



CITY SANITATION PLAN FOR SHIMLA



MESSAGE

FOREWORD

We are pleased to provide some introductory thoughts to this document, which arrives at an important turning point in the development phase of City of Shimla. We would like to express our deep appreciation for the initiative and support given by GIZ in the preparation of the City Sanitation Plan. This document is a succinct overview of the City Sanitation Plan for City of Shimla in order to recognize the stress areas in the sanitation sector and establish priorities in the intervention areas along the defined strategic guidelines.

City Sanitation Plan is a 30-year strategic framework to deliver on the long-term vision we have set for the sanitation sector in the City of Shimla. This framework forms the basis on which the City Administration will work with stakeholders - including other spheres of government, service providers and beneficiaries - in our common mission to overcome the vast gaps in sanitation services. The process culminating in this framework included in-depth research and wide-ranging consultation with city stakeholders. Building on the objectives set out in the National Urban Sanitation Policy of 2008, the technical team under GIZ conducted 6 months of data-driven research which resulted in the release of the preliminary draft 'Shimla Status Report' document for stakeholders' comment in August 2010. A two-month period allowing for stakeholders' comment and consultation followed. Post validation of the data presented in the preliminary draft, the draft 'City Sanitation Plan' was released in September 2011 followed by stakeholder consultations and subsequent finalization of the strategic framework. Today, we can confidently say that all interested parties had a meaningful opportunity to contribute to the adopted framework.

The strategic plan reflects the thoughts, feelings, ideas, and wants of the stakeholders of the city and moulds them along with the city's purpose, mission, and regulations into an integrated document. The final section of this document can serve as a guide to the implementation process for the stakeholders. This document is not a static document as this can be quickly adjusted with additional scenarios that may occur. With this document, and with the community-defined commitments that lie behind it, we are enabled to establish a clear case for a strategic choice that presents itself in relation to a current or predicted sanitation gap, given the balanced view of the range of options available coupled with the timeframes within which each explicit strategic choice needs to be made.

We consider the evolving agenda based on the document to be ambitious, but achievable. The framework is ambitious because it puts forward an uncompromising vision of sanitation services which are in tune with the needs of our city and the real needs of community, whilst at the same time striving to come as close to financial self-sufficiency as possible. This means that sanitation sector must deliver improved basic services and better services to all users. Furthermore - since we are operating in a context of limited national resources - it also means that these objectives must be reached at the lowest possible system cost, that services must aim to be self-sustaining and that they must generate the necessary reinvestment to meet future customer requirements.

Ambitious though these goals may be, they are achievable because the framework is based on current realities and judiciously forecasted trends. It spells out the roles of government, private service providers and customers and sets clear targets. The role of city administration is to put appropriate institutions in place and define clear rules to regulate investment and operations in an attempt to achieve the agreed goals for the sanitation sector.

This strategic framework represents the first foundation of a new collective process which will breathe life into our long-term vision and strategy and will guide all our collective actions as we strive to meet the needs of the city and our community. Wide ownership of the process will ensure that the strategy remains dynamic and adaptable as it is continually enriched and enhanced by the experience of implementation. It is with a great deal of satisfaction that we declare this strategic framework to be the action agenda for the 'Sanitation Sector'. This agenda is the basis on which the initiatives must be evaluated, especially by the most important stakeholder in the sanitation sector - the informed and demanding customer.

The formal implementation of this agenda starts in earnest today with the release of this strategy document and continues for the next 30 years. Along the way we intend to address the national goals to which government is committed and meet the needs of the community we have chosen to prioritise.



Madhu Sood

(Madhu Sood)

Mayor

Municipal Corporation, Shimla



Dr M P Sood

(Dr M P Sood)

Commissioner

Municipal Corporation, Shimla



Introduction

Government of India launched National Urban Sanitation Policy (NUSP) in 2008 with the vision that – ‘all Indian cities and towns become totally sanitized, healthy and liveable and ensure and sustain good public health and environmental outcomes for all their citizens with a special focus on hygienic and affordable sanitation facilities for the urban poor and women.’

The overall goal of this policy is to transform India into ‘community driven, totally ‘sanitized’, ‘healthy’ and ‘liveable’ cities and towns’ while focusing on the specific goals of **Generating Awareness & Promoting Behaviour Change; Achieving Open Defecation Free Cities and Integrating City Wide Sanitation.**

In order to achieve the vision of NUSP, a set of key policy issues have been identified that must be addressed earnestly – poor awareness, social and occupation aspects of sanitation, fragmented institutional roles and responsibility, lack of an integrated city wide approach, limited technology choices, constrained access of sanitation for the un-served and the poor, and lack of demand responsiveness.

NUSP provides the draft framework that supports the states in developing their own ‘*State Sanitation Strategies*’ to achieve the goals set out in NUSP. The state sanitation strategies shall be with respect to each of their unique sanitation, climate and physiographic factors, economic, social and political parameters and institutional variables. States will need to determine time-frames and deadlines to achieve the goals mentioned in the NUSP and will need to spell out a detailed roadmap, including the incremental targets for achievement of goals. All such steps are spelt out in and operationalized under the ‘*City Sanitation Plans*’. City Sanitation Plan is a planning document that shall achieve the step wise implementation of the goals spelt out in NUSP.

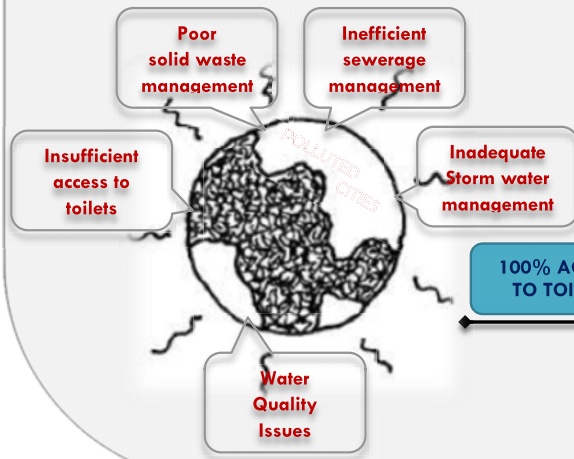
The vital step in accomplishing the objectives of CSP is to elevate the consciousness about sanitation in the minds of municipal agencies, government officials, and most importantly amongst people of the city. ‘*City Sanitation Task Force*’ comprising of the representatives from the aforementioned sections in the city is the instrument for achieving the same. The CTF shall be the driving force behind the preparation of CSP as well as creating awareness amongst the city stakeholders.

Government of India has instituted award schemes at different levels to mobilize cities and their participation in the promotion of sanitation in urban areas per the guidelines of NUSP, and recognise the excellent performance in this area – ‘*National Awards*’, and ‘*Special and Honorary Awards*’ at state level.

STEP-WISE APPROACH TO REALIZE THE VISION OF NUSP

VISION

“All Indian cities and towns become totally sanitized, healthy and liveable and ensure and sustain good public health and environmental outcomes for all their citizens with a special focus on hygienic and affordable sanitation facilities for the urban poor and women.”



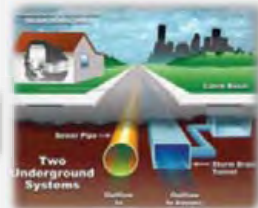
100% ACCESS TO TOILETS

EFFICIENT SEWERAGE MANAGEMENT

100% Sewered Cities

ADEQUATE STORMWATER MANAGEMENT

100% Black water Treatment



100% Grey water & Storm water Treatment



100% Access To Toilets & Open Defecation Free Cities



Restore Water bodies & Develop Green Cities



EFFECTIVE SOLID WASTE MANAGEMENT

GOOD WATER QUALITY



Note : This illustration demonstrates the approach to achieve 100% sewerage management system. The activities are not necessarily in the order of time, they could be performed either simultaneously or in succession.

Shimla City is the capital of Himachal Pradesh, one of the popular tourist destinations in India. As per 2011 census, Shimla is the only Class I City in Himachal Pradesh. Shimla has 25 wards; and the urban core and the urban fringe areas of the city fall under the jurisdiction of Municipal Corporation of Shimla (MCS), while Shimla Planning Area (SPA) represents the settlements and rural hinterland having potential for urbanisation. For the purposes of this project only the area under MCS has been considered



The topography of Shimla is characterised by rugged mountains, steep slopes and deep valleys; there is a wide variation in the city's elevation ranging from 1500 m to 2454 m. The city has witnessed the merger of New Shimla, Totu (including some part of Jutog) and Dhalli areas with the MCS resulting in an increase of area as well as population. The sanitation requirements of the city have not been met with and the consequence – 'City plagued with sanitation problems as illustrated in the Fig.1'

Despite being a popular and most visited tourist destination, Shimla is sadly categorized under 'critically polluted area' by Central pollution Control Board. In the sanitation ratings conducted as per National Urban Sanitation Policy (NUSP), Shimla ranked 292 out of 423 cities with a score of 29.6/100 and falls in the 'red category'.

The reason for this condition is the lack of sanitation infrastructure to meet the demands of the growing population, besides the lack of appropriate operation and maintenance systems for the existing sanitation infrastructure and the essential community awareness and support.

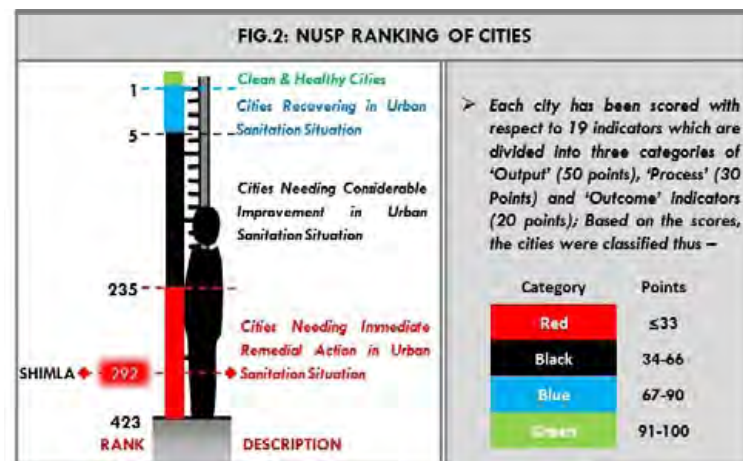
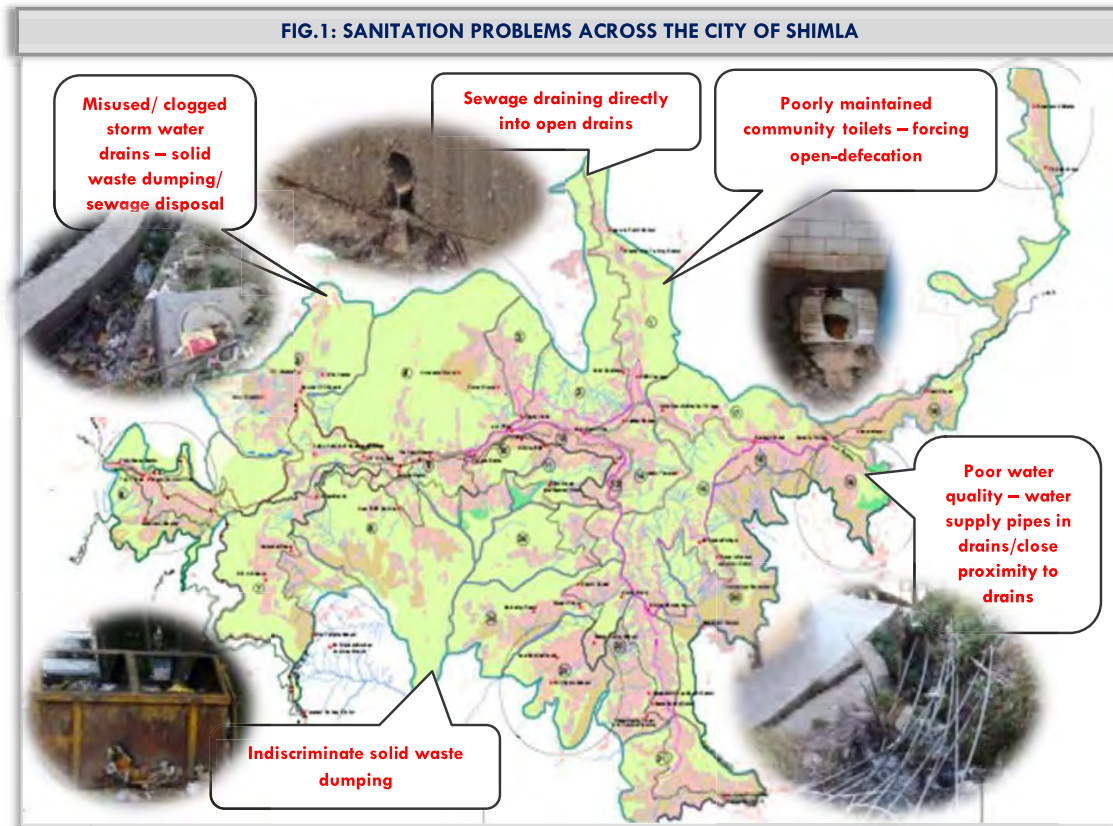
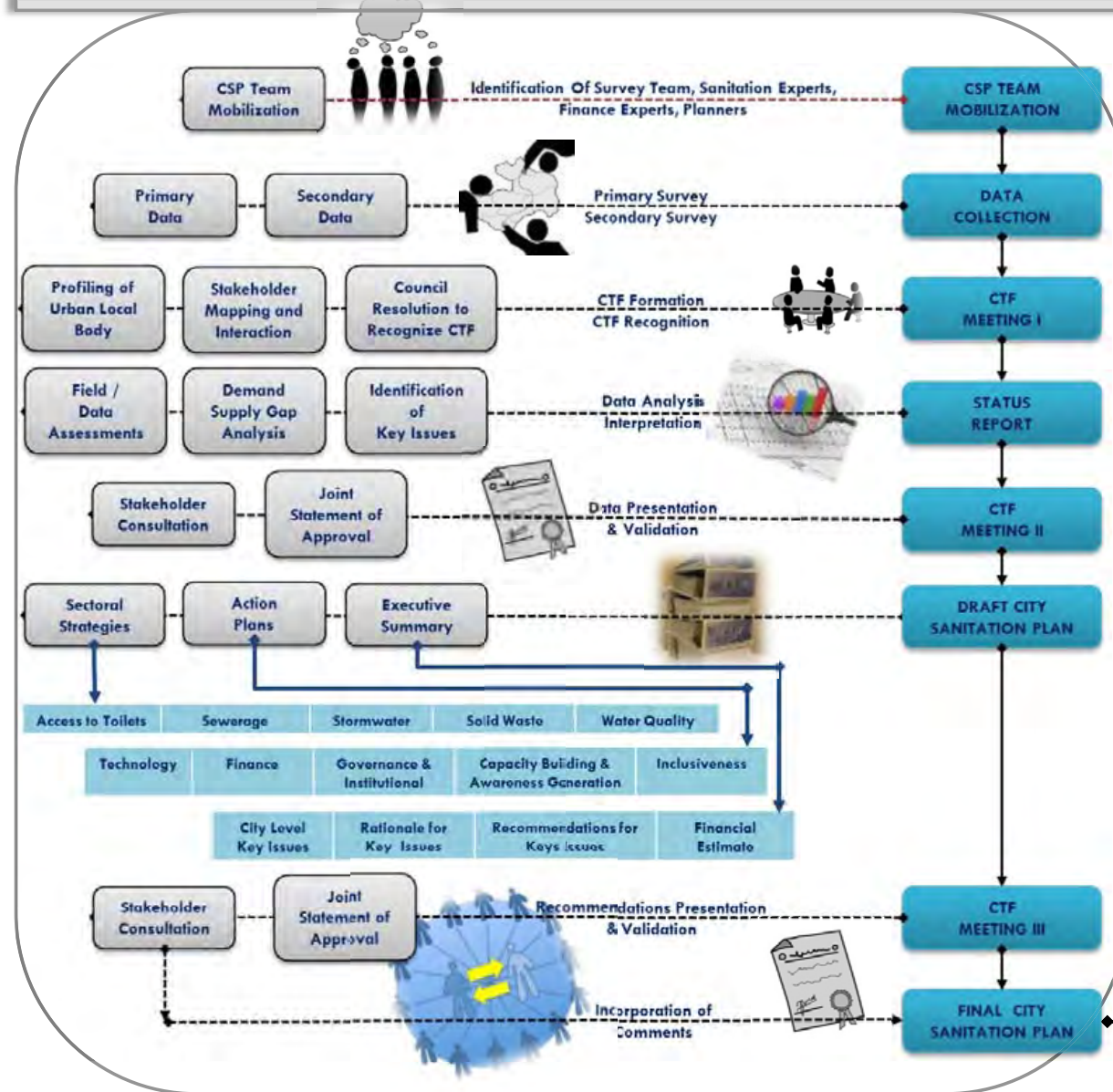
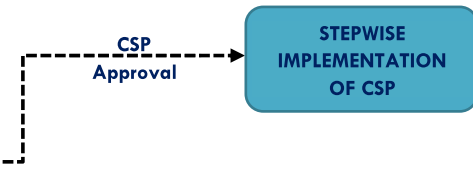


FIG.3: APPROACH AND METHODOLOGY – DEVELOPMENT OF CSP



The approach and methodology adopted for the development of CSP is depicted in Fig.3





Input Variables

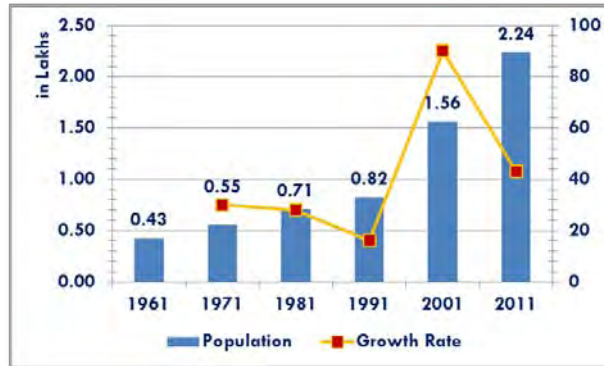
The City Sanitation Plan should include baseline information related to sanitation and sanitation related services in the city. It is required that all information cited will refer to the source of information in order to assure their quality and authenticity (Source reliability). The quality of the baseline information should be preferably from (a) Official documents, (b) Reports published by research Institutions/Universities/Colleges, (c) Primary surveys (d) Individual Research (publications, etc.) and NGO reports.

The baseline information is primarily categorized into primary and secondary information. The primary information is gathered through a series of field surveys and the secondary information is consolidated from several available official documents/reports/interviews/research publications.

The primary and secondary data together represent the following sets of information – (a) General Information – location, physical, demographical and land-use aspects of the city (b) Technical Information – water and sanitation infrastructure facilities and their current performance; (c) Institution and Governance – existing legislative framework, roles and responsibilities for urban infrastructure services; (d) Financial – urban finances on urban infrastructure services; (e) Capacity Enhancement – current capacities of the ULB and on-going activities for capacity enhancement; (f) Health and Hygiene – previous health hazards/epidemics related to sanitation and current health and hygiene practices.

1. PRESENT POPULATION

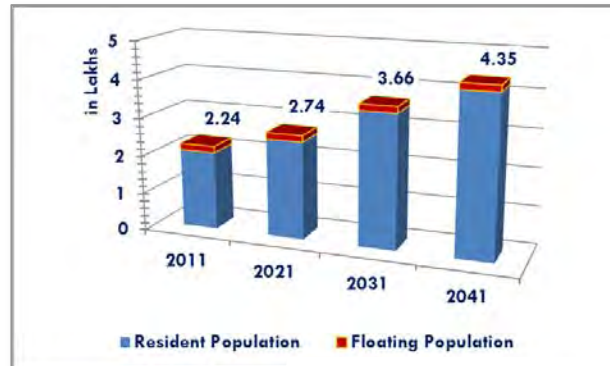
The jurisdiction of MCS increased from 19.55 sq. km in 2001 to 35 sq km in 2011, due to merger of New Shimla, Totu and Dalhi areas, with a corresponding increase in population by 12000 persons. The average decadal percentage increase of Shimla's population has been about 35%; however, the pattern of population growth has not been uniform. Apart from the permanent population, floating population and tourists constitutes a sizable proportion in Shimla City. According to the estimates of Town and Country Planning Department, Shimla had about 56,000 persons in 2001 as the floating population (tourists + service sector) which has increased to 76,000 in 2011 (as per Census 2011 analysis).



Source: Census & CSP Projections

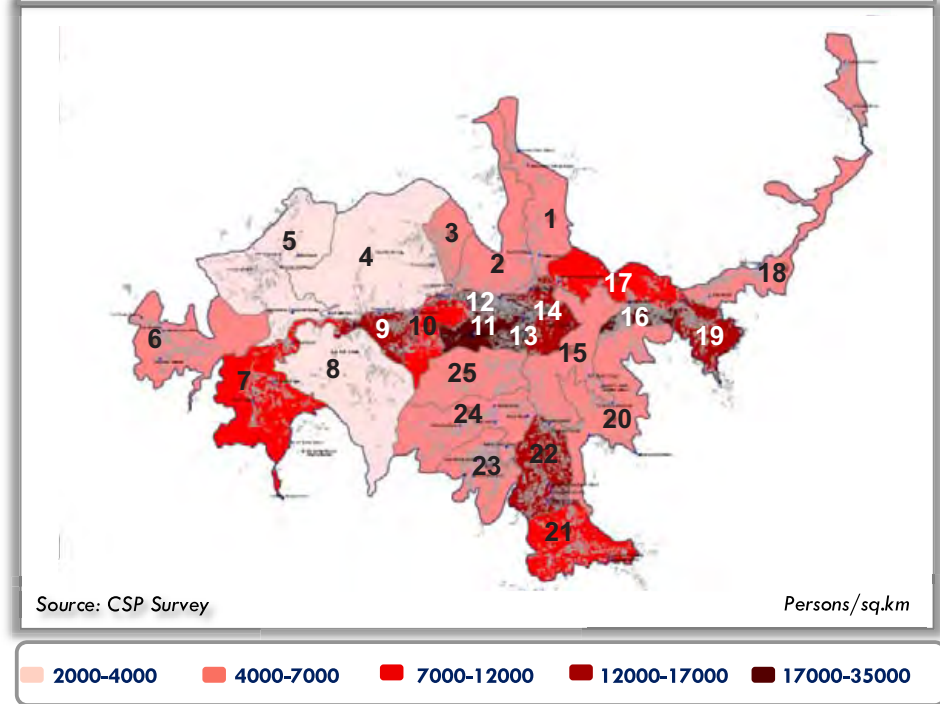
2. FUTURE POPULATION

The location of state administration and other government offices, development of Shimla as educational and academic centre, tourism growth and development of service sector are the driving factors for the population growth. The floating population mentioned above is based on the peak tourists as recorded in the hotels registered under Himachal Pradesh Tourism Department. The same has been projected for the next 30 years. However the population engaged in service sector has not been considered for assessment of total floating population.



Source: CSP Projections

FIG.4: WARD-WISE EXISTING POPULATION DENSITY



Source: CSP Survey

Persons/sq.km



Status Indicators

The Service Level Benchmarks (SLB) established by Ministry of Urban Development, Government of India shall enable the comparison of the existing levels of service in various sectors against the defined key parameters; and hence ascertain the performance gaps. The gap assessment shall help the authorities to introduce improvements through the sharing of information and best practices, ultimately resulting in creation and sustenance of better services to the citizens.

The eight key parameters thus identified for the purpose of service level benchmarking in the sectors of water supply, sewerage and solid waste are as state below – (a) coverage of service; (b) collection efficiency of service network; (c) adequacy of treatment systems; (d) quality of treatment systems; (e) extent of reuse and recycle of the solid waste generated/waste water; (f) efficiency in collection of service charges; (g) extent of cost recovery; and (h) efficiency in redressal of customer complaints.

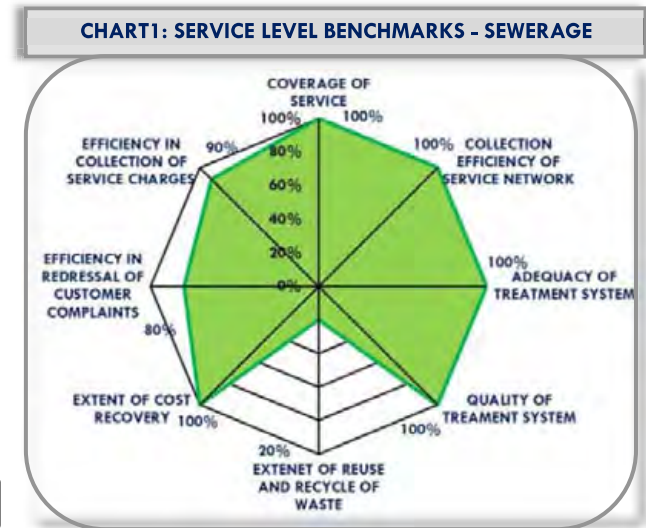
In addition to the service level benchmarking, Government of India has instituted the rating of cities based on urban sanitation indicators, under the guidelines of NUSP. The first round of rating of cities was conducted between December 2009 and April 2010 under the guidance of the National Advisory Group on Urban Sanitation. Each city has been scored under 19 indicators which are divided into three categories of 'Output' (50 points), 'Process' (30 points), and 'Outcome' (20 points) Cities need to utilize these results to prioritize the areas of improvement by developing and implementing city sanitation plans as well as raise the awareness of city stakeholders. This rating exercise also sets the baseline to measure the achievement in the future

SERVICE LEVEL BENCHMARKS

The Service Level Benchmarks (SLB) have been established for the sectors of Water Supply, Sewerage, Solid Waste and Storm Water. However, the attempt to compare the service levels against the 8 key parameters, as has been initiated only in the sectors of water supply, sewerage and solid waste, Chart 1 indicates the eight key parameters against which the service level benchmarking has been executed in the sewerage sector. The spider chart indicates the desired level of service in the sewerage sector against the eight key parameters.

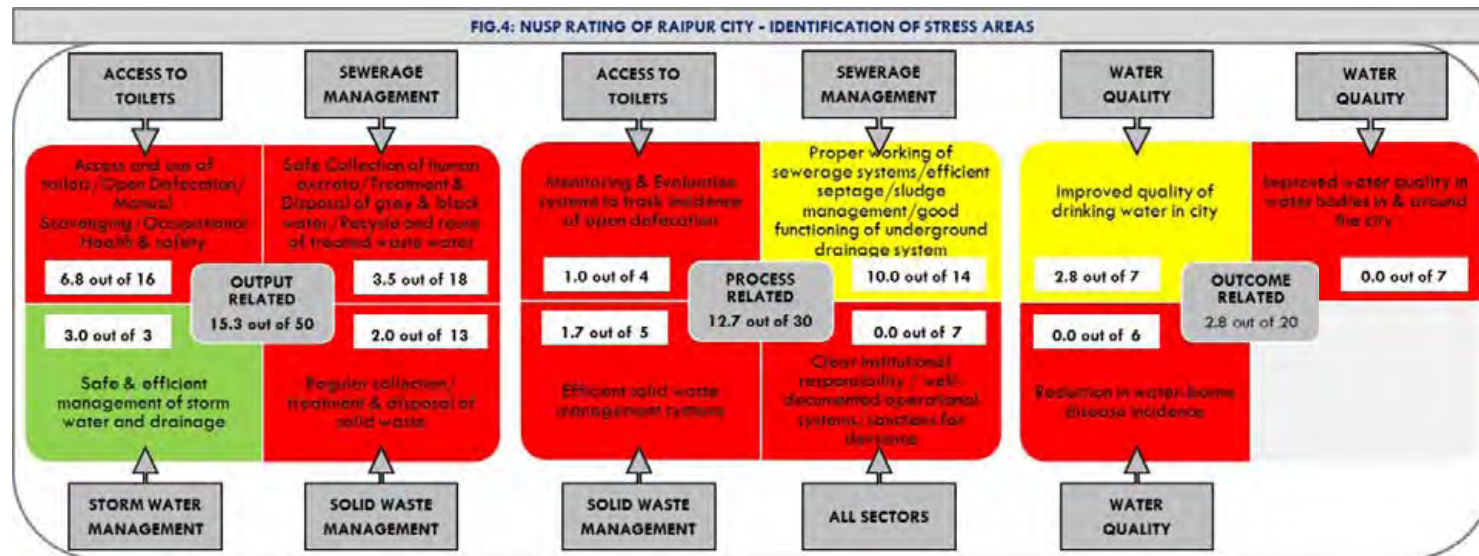
The following sections present the assessment of the existing service in the aforementioned sectors vis-à-vis the desired level of service established by the Ministry of Urban Development, Government of India.

Comparison of existing levels of service in the storm water sector has been possible against 2 key parameters only.



■ DESIRED LEVEL OF SERVICE

RESULT FOR RAIPUR CITY ON NATIONAL URBAN SANITATION RATING



The rating as depicted in the figure below serves as baseline for an objective self-assessment of the cities from time to time, and highlights the stress areas in the sanitation sectors

■ NEEDS IMMEDIATE ATTENTION
 ■ NEEDS MODERATE ATTENTION
 ■ IN FAIRLY GOOD CONDITION

1. ACCESS TO TOILETS

Shimla City only has public toilets, there are no community toilets. The resident population uses the public toilets. Operation & Maintenance of public toilets is an issue of major concern. The surveys reveal that approximately 15% of the total city population is dependent on public toilets for their daily sanitation needs and 2% of the residential and floating population defecates in the open. Lack of staff and irregular water supply for cleaning activities and inefficient monitoring mechanism is responsible for poor O&M of public toilets. The lack of a dedicated unit solely responsible for O&M of all public toilets complicates the management of the same and results in adverse conditions impacting the public health.

Key Issue 1 –
'Inadequately designed, operated, & managed public toilets for the use of community as well as floating population, resulting in open defecation & severe health impacts'



Bad Condition of Toilets

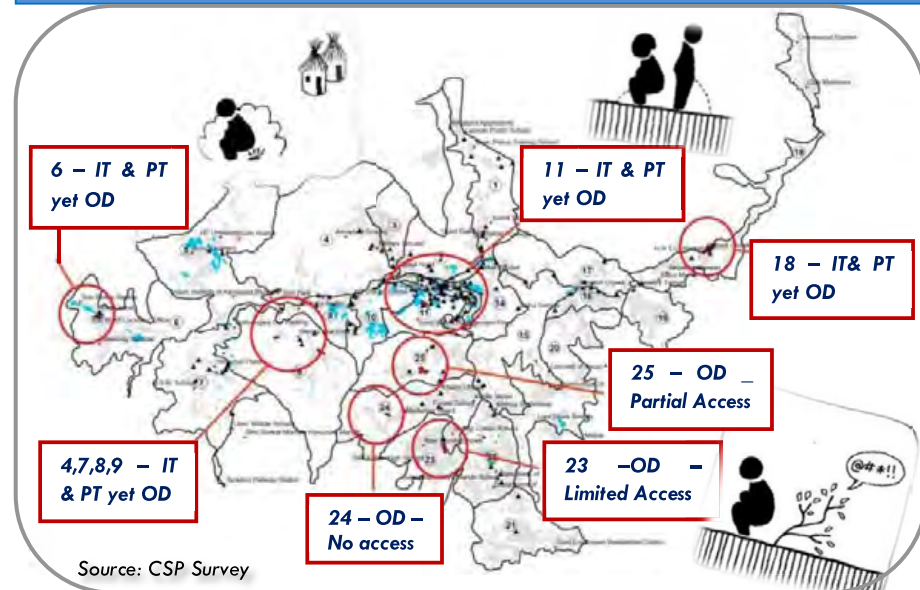
Poorly Maintained Public Toilet

The public conveniences are not convenient to access by residential as well as floating population. The design of the toilets is neither gender sensitive nor considers the needs of physically challenged and elderly population. The communities are not willing to pay user charges or to take the responsibility of O&M owing to lack of incentives and framework to motivate the citizens to adopt systems. The present public outreach and education programs are ineffective. Wards 8, 9, 10, 11 & 12 have both individual toilets as well as public toilets yet there is considerable open defecation. In these wards, both the residents as well as transient population defecate in the open leading to adverse health impacts.

Key Issue 2–
'Inadequate access to community toilets' resulting in open defecation & severe health impacts'

Status Indicators

WARDS WITH OPEN DEFECTION



Source: CSP Survey

IT – INDIVIDUAL TOILETS PT – PUBLIC TOILETS OD – OPEN DEFECTION

WARD-WISE CITY LEVEL ACCESS TO TOILETS



Source: CSP Survey

Factfile:

- 130 public toilets in the city
- 1 toilet seat per 190 persons in the residential area;
- 1 seat per 80 persons in the commercial area;
- 25% of the public toilets are maintained by Sulabh International

2. SEWERAGE MANAGEMENT

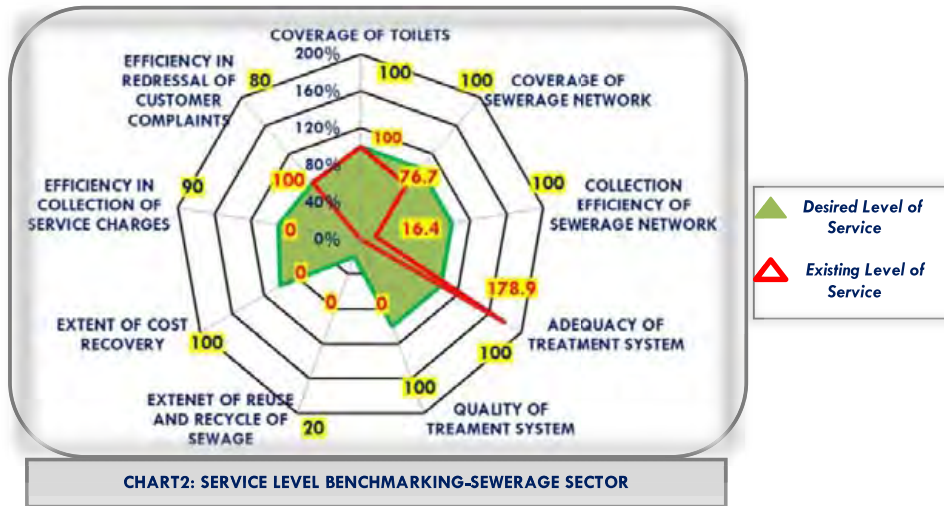
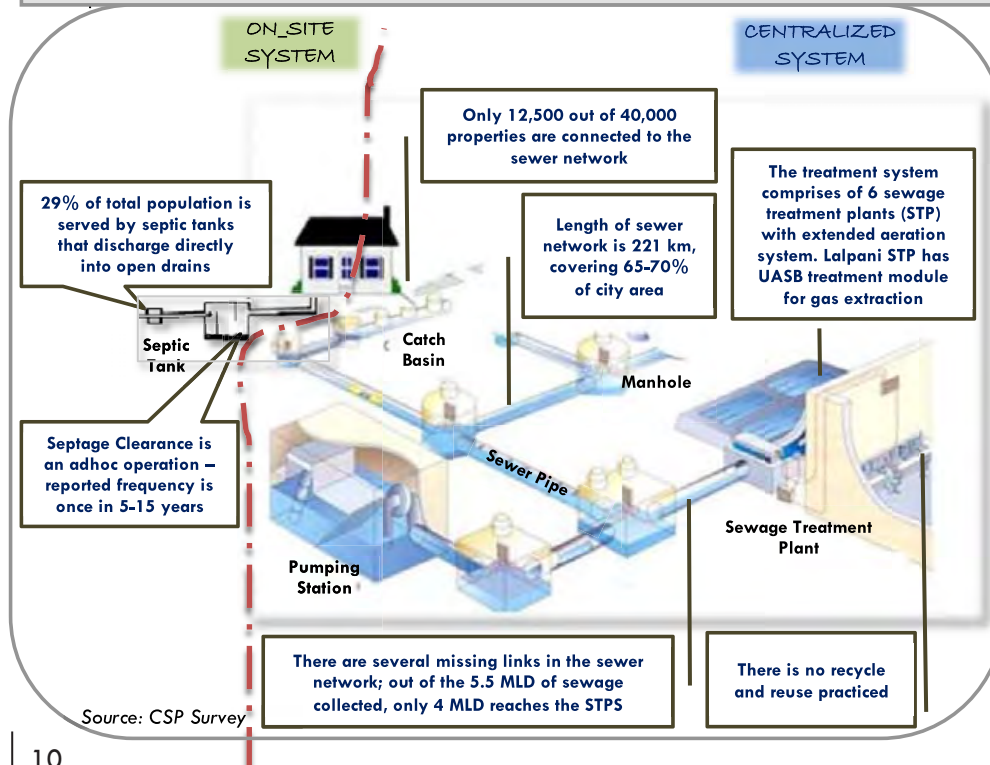


CHART2: SERVICE LEVEL BENCHMARKING-SEWERAGE SECTOR

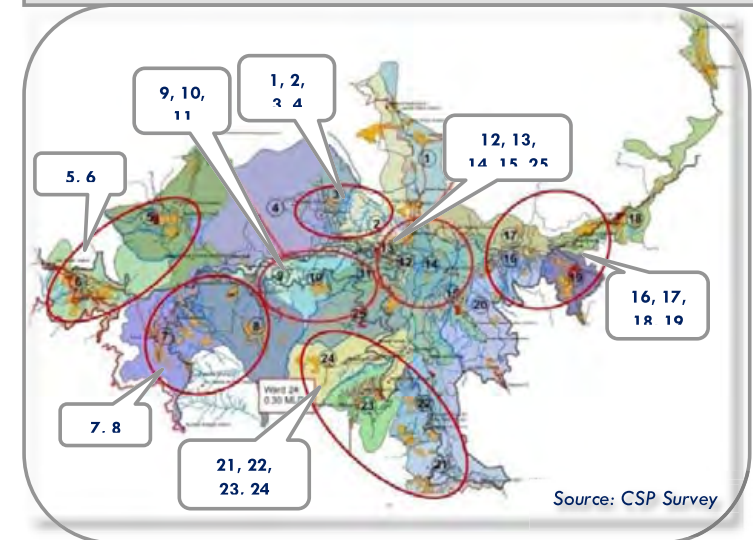
The sewage management system is deficient in the city of Shimla which is evident from the fact that roughly 29% of the properties are connected to unscientifically designed septic tanks, part of which overflow into the open drains / areas ultimately draining into the natural water bodies and/or polluting the groundwater. There are no systems in place to approve and certify the design of the septic tanks constructed by the residents. There is no formal septage management system, managed wholly by informal private operators and the desludging interval is high, ranging from 5-15 years. The prevalent practice of disposing the effluent from septic tanks into open drains pollutes the downstream areas and adversely impacts the public health.

Key Issue 3-
'Unscientific disposal of faecal sludge and septage from STP's and septic tanks into open drains causes adverse impacts in downstream areas'

DESCRIPTION OF EXISTING SEWERAGE MANAGEMENT SYSTEM



WARDS WITH SEPTAGE MANAGEMENT ISSUES



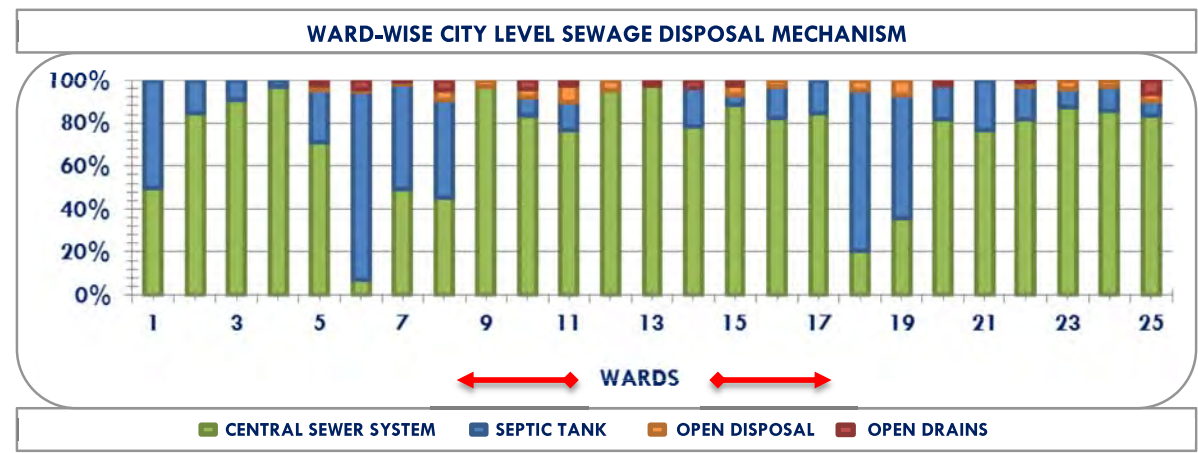
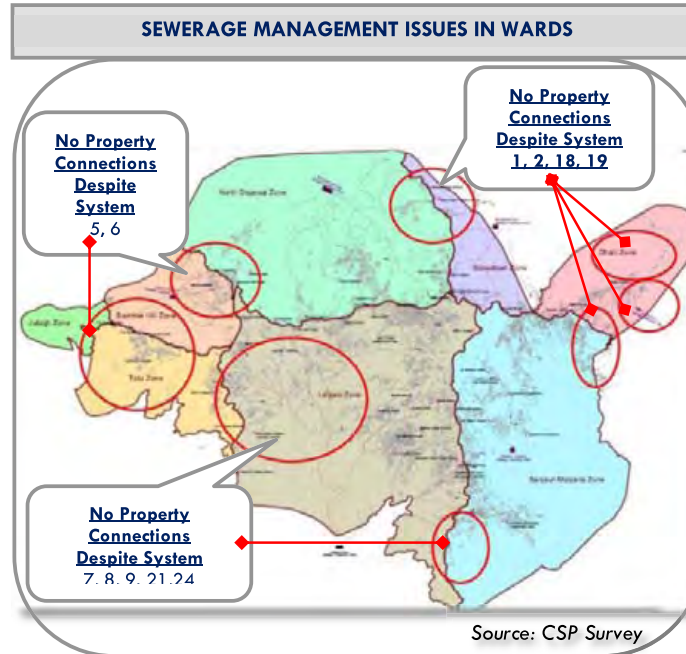
The sewer network system has coverage of 65-70% of the city area measuring to a length of 221 km; Only 12,500 properties are connected to the available network, while 3% of population

Key Issue 4-

'11% of the total sewage generated in the city is treated despite installed treatment capacity matching the requirements of the city population'

has no system. However, the sewer network grid is incomplete due to the missing connections between hierarchies of sewers. As a result, only 3.27 MLD out of the 19.92 MLD collected reaches the treatment plants and is treated though the installed sewage treatment capacity is 35.63 MLD. The

Sewerage network collects only the black water and the grey water is disposed directly into the open drains. In the overlap of functional roles of Water Supply & Sewerage Board, MCS and the Irrigation & Public Health Department the accountability for the provision of efficient services is omitted. The weak enforcement of municipal bye-laws / building codes fails to ensure household connections to the sewer network. This results in underutilization of the established sewer network as well as the treatment system. The disposal of the sewage generated in the city in open areas and drains leads to pollution and has adverse impacts on public health



Onaoina Interventions:

MCS has published notice inviting 'Request for Qualification' for selection of an agency to 'Build, Rehabilitate, Operate & Maintain' the water supply and sewerage system of Shimla City for 20 years on PPP Mode.

The sewerage project is planned to be implemented in two phases as per the directive issued by the Honourable High Court of Himachal Pradesh vide orders dated 08.07.2009, passed in CWP 441/07.

For further details on the project planning and the scope of the project, please refer to pg.26 and Annexure – I of Sector Strategy – CSP Document

3. SOLID WASTE MANAGEMENT

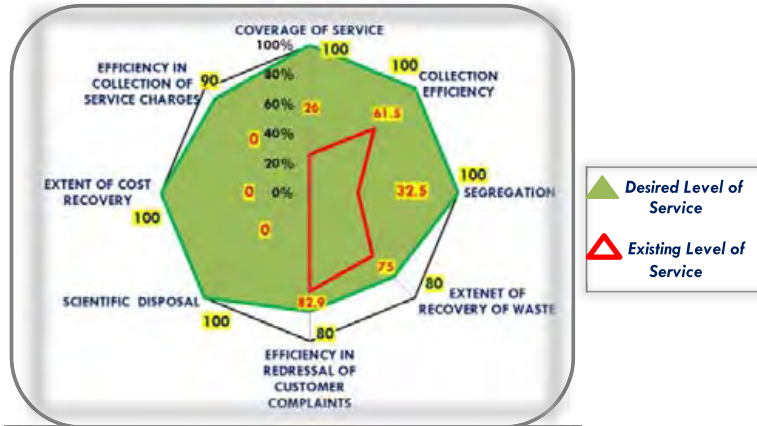
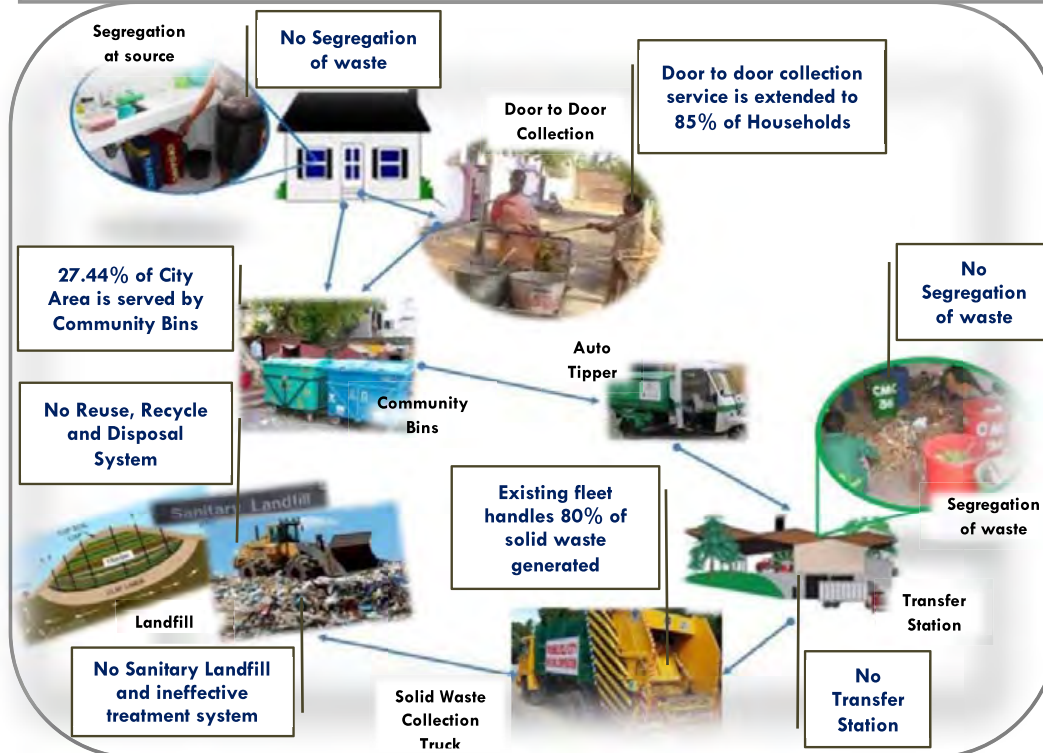


CHART3: SERVICE LEVEL BENCHMARKING – SOLID WASTE SECTOR

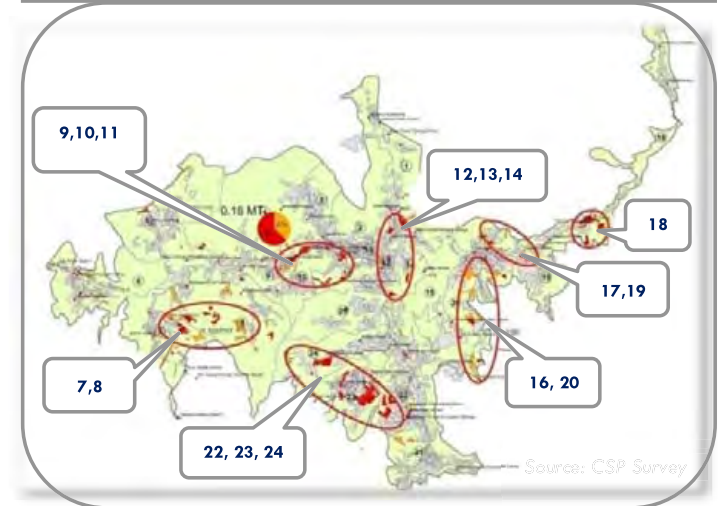
DESCRIPTION OF EXISTING SOLID WASTE MANAGEMENT SYSTEM



Solid waste management is one of the prominent issues faced by MCS. 8% of the population practices open dumping and burning of the solid waste generated, mainly owing to inadequate community bins as well as the inconvenient location of the bins. Door to door collection (DTDC) servicing almost 85% of the households and the transportation system handles 80% of the total solid waste generated in the city, however, due to inadequate fleet of transport vehicles it does not ensure daily lifting of the waste. This coupled with inefficient street sweeping operations results in scattering of waste. Storm water drains and hill slopes covered with solid waste is a common sight. The stagnation of waste in the drains and open areas transforms them into breeding places of mosquitoes and other vectors of diseases. Ultimately, this condition impacts the public health in an adverse way.

Key Issue 5 –
'Indiscriminate dumping of solid waste in open areas and storm water drains causing pollution ;

WARDS WITH OPEN DUMPING AND BURNING OF SOLID WASTE



The waste from the entire city that reaches the designated dump site is not handled through engineered scientific sanitary landfill. Periodic burning of the waste is practised, which adds to adverse impacts on public health. The waste is disposed without adequate treatment and hence the imminent threat of ground water contamination through the leachate produced from the untreated solid waste. There are some inadequate measures to initiate recycle and reuse of the waste; and previous attempts to produce compost from waste have not been very successful owing to operational & maintenance issues.

Key Issue 6–
'Unscientific management of the dump sites receiving the waste from the entire city and lack of adequate treatment and ultimate scientific disposal'



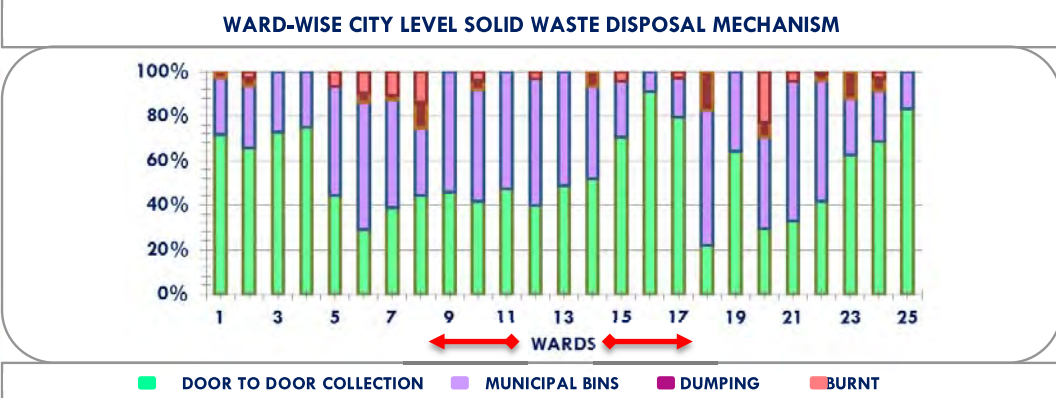
Dumbina of waste



Burnt Waste



Bad Condition of Bins



Ongoing Interventions:

MCS has constituted Shimla Environment, Heritage Conservation & Beautification (SEHB) Society to execute door-to-door collection of the waste in the city. MCS is in the process of relocating the waste processing unit from Dami Ka Bagicha to Bhariel. M/s Hanger Biotech Energies Pvt Ltd has been awarded the contract to design, develop, construct and operate & maintain the solid waste processing facility for the city of Shimla on Build Operate Transfer basis in a PPP mode..

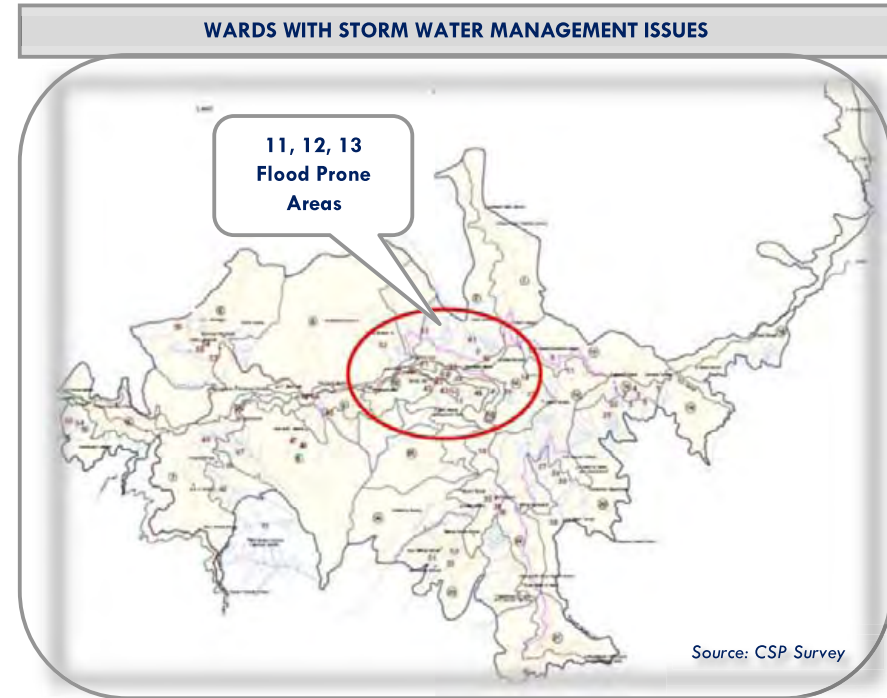
For further details on the project phasing and the scope of the project, please refer to Pg. 49 of Sector Strategy – CSP Document

4. STORM WATER MANAGEMENT

The hilly terrain and steep slopes of Shimla provide a good natural drainage system, with total drainage network coverage of 29.43% of total city area measuring to a length of 42.33 km, while the total road network length in Shimla is 143 km. The heavy rainfall in hilly areas is channelized through a system of 67 natural open streams and nallahs to downstream areas. Poor O&M of storm water drains along the major roads, streets and natural drains is a major issue of concern. Additionally, the natural drains have also been encroached for laying water pipes and other utilities besides indiscriminate dumping of solid waste and the disposal of effluent from septic tanks and soak pits leading to blockage of the drains and creating unhygienic conditions and contamination of downstream water bodies. During rainy periods, this causes flooding in properties situated along the drains. This is major cause of concern in core city areas like Ram Bazaar and Lower Bazaar. Furthermore, the pressure owing to high water flow leads to erosion of surface lining and banks. This results in water flowing out of the nallahs and causing problems in nearby areas leading to frequent repairs by MCS.

Key Issue 7-

‘Poor maintenance and encroachment of the available storm water drainage network renders it inefficient and contaminated leading to unhealthy conditions.’



Storm water drains filled with sewage



Erosion of surface lining and banks of storm water drain



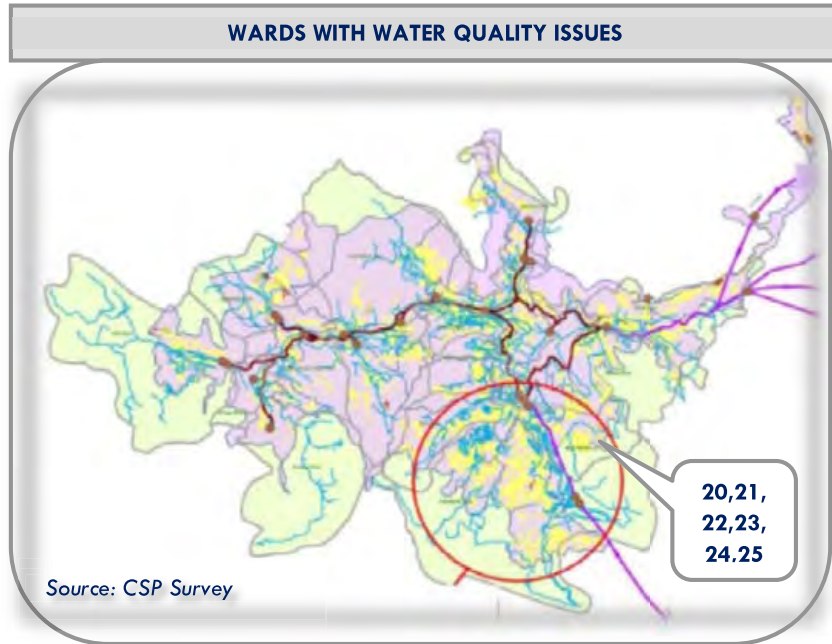
Storm water drains filled with solid waste

Ongoing Interventions:

MCS has conducted detailed survey of the nallahs and DPR has been prepared for the repair and up-gradation of the existing 67 nallahs in the city

For further details on the proposals in the DPR please refer to Pg 66 of Sector Strategy – CSP Document

5. WATER QUALITY



Proximity of water supply network to sewer lines is a critical issue. This results in the contamination of the drinking water and poses health risks. This is evident from the fact that Hepatitis A and E cases, which are caused due to contamination of water, are on the rise. The city witnessed Hepatitis (A&E) outbreaks in the last three years mainly in Khalini, Panthaghati, Vikas Nagar, and Kasumpati areas. The water being supplied is of good quality, however, in some areas water received at the consumer end is contaminated due to the following reasons – (a) the water supply lines are laid in an unplanned manner along the open drains which are often the carriers of grey and black water thereby enhancing the risk of contamination of water supply; (b) the required horizontal and vertical clearances between sewer lines and water supply lines are not maintained; (c) Illegal water connection practices also damage the water supply lines and expose them to the treat of water contamination by sewage ingress.

Key Issue 8–

‘Drinking water contamination in few areas of the city posing health risks’



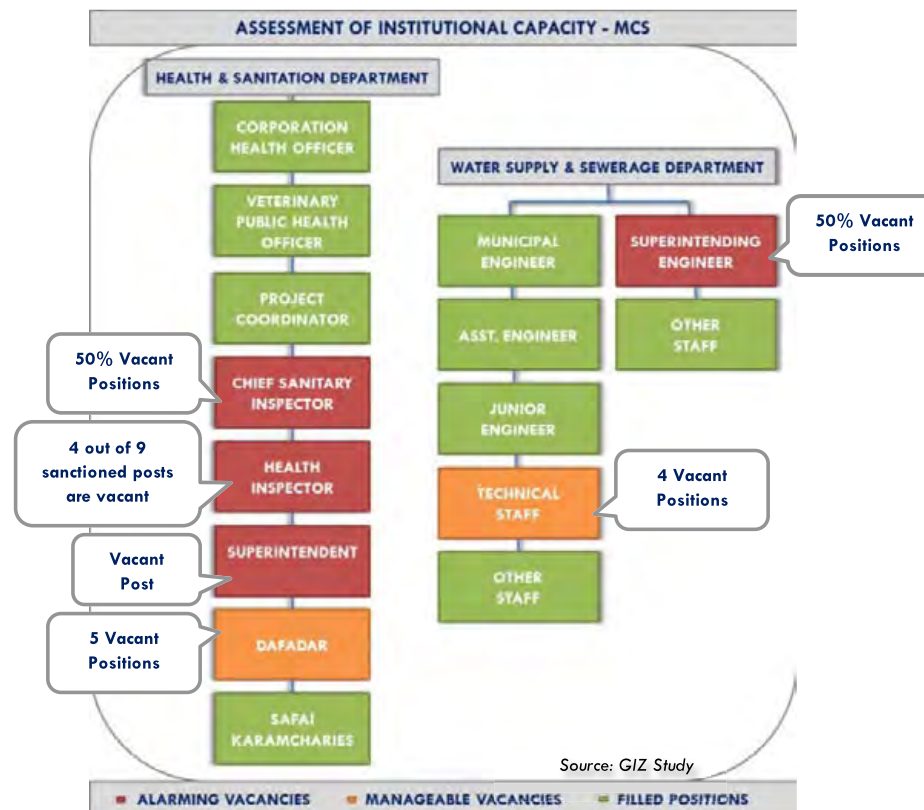
6. INSTITUTIONAL AND FINANCIAL SYSTEMS

The organizational structure is not conforming to the service requirements and service responsibility; furthermore, the devolution of powers from the state government to the Urban Local Bodies (ULB) has not been accomplished completely; IPH and MCS have overlapping functional responsibilities cutting across different sectors of sanitation; High frequency of transfers and weak coordination amongst the departments affects the operation & maintenance efficiency. There is no established capacity enhancement strategy in place to tackle the efficiencies in qualified and specialized staff. Weak enforcement practices further diminish the efficiency of the institutional system; lack of community engagement and absence of participatory planning mechanisms in the planning and operations & management sectors, further aggravate the deficiencies in the existing system

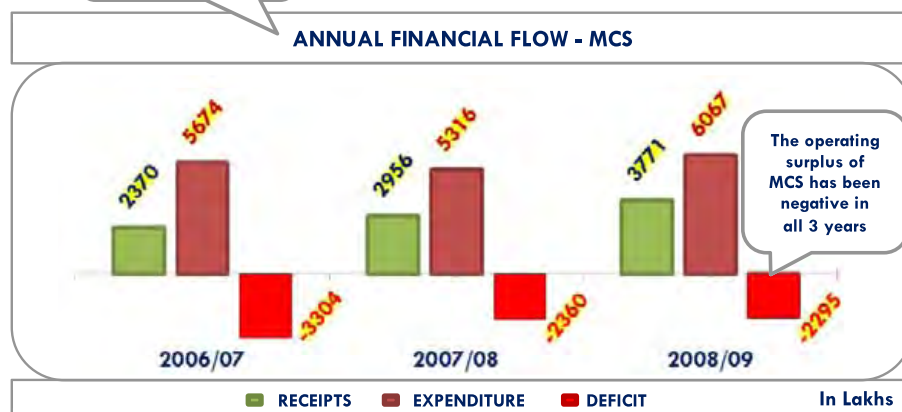
Key Issue 9–

'The weak institutional framework does not ensure the sustainability of sanitation services and delivery'

the efficiency of the institutional system; lack of community engagement and absence of participatory planning mechanisms in the planning and operations & management sectors, further aggravate the deficiencies in the existing system



The period 2006-09 recorded total annual deficits



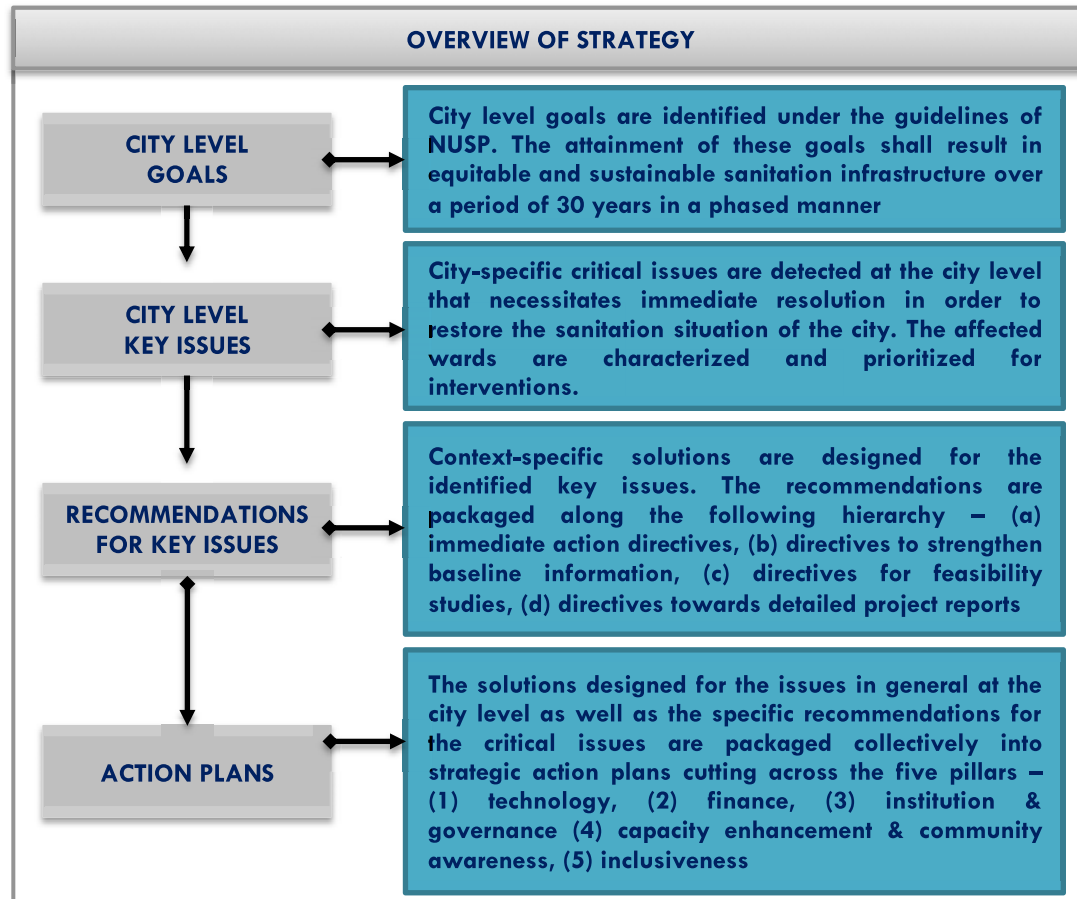
The Fiscal powers and authorities are still not devolved from the state government to local bodies. MCS has shifted to double entry accounting system in 2007, yet there are no skilled accountants to assume the responsibility. MCS's total annual surplus/deficit has been negative for the period 2006 – 2009; Lack of administrative procedures that ensure financial data flow and reporting and absence of internal and external controls and cost-effective and revenue generating mechanisms is evident.

Key Issue 10–

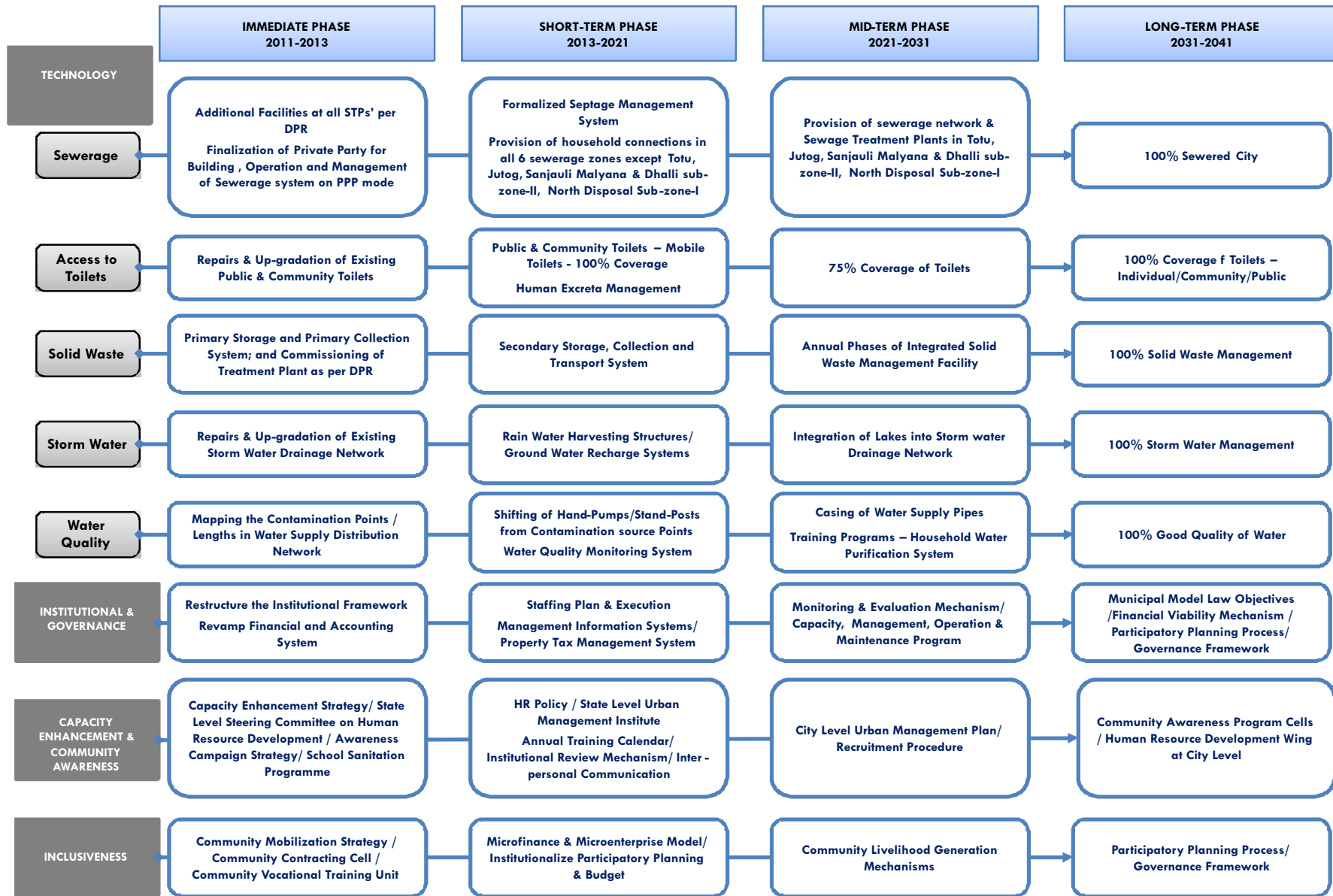
'Existing financial management system does not meet the demands of the current and future sanitation requirements'



Strategies



BROAD OVERVIEW OF THE ACTION PLANS



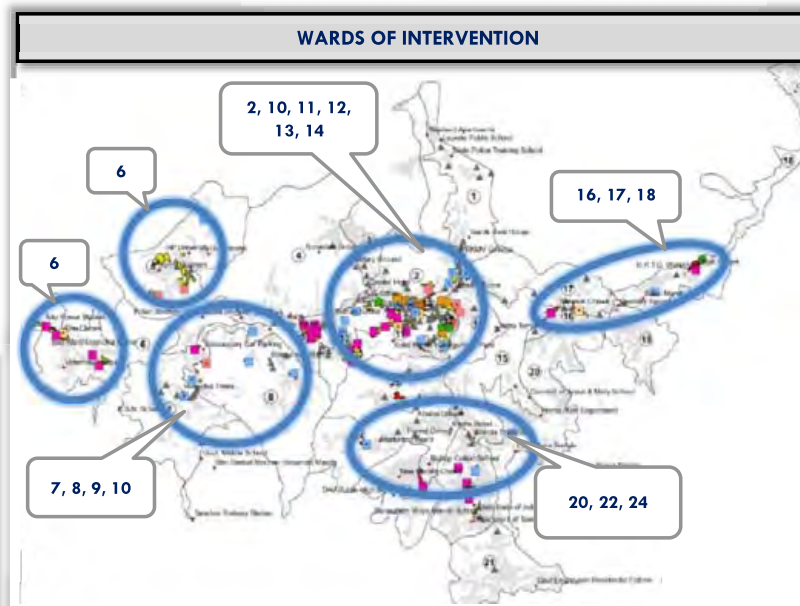
Please refer to Document - 'City Strategy — CSP' for detailed action plans

BROAD OVERVIEW OF THE RECOMMENDATIONS

ACCESS TO TOILETS		4 - 5 CR
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IMMEDIATE ACTION DIRECTIVE	Tender for Design, Construction and Operation & Maintenance of 354 Toilet Seats out of the Total Requirement of 679 Toilet Seat on Build Operate Transfer Basis in PPP Mode
PILOT PROJECT	Promote the Use of Mobile Toilets & Shared Toilets. Develop Operator Model/Financial Model & Septage Management Plan for the Planned Toilets in the Pilot Intervention Area
STRENGTHEN BASELINE DATA	Ascertain the Exact Numbers /Location/Condition/Operation Model of/Compliance Public Toilets and Toilets In Municipal Schools and the Demand for Toilets Across The Wards
FEASIBILITY STUDY	Zone Wise Strategies to Address the Open Defecation Issues and Integration of Fecal Sludge Management into either the Decentralized/Centralized Sewerage Systems in the Area
DPR	<ul style="list-style-type: none"> ➤ DPR for Rehabilitative & Up-gradation Works of the Existing Toilets ➤ DPR for Construction Works of New Toilets

** Please refer to 'Executive Summary' – CSP and 'Sector Strategy' – CSP documents for elaborate details on recommendations

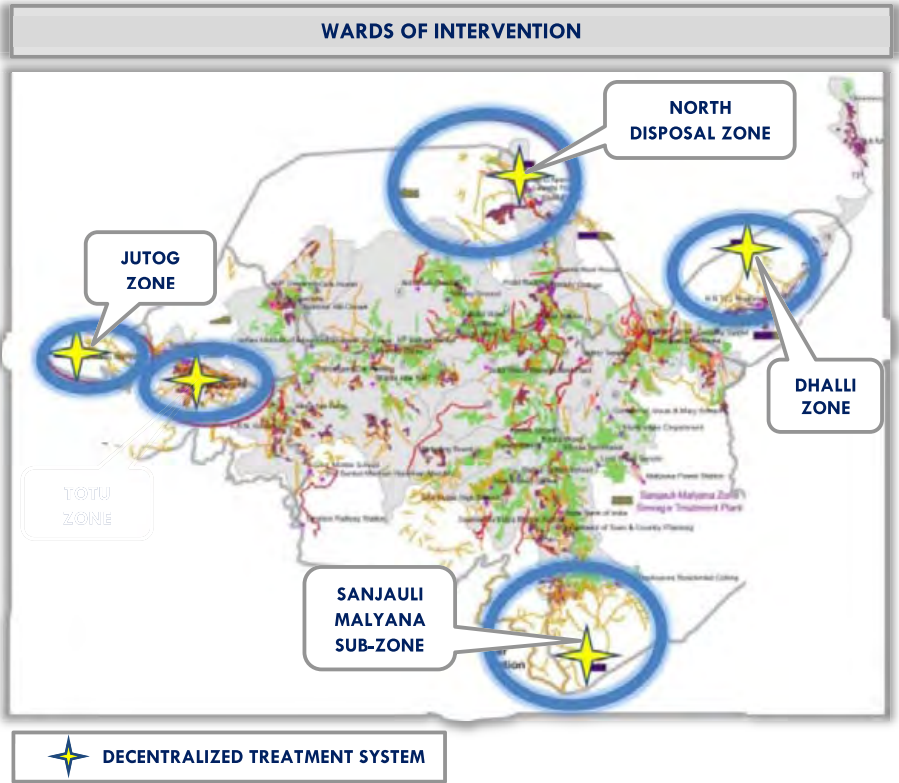


SEWERAGE



147 CR

IMMEDIATE ACTION DIRECTIVES	<ul style="list-style-type: none"> ➤ Selection of Agency per the Request for Qualification Floated to Implement the Approved Sewerage DPR ➤ Institutionalized Training for Plumber Certification
PILOT PROJECT	Establish Decentralized Treatment Systems in the Proposed Wards
STRENGTHEN BASELINE DATA	<ul style="list-style-type: none"> ➤ Ascertain the Exact Numbers of (a) Household Connections to Sewerage System ➤ Ascertain the Exact Numbers /Location/Condition of Septic Tanks ➤ Ascertain the Exact Length/Location/Condition of Sewer Lines; ➤ Assess the Missing Links in the Sewerage System
FEASIBILITY STUDY	<ul style="list-style-type: none"> ➤ Integration of Septic Tanks into Existing/Future Off-site Sewage Treatment Systems ➤ Assess the Demand in order to Design Sustainable Septage Management Systems ➤ Coverage of Core Area with Centralized System and Demarcation of Areas for Decentralized Systems ➤ Interception and Treatment of Sewage Outflow from Drains prior to Disposal into Water Bodies
DPR	DPR for Rehabilitative & Up-gradation Works of the Septic Tanks and Septage Management System



*** Please refer to 'Executive Summary'– CSP and 'Sector Strategy' – CSP documents for elaborate details on recommendations*

SOLID WASTE MANAGEMENT



30 CR

IMMEDIATE ACTION DIRECTIVES

- Finalize the landfill DPR and appoint contractor
- Initiate the operations at the Waste Processing Facility at Bharial and Initiate Operations
- Coordinate with Storm Water Management Department and Ensure the Covering of all Drains with Grates to Discourage the Dumping of Solid Waste
- Sanitation Worker's Training Program
- Municipal Bye-Laws
- Occupational Safety and Health Training & Awareness Campaigns

ONGOING INITIATIVES

- Initiate the Clean Development Mechanism (CDM) process to avail the benefits of CDM Revenue
- Finalize the Compost marketing Strategy and initiate the process

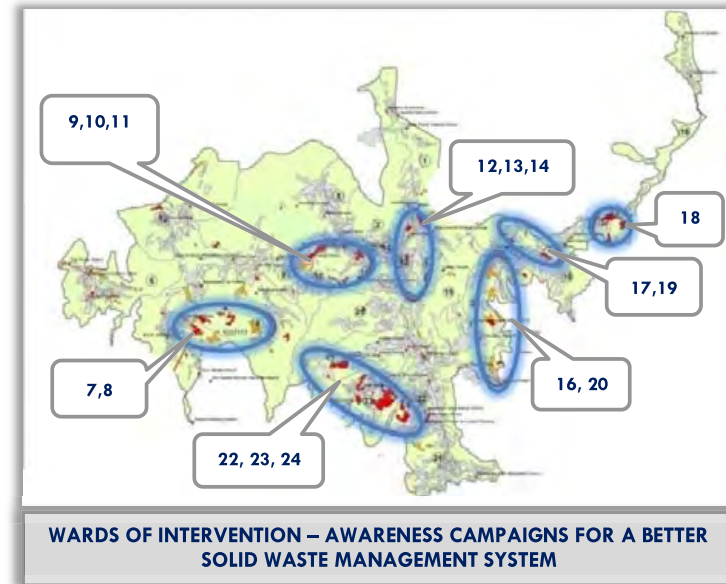
STORM WATER MANAGEMENT

IMMEDIATE ACTION DIRECTIVES

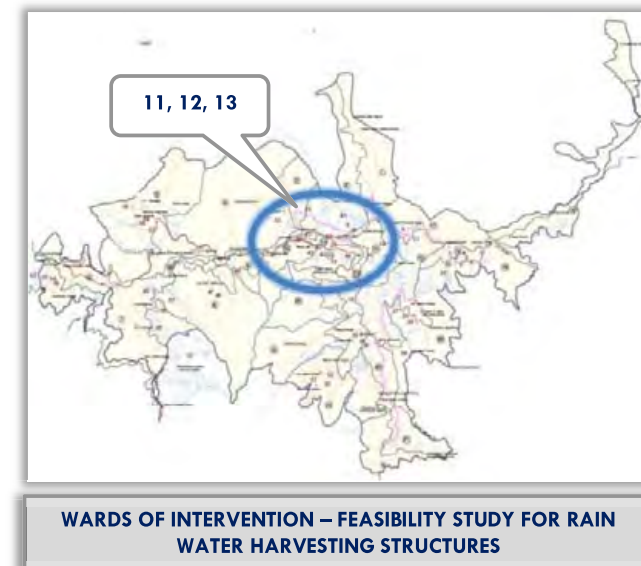
- Finalize repairs and Up-Gratation of the Storm Water Drains as per the Storm Water DPR
- Coordinate with the Sewerage & Solid Waste Management Department and Prioritize the Activity of Prevention of Indiscriminate Dumping of Solid Waste and Waste Water Discharge into the Drains
- Source Control Initiatives

FEASIBILITY STUDY

Rain Water Harvesting Structures



WARDS OF INTERVENTION – AWARENESS CAMPAIGNS FOR A BETTER SOLID WASTE MANAGEMENT SYSTEM



WARDS OF INTERVENTION – FEASIBILITY STUDY FOR RAIN WATER HARVESTING STRUCTURES

** Please refer to 'Executive Summary'– CSP and 'Sector Strategy' – CSP documents for elaborate details on recommendations

WATER QUALITY

IMMEDIATE ACTION DIRECTIVES

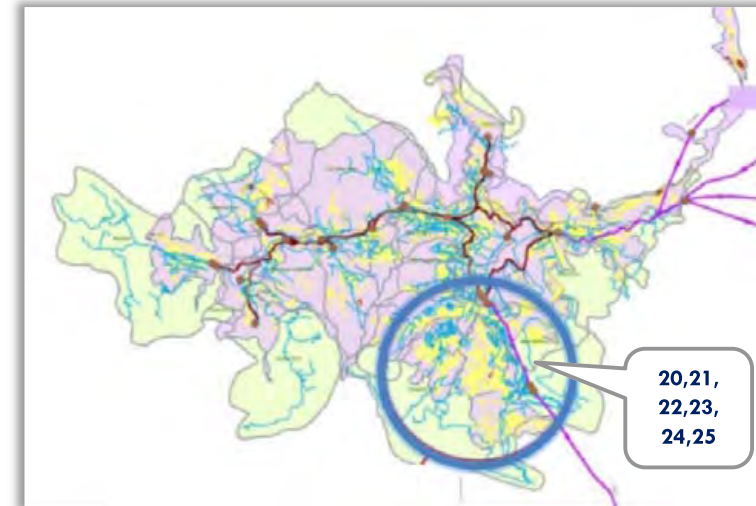
- Establish & Execute Water Quality Monitoring Program

STRENGTHENING BASELINE DATA

- Ascertain the Exact Numbers /Location/Length of Water Contamination Points

FEASIBILITY STUDY

- Casing Works for Water Supply Pipes at the Contamination Points / Lengths;
- Shifting Of Hand-pumps, Stand-posts From The Contamination Points



AREAS OF INTERVENTION – WATER QUALITY MONITORING

*** Please refer to 'Executive Summary'– CSP and 'Sector Strategy' – CSP documents for elaborate details on recommendations*

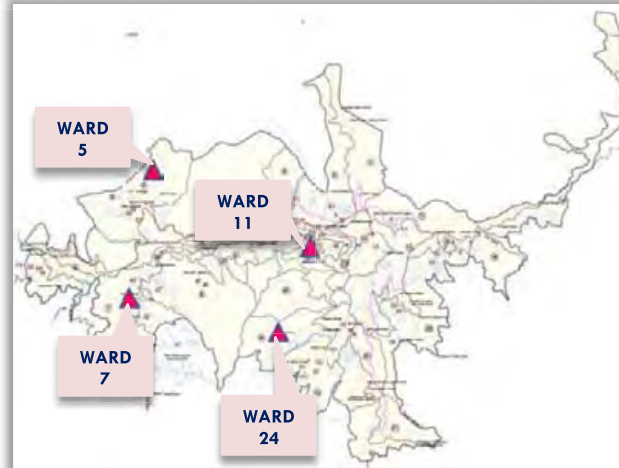


BROAD OVERVIEW OF THE PILOT PROJECTS

PILOT PROJECT

- Design and Implement 'Mobile Toilets' in Wards 5, 7, 11 & 24
- The Design shall include the Septage Management Plan.
- Sustainable Operator Model / Financial Model shall be Established
- Awareness Campaign and Community Involvement Program for Operation & Maintenance shall be Implemented

AREAS OF INTERVENTION



 MOBILE TOILETS



"Mobile Toilets" could serve as temporary solution wherever in-situ development of slums or relocation of the community is planned or areas where land tenure issues are flagged;
They could address the seasonal need of the floating population;
They could also serve as a solution for wards where place constraints do not allow any permanent solution

The wards selected for pilot projects are reflective of high impact value. The wards demonstrate the issue of open defecation and the causal factors are wide ranged – absence of infrastructure, lack of awareness for hygiene, administrative issues, land availability, and socio-economic issues. The pilot projects shall evolve sustainable solutions considering all causal factors and will mitigate all issues.

These wards are also representative of wide range of target groups. This shall enable a comprehensive pilot awareness campaign and the feedback from the groups may be utilized to scale up the initiatives to city level.

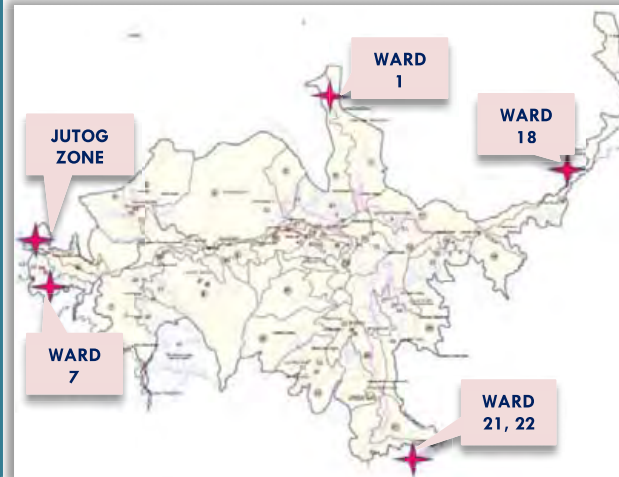
The pilot projects shall create the momentum desired to sustain the principles advocated by CSP

**** Please refer to Sector Strategy – CSP document for elaborate details**

PILOT PROJECT

- Design and Implement 'Decentralized Systems' in Sewerage Zones
- Totu Zone – Ward 7
- Sanjauli Malyana – Ward 21, 22
- North Disposal Zone – Ward 1
- Dhalli Zone – Ward 18
- Jutog Zone – Entire Cantonment Area
- Sustainable Operator Model / Financial Model shall be Established
- Awareness Campaign and Community Involvement Program for Operation & Maintenance shall be Implemented

AREAS OF INTERVENTION



"Decentralized Waste Water Treatment Systems" could serve as a long-term alternate solution with minimal maintenance requirements and low – energy inputs. They offer flexibility and the technologies are tolerant towards inflow fluctuations. They enable better watershed maintenance.

The wards selected for pilot projects are reflective of high impact value. The wards demonstrate the suitability for adoption of decentralized system –

- Availability of Land
- Reuse/recycle Opportunities
- Potential for Inclusive Approach Demonstration

These wards are also representative of wide range of land-use and target groups. This shall enable a comprehensive pilot awareness campaign and the feedback from the groups may be utilized to scale up the initiatives to city level.

The pilot projects shall create the momentum desired to sustain the principles advocated by CSP



"Decentralized Waste Water Treatment Systems" should be promoted as a solution for wards where topography complexities are prevalent. They could be tailored in different combinations to suit the topography and financial budget.

** Please refer to Sector Strategy – CSP document for elaborate details

CREDITS

We are grateful to the following listed City Sanitation Task Force members for their valuable contributions towards the efforts of preparation of the City Sanitation Plan -

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Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH (German Technical Cooperation) changed its name to The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on 1 January 2011. It also merged with among others, InWEnt – Capacity Building International, Germany.

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'Let's make human life safer with good sanitation infrastructure'

