demand until 2041



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Proposed Interventions for Improvement

PHASE I – Rs.53.02 Crores (Sanctioned)

- Rehabilitation of missing links/ worn out network
- Sewer coverage in Totu, Dhalli and Jutog
- Additional STP in Sanjauli-Malyana Sub zone II.
- New STP for Totu and Jutog Zone.
- Facilities like drying beds, centrifuge filter press, lab equipments, approach road and generator sets at all STPs

Phase II – Rs.92.81 Crores (Submitted for funding)

- Provision of sewerage system for uncovered areas within all eight sewerage zones.
- Provision of additional treatment capacities at North Disposal Sub zone II and Dhalli Sub zone II.

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Issues pertaining to Sewerage System: MCS perspective

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Non connectivity between old and new sewerage systems at several places

System is underutilised due to

Leakages in sewer system

Non connectivity of septic tanks with sewerage system in core and peripheral areas

Non-disposal of grey-water in sewerage system in core city area

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Issues pertaining to Sewerage System: Citizen perspective

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Lack of planning and execution of sewerage connections

Reluctance on part of people to take sewerage connections (cost factor)

Inadequate and improper facilities for septage management

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Issues pertaining to Sewerage System: Citizen perspective

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Mixing of wastewater with drinking water; transmission system is posing health risk

Open flowing sewage on downhill slopes creates nuisance and environmental degradation

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Public Toilets

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List of indicators	Max.Rating Points	Shimla Rating Points
Output-related indicators	**50**	**10.4**
i)No open defeciation		
. Access and use of toilets by urban poor and other unserved households (including slums)- individual and community sanitation facilities (4)	16	7.4
. Access and use of toilets for floating and institutional populations-adequate public sanitation facilities (4)		
. No open defecation visible (4)		
Process-related indicators	**30**	**13.2**
i) Monitoring and evaluation systems are in place to track incidences of open defecation	4	1.0

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Public Toilets

Department responsible:
Construction:
MCS – WSSD
O&M:
Health Department & Private operators

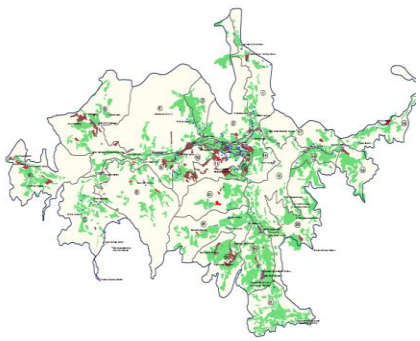
Public Toilets: 130 (94% in use),
523 WC, 196 Urinals

O&M of 25-30% public toilets by Private Operators

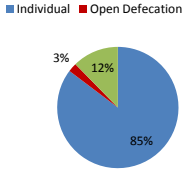
No Community managed Toilets

User Charges:
Rs. 2 (WC)
RS. 5 (Bathing)

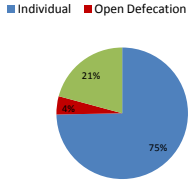
Accessibility to public toilets



Resident Population



Floating Population



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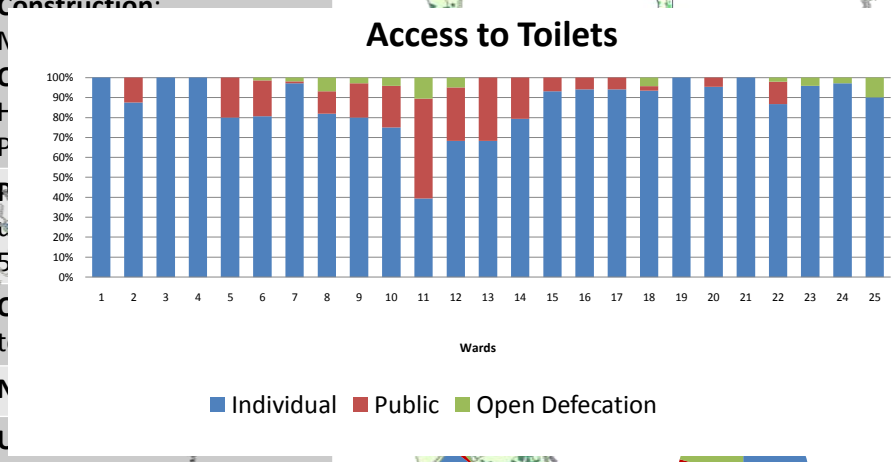
Public Toilets

Accessibility to public toilets

ACCESS TO PUBLIC TOILETS

Department responsible:
Construction:



Rs. 1 (Urinal/Indian style)
Rs. 2 (Western style)
RS. 5 (Bathing)

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Issues pertaining to Public Toilets: MCS perspective

Lack of adequate staff for O&M

Low level of motivation

Quality, accessibility, and O&M of public sanitation facilities are the key sanitation issues

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Issues pertaining to Public Toilets: MCS perspective

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Public Toilets are inadequate and not properly maintained → leads to open defecation and urination

Water storage in toilet blocks inadequate, further erratic water supply adversely affects regular cleaning and maintenance of facilities

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Solid Waste Management

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List of indicators	Max.Rating Points	Shimla Rating Points
Output-related indicators	**50**	**10.4**
vii)Proportion of total solid waste generation that is regularly collected	4	0
viii)Proportion of total solid waste generation that is treated and safely disposed off	4	0
ix)City wastes cause no adverse impacts on surrounding areas outside city limits	5	0
Process-related indicators	**30**	**13.2**
v)Solid waste management (collection and treatment) systems are efficient (and are in conformity with the Management of Solid Waste Rules, 2000)	5	3.2
vii)Sanctions for deviance on part of polluters and institutions are clearly spelt out and followed in practice	3	2.5

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Solid Waste Management

Department responsible:
MCS – Health Department
D2D Waste Collection:
SHEB (domestic waste)
Green Carpet (bio-medical)

Waste Generation:
Domestic - 70 MT/day
Bio-medical - 300kg/day

Collection Efficiency:
50 – 55 MT/day, 70-80%

Bin System: 206 dumper containers, 142 dust bins

Population covered:
80% under D2D collection

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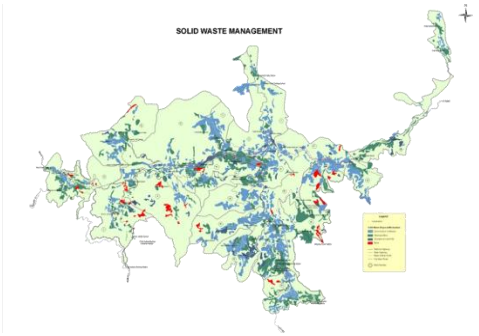
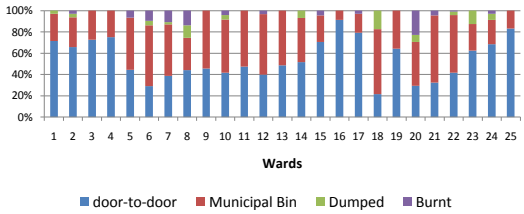


Solid Waste Disposal Mechanism



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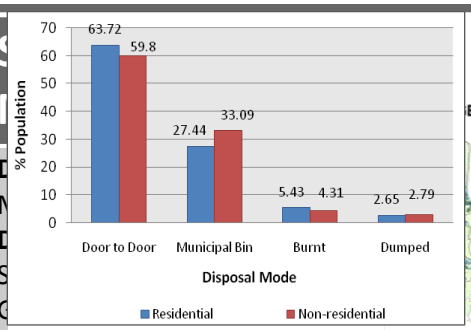

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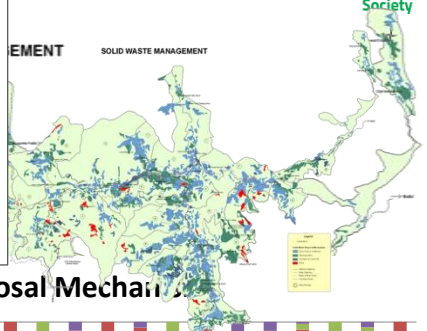

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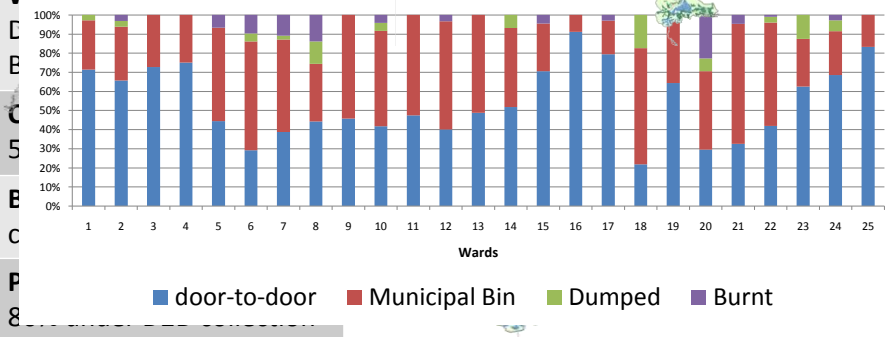

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Solid Waste Management

Waste Segregation
Not practiced

Street sweepers collect roadside waste and dump into bins

D2D waste collection through rags and cargo jeeps

Waste Treatment
Domestic – composting and land filling
Bio-medical - incineration

Use of polythene bags is banned

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Proposed Interventions for Improvement

Solid Waste Treatment Plant Darni Ka Bagicha: 100 MTD

Segregation of wet and dry waste, wet waste composted

Rejects disposed in landfill, recyclables collected by rag pickers

Landfill site to shift to Bharial. To be developed under BOOT model. DPR prepared.

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Issues pertaining to Solid Waste Management

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Difficulties in D2D waste collection and transportation due to topographic constraints

Storm water drains get choked due to random disposal of the solid waste

Inadequate and ill-maintained dumper bins - littering of waste during transportation

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Issues pertaining to Solid Waste Management

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Composting process at the treatment facility is not effective due to mixing of dry and wet waste

Waste segregation and D2D collection not effective - lack of awareness and willingness of the citizen and commercial establishments to cooperate and lack of staff

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Storm Water Drains

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List of indicators	Max.Rating Points	Shimla Rating Points
Output-related indicators	**50**	**10.4**
vi)Proportion of total storm water and drainage that is efficiently and safely managed	3	2.0
Process-related indicators	**30**	**13.2**
iv)Underground and surface drainage systems are functioning and are well-maintained	4	0.0

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Storm Water Drainage

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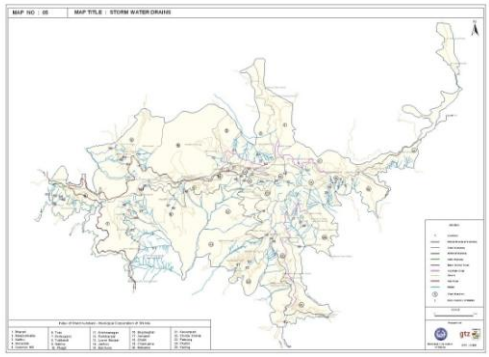
Department responsible: Public Works Department MCS

Drainage Network: 67 natural drains (Nallahs)

Nallah Breadth: 0.75 – 1.00m
Nallah Height: 0.6 – 0.9m

Total Nallah Length: 20km



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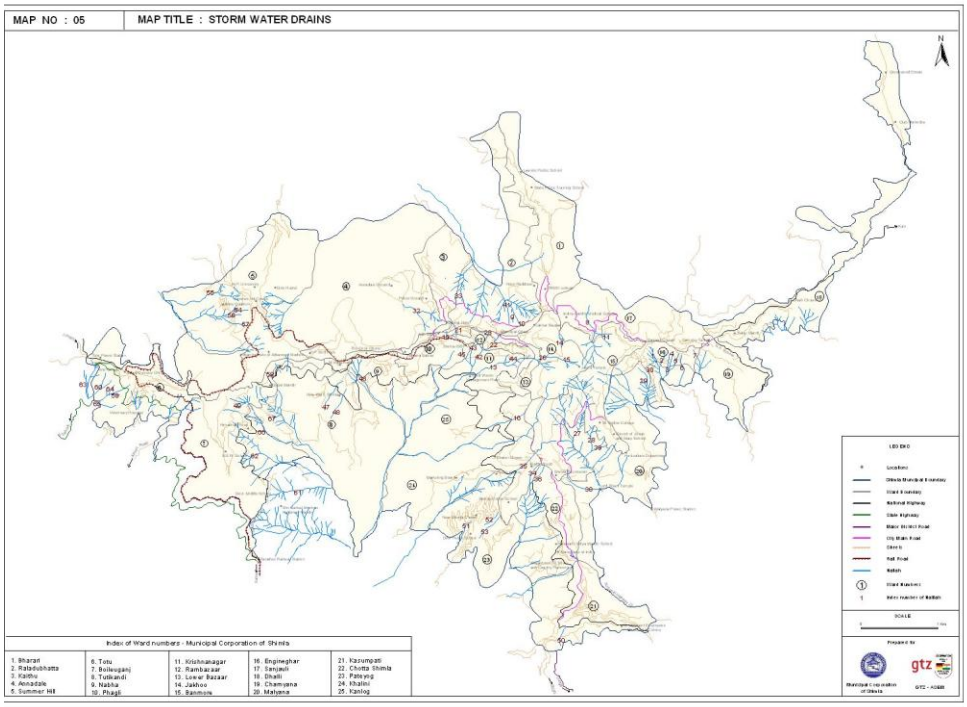

Issues pertaining to Storm Water Drains

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Poor O&M of storm water drains along the major roads, streets and natural drains

Encroachment of natural drains and random dumping of solid waste resulting in blockages, causing flooding in monsoon periods. Major cause of concern in core city areas like Ram Bazaar and Lower Bazaar.

In periphery areas dumping of waste on hill slopes and natural drains causes nuisance and contamination natural water streams in downstream areas

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Issues pertaining to Storm Water Drains

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High water flows cause erosion. Water flowing out of nallahs, causing problems in nearby areas → MCS needs to frequently repair

Siltation of natural drains due to overflow from septic tanks and soak pits.
Unpleasant odour.

Use of storm water drains for laying water pipes and other utilities results in blockages → possibility of contaminated water increased

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Consortium for DEWATS Dissemination Society

We Acknowledge

- The Municipal Corporation of Shimla
- GIZ
- And all the citizens who have taken the time to be here

Thank you

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Group Discussion on Recommendations

Consortium for DEWATS Dissemination Society

- Technical
- Financial
- Capacity Building
- Pro Poor

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