

Government of India  
Ministry of Urban Development

Draft Guidelines for Swachh Bharat Mission(SBM)

October 2014

# 1. Introduction

The Swachh Bharat Mission(SBM), a joint Mission of the Ministry of Urban Development and the Ministry of Drinking Water and Sanitation, emanates from the vision of the Government articulated in the President's address to the Joint Session of the Parliament on 9<sup>th</sup> June 2014:

“We must not tolerate the indignity of homes without toilets and public spaces littered with garbage. For ensuring hygiene, waste management and sanitation across the nation a “Swachh Bharat Mission” will be launched. This will be our tribute to Mahatma Gandhi on his 150<sup>th</sup> birth anniversary to be celebrated in the year 2019.”

The Sub-Mission - Swachh Bharat Mission (SBM) for urban areas to be implemented by the Ministry of Urban Development (MoUD) aims to achieve the objective of providing **sanitation** and household toilet facilities for all 4041 statutory towns in the country. These towns are home to 31% of the Country's population or about 377 million people. The numbers are expected to go up to 600 million by 2031. Hence, this programme has been taken up on a Mission mode.

## **2. Swachh Bharat Mission**

### **2.1 Goal**

The overall goal of the National Urban Sanitation Policy is to transform Urban India into community-driven, totally sanitized, healthy and liveable cities and towns. The “Swachh Bharat Mission” strives to achieve this goal.

### **2.2 Objectives**

The objectives of the Mission are:

- (a) Eliminate open defecation.
- (b) Conversion of insanitary toilets to pour flush toilets
- (c) Eradication of manual scavenging.
- (d) 100% collection and scientific processing/disposal/reuse/recycle of Municipal Solid Waste.
- (e) To bring about a behavioural change in people regarding healthy sanitation practices.
- (f) Generate awareness among the citizens about sanitation and its linkages with public health.
- (g) Strengthening of urban local bodies to design, execute and operate systems.
- (h) To create enabling environment for private sector participation in Capital expenditure and Operation and Maintenance expenditure (O&M).

### **2.3 Duration**

The Mission will be implemented over a period of 5 year commencing 2<sup>nd</sup> October, 2014.

## **2.4 Coverage**

The Mission will extend assistance to all 4041 statutory towns/cities as per 2011 census. The civilian areas under Cantonment Boards in these towns and towns which subsequently acquire statutory status shall also be eligible for assistance under this Mission.

## **3. Components of SBM**

### **3.1 The Mission has the following components**

- i. Provision of household toilets.
- ii. Community toilets
- iii. Public toilets.
- iv. Solid Waste Management.
- v. IEC and Public Awareness
- vi. Capacity Building and A&OE

### **3.2 Mission Outlay**

The estimated cost of implementation of the Swachh Bharat Mission is Rs. 62,009 crore. The Government of India share amounts to Rs. 14,623 crore. In addition 25% amounting to Rs 4874 crore shall be contributed by the States as the State/ULB share.

### **3.3 Funding Pattern**

**3.3.1** The funding of the projects/incentives shall be shared 75:25 between the Central Government and the States/ULBs The funding pattern will be as under:

S. No	Component	Central Government (75% of the incentive/VGF /Grant	State Government (25% of the incentive/VGF/ Grant
1	Incentives for construction of new individual Household Toilets*	Rs.4,000 per Household	1333 per household
2	Community Toilets	40% VGF	
3	Public Toilets	100% Private Funding.	
4	Solid Waste Management	20% VGF	
5	IEC &Public Awareness	15%	
6	A & O.E and Capacity Building	5%	
VGF: Viability Gap Funding ;IEC: Information Education and Communication, Administration &Office Expenses *includes conversion of Insanitary toilets and Pit latrines(those requiring conversion) to sanitary toilets.			

**3.3.2** The funding pattern between the Central Government and the State Government/ULB is 75%:25%. Total cost estimate for the Mission is Rs 62,009 crore. The Central Government's contribution amounts to Rs 14,623 crore and State Government Rs 4874 crore.

**3.3.3** The gap in financing in components for household toilets, community toilets, public toilets and solid waste management projects to the tune of Rs 42,512 crore could be met by the beneficiary contribution, private funding, funds with private companies under Corporate Social Responsibility(CSR) and the Swachh Bharat Kosh of the Ministry of Finance.

3.3.4 Levy of user charges, finding innovative streams of resource generation including of leveraging of land by ULBs could be used for augmentation of resources/implementation of projects.

3.3.5 The Viability Gap Funding in the projects on Public-Private Partnership mode shall be in conformity with the guidelines of the Department of Economic Affairs, Government of India.

3.3.6 The VGF on Community Toilets and SWM taken up under the Mission shall be limited to 40% and 20% respectively. Central Government's contribution shall be supplemented by a minimum 25% additionality by the State Governments. This will be in the form of additional VGF(if required) or sharing the VGF(75:25) as the case may be.

3.3.7 Cost of DPRs for the projects under the Mission shall be reimbursed subject to norms set-up by National Mission Directorate.

#### **4. Allocation of funds**

4.1 The Mission would be implemented as a Centrally Sponsored Scheme (CSS) with the following classifications of funding:

- a) Project Fund based on Normative Criteria-60%
- b) Performance Fund based on Performance Matrix- 20%
- c) Public Awareness & IEC Activities-15%
- d) Capacity building & A&OE(States) - 3%
- e) Research, Capacity building & A&OE(MoUD) - 2%

**4.2** 80% of the funds made available to the Mission shall form the Project Fund. These will be allocated to the States as per the criteria specified in para 4.3 below.

**4.3 Criteria for allocation of funds:**

4.3.1 The initial/first instalment of funds will be allocated giving 50% weightage to the ratio of urban population of each State/UT as per Census 2011 report and the 50% weightage will be given to ratio of number of statutory towns in each State/UT. Details are in **Annexure I**. Subsequent releases will be based on actual requirements and utilisation.

4.3.2 Census 2011 data will be used for making allocations to the States for the components under para 3.1.

**4.4 Performance Grant**

20% of the total allocation for each State, as in para 4 above, shall be kept with the Mission Directorate as Performance Grant. This will be released as per the criteria mentioned in para 7.

**4.5 Allocation of the project fund**

Of the total allocation for Project Fund arrived at after keeping apart the Performance Grant the distribution will be as under:

- |                             |   |     |
|-----------------------------|---|-----|
| (a) Project funds to States | : | 80% |
| (b) North East States       | : | 10% |
| (c) Flexi Funds             | : | 10% |

(Flexi Funds in terms of Department of Expenditure O.M. No F.No.55(5)/PF.II/2011 dated 06.01.2014.)

## **4.6 Public Awareness & IEC Activities:**

**4.6.1** 12% of the overall allocation for the State under this Mission will be earmarked for States and ULBs for undertaking massive public awareness on sanitation and its linkage towards public health, hygiene and environment through various mass media- radio, television, electronic and social media, documentaries, plays workshops etc. ( print media is not an admissible item). States shall prepare an action plan and include in the project proposal as per the Mission Guidelines/advisories.

**4.6.2** 3% of the overall programme allocation would be utilised by the Ministry for drawing a national media campaign and developing standard campaign tools for effective awareness and communication on sanitation. The fund will be operated by the media cell to be created under the Programme.

**4.6.3** For the IEC component, communication material for behavioural changes shall be designed in consultation with the Ministry of Information & Broadcasting and Ministry of Health and it would be in sync with the material being used under Nirmal Bharat Abhiyan.

## **4.7 Capacity Building & Administrative & Office Expenses (A&OE) Fund for the States:**

**4.7.1** 3% of the total allocation for the Mission will be earmarked for the purpose. States shall propose extensive Capacity Building activities to be implemented in a Mission mode manner which will enable the progressive achievement/implementation of infrastructure projects in a time bound manner. The Capacity Building activities will be brought out separately in consultation with the States.



**4.7.2** The A&OE shall be allocated to all States/UTs on per capita urban population basis as per Census 2011 report. Under no circumstances, this fund shall be utilized for purchase of vehicles, construction and maintenance of buildings, creation of posts, payment of salary and purchase of furniture & fixtures.

**4.7.3** All the support structures for implementing the Programme at State level & ULB level including Programme Management Unit (PMU), Programme Implementation Unit (PIU), and Independent Project Review & Monitoring Agency (IPRMA) etc. shall be funded under this head.

**4.7.4** The States/ UTs would be required to submit a comprehensive annual action plan for approval by the SBM Directorate.

**4.8 Research, Capacity Building & Administrative & Office Expenses (A&OE) Fund at the disposal of National Mission Directorate:**

2% of the allocation will be utilized at the SBM Directorate level including for capacity building, convening national & regional workshops, various awards & best practices recognition, Programme research & studies, international cooperation for capacity building & technology development, A&OE and various eligible purposes in consultation with Integrated Finance Division of the Ministry.

**5. Approval Procedure**

**5.1** City wise projects will be prepared emanating from City Sanitation Plan components of the Mission (except household toilets).

**5.2** The projects will be identified by the Municipalities concerned in consultation with the State Mission Directorate and DPR's prepared.

Only new projects will be considered under the Mission and it will be ensured that there is no duplication.

**5.3** Detailed technical & financial appraisal of the DPRs of projects will be carried out. The DPRs for projects should be aligned with Government of India's goals, SWM Rules, advisories & CPHEEO manuals including cost recovery mechanisms, O&M practices and Service Level Bench Marks. Toilets have to be built in tandem with the water supply arrangements in towns/ULBs and as per specifications in the advisories to be issued by the Mission Directorate. The O&M arrangements of the project shall necessarily be an integral part of the project in the DPR however the O&M cost shall not be part of VGF.

**5.4** Specifications, technologies and tentative cost of the toilets are at **Annexure II**.

**5.5** Projects will be sanctioned by the ULBs. In the entire project approval and procurement process, the ULBs have to ensure that all the provisions of State Financial Rules are followed in its entirety.

**5.6** The entire approval procedure except for release of Central funds will end at the ULB Level.

## **6. Procedure for release of funds at GOI level:**

**6.1** The instalments of ACA will be released from the Project Fund ( as per para 4.5 ) as under:

- (i) On receipt of the Concept State Sanitation Strategy(as in the format at **Annexure III**) online, by the Mission Directorate and its acceptance, 1<sup>st</sup> instalment to the States will be released in the following manner:

- a) 50% of the Project fund divided among the states as per formula mentioned at 4.3.
  - b) 75% of the Capacity Building Component, IEC, Public awareness and A&OE ( as per para 4.6 & 4.7)
  - (ii) Subsequent instalment will be released on the submission of utilisation certificate for the 75% of expenditure of the project fund released as first instalment. The quantum of subsequent instalment and claim will be based on expenditure.
  - (iii) Release of Central contribution towards VGF of projects taken up on PPP mode shall be based on the sanction of such projects by the ULBs
  - (iv) The subsequent instalment of Capacity Building Component, IEC, Public awareness and A&OE will be released on the submission of utilization certificate for 75% of expenditure of the first instalment under these categories.
- 6.2 NARC shall review at the end of II and III quarters the use of allocation by States and shall reallocate funds from non-performing to the performing States based on the potential to utilize funds in a particular year.
- 6.3 State Government shall evolve a suitable mechanism to release the funds along with state share to ULBs within 30 days of release of Central share by MoUD.
- 6.4 Interest at the rate specified by the Ministry of Finance from time to time shall be levied on the State for any delay in release

of funds to ULBs beyond 30 days. This will be implemented by appropriate deductions from state's next release of grant.

## **7. Release of Performance Grant**

20% of the total allocation for each State, as in para 4.4 above, shall kept with the Mission Directorate as Performance Grant. This will be released as per the criteria mentioned below for rewarding the performing States. The release of performance grant shall be based on a Performance Matrix and Third Party (IRMA) evaluation mechanism on the following outcomes:

- Elimination of Open Defecation.
- Conversion of Insanitary Latrines into Pour Flush Toilets.
- Eradication of Manual Scavenging.
- Prevention of Pollution of Water Sources.
- Ensuring Cleanliness and Hygiene in Public Places.
- Awareness Creation.
- Capacity Building.

The NARC shall take a final view regarding the release of this grant keeping in view the progress made and circumstances of each State.

## **8. Identification of and release of incentive to the beneficiary**

8.1 The approach to be adopted for reaching the targeted population, for extending incentives, shall be based on established protocols and compliance of identification procedures. To this effect the State Mission Director shall ensure that:

- (a) The ULBs shall carry out a house-to-house survey for authentication of the beneficiaries adopting their UID numbers.

(b) Identification of the constructed Individual Household Toilets with location based technologies, with latitude and longitude and the photograph with the head of the family (with UID number). This may be communicated to the sanitation MIS to be developed/monitored by the local body and their website.

8.2 The Mission Dte. shall develop an online format and web portal for submission of applications for incentives for individual toilets. The households shall use the portal for applying for the incentive.

8.3 All financial incentives (government or private) to the beneficiaries shall be deposited directly in their bank accounts/accounts opened under the Pradhan Mantri Jan Dhan Yojna through Electronic Clearing Service or otherwise.

## **9. Mission Management Structure**

### **9.1 National Level**

**9.1.1** A National Advisory & Review Committee (NARC), headed by the Secretary, MoUD and comprising representatives of Ministry of Finance, Ministry of Drinking Water Supply & Sanitation and other related Ministries, will be notified by MoUD for the SBM. The details in this regard will be finalised by the National Mission Directorate. This Committee will meet as per the requirements but will meet at least once in three months.

**9.1.2** Functions of NARC inter-alia will be:

- a) Overall monitoring and supervision of the Programme.
- b) Advice the State/UT/implementing agency to explore avenues of innovative ways for resource mobilization private financing and land leveraging.
- c) Approve release of instalments of funds for all projects.

- d) Modifying Performance matrix and criteria (specified in para7) for release of Performance grants to the States. This will be done keeping in view the completion status of already sanctioned Projects and their quality aspects; implementation of IEC, capacity building & public awareness etc activities and any special circumstances attending the State. The NARC can also design other criteria for release of the instalment. Decision of the NARC shall be final.
  - e) Monitor outcomes and performance of projects sanctioned & completed under the Programme and Reforms.
  - f) Monitor all capacity building programs and release funds for the purpose.
  - g) Any other issue which may be referred to it by the Government.
  - h) NARC may delegate, as it considers appropriate, some of the functions within prescribed limits to the Programme Director for ensuring speedy implementation of the Programme.
- 9.2 The Mission will be headed by a National Mission Director, who will be not below the rank of Joint Secretary to the Government of India. The National Mission Director will be the overall in-charge of all activities related to SBM. The Programme Director will be supported Mission Directorate comprising a suitable team of officers. The National Programme Director will be the Member Secretary of NARC for all matters.
- 9.3 The Mission Directorate shall be supported by a dedicated PMU with 4 verticals (Programme Management, IEC & Media, IT and M&E) with 10-12 experts and support staff mainly on outsourced basis.

9.4 The National Programme Directorate would formulate a framework for support structure for State Mission Directorate and issue appropriate advisories to the States from time to time.

#### **9.5 State level:**

9.5.1 At the State level the Mission shall be completely managed by a High Powered Committee (HPC) constituted by the State Government under the Chairmanship of the State Chief Secretary and with members drawn from concerned Departments.

9.5.2 A State Mission Director, an officer of sufficient seniority working in the Urban Development Department of the State, will be nominated by the State Government to function as the Member-Secretary of the State HPC.

9.5.3 A Programme Management Unit (PMU) having subject matter experts and support staff shall assist the State Mission Directorate in its activities.

9.5.4 The functions of HPC would include:

(a) Preparation of the State Sanitation Strategy and City Sanitation Plan as envisaged under NUSP,2008 through the State Mission Directorate and get it approved and published on website.

(b) Finalisation of the financial outlays based on (i) above.

(d) The HPC( or wherever required the ULBs) shall empanel sets of consultants of repute and experience for

(i) Preparing DPRs; and

(ii) Conducting Independent Review & Monitoring during the execution of projects.

This empanelment exercise will be carried out as per the State Financial Rules. Adequate care shall be taken to avoid “Conflict of Interest”.

- (e) The HPC will indicate the quantum of VGF for the Central Funding.
- (f) Plan fund flow in short, medium as well as long term.
- (g) Recommend proposals for release of instalment of funds for projects under the Mission.
- (h) Monitor outcome and O&M arrangements of projects sanctioned & completed under the Programme.
- (i) Review the progress of Capacity Building activities and training activities.
- (j) Look into complaints of violation of norms and conditions.
- (k) Bring about inter-departmental coordination as and when required.
- (l) Organise timely audit of the funds released and review the Action Taken Reports on various Audit reports of the new Programme and on similar other reports.
- (m) Any other matter relevant for the efficient implementation of the Programme or referred by the National Programme Directorate.
- (n) Review the legal issues, if any.

**9.4.5** The State Programme Director will be responsible to create a suitable structure at the Municipality level for planning, designing, project preparation, appraisal and implementation of sanctioned projects under the Mission, keeping in view the advisories from the National Mission Directorate under intimation to the National



Programme Directorate with the financial support of A&OE funds for the State government.

## **10 District Level Review and Monitoring Committee (DLRMC):**

DLMRC will be constituted with a view to fulfil the objective of ensuring satisfactory monitoring of projects under the chairmanship of local elected Member of Parliament. Detailed guidelines for the purpose will be issued separately.

## **11 Appraisal of projects**

### **11.1 The State HPC shall:**

- i. Constitute a state level technical committee for techno- economic appraisal of DPRs for projects recommended by the ULBs. The committee will have representatives from IITs and Govt. technical institutions. The State Mission Directorate will provide necessary support to the committee to enable it to carry out its functions.
- ii. Authorize institute of national repute for appraisal of DPRs for projects recommended by the ULBs.

**11.2** This shall be done in conformity with the State Financial Rules. Depending upon the timelines and the quantum of work the appraisal could be entrusted by the ULBs to the Technical Committee or an institution.

## **12 Special Focus Groups**

The State Government shall pursue the following:

- (a) In respect of rural migrants to urban areas, the State governments must commit to provide temporary accommodation for all urban residents and monitoring and policing are improved to ensure that

no habitation of temporary nature is allowed without a linkage to a public toilet.

(b) Provision of temporary toilets for construction labour at all sites in urban areas, buildings, parks roads where construction /maintenance work is taking place should be made mandatory.

(c) Priority shall be accorded pro-actively to cover households with vulnerable sections such as pensioners, girl children, pregnant and lactating mothers and slums.

These shall be adequately reflected in the State Sanitation Plans.

13. The Mission Dte. Shall develop an SBM portal and also an IT driven MIS format. The MIS format shall give the status up to the Ward level, of the sanctioned projects.

#### **14. Logo and Tag line**

The Logo and tag line for the SBM is given in **Annexure IV**. This shall be displayed prominently on all projects under the Mission.

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**Annexure-I**

States/UTs	Population	Population Share ( in percentile)	No. of Statutory Towns	Town Share (in percentile)	*Fund Share trend for 50:50
A & N Islands	143488	0.04	0	0.00	0.02
Andhra Pradesh	28219075	7.66	125	3.28	5.47
Bihar	11758016	3.19	139	3.65	3.42
Chandigarh	1026459	0.28	0	0.00	0.14
Chhattisgarh	5937237	1.61	168	4.41	3.01
Delhi	16368899	4.44	3	0.08	2.26
Goa	906814	0.25	14	0.37	0.31
Gujarat	25745083	6.99	195	5.12	6.05
Haryana	8842103	2.40	80	2.10	2.25
Himachal Pradesh	688552	0.19	56	1.47	0.83
Jammu & Kashmir	3433242	0.93	86	2.26	1.59
Jharkhand	7933061	2.15	40	1.05	1.60
Karnataka	23625962	6.41	220	5.77	6.09
Kerala	15934926	4.33	59	1.55	2.94
Madhya Pradesh	20069405	5.45	364	9.55	7.50
Maharashtra	50818259	13.80	256	6.72	10.26
Odisha	7003656	1.90	107	2.81	2.35
Puducherry	852753	0.23	0	0.00	0.12
Punjab	10399146	2.82	143	3.75	3.29
Rajasthan	17048085	4.63	185	4.85	4.74
Tamil Nadu	34917440	9.48	721	18.91	14.20
Uttar Pradesh	44495063	12.08	648	17.00	14.54
Uttarakhand	3049338	0.83	74	1.94	1.38
West Bengal	29093002	7.90	129	3.38	5.64
<b>Sub Total</b>	<b>368309064</b>	<b>100.00</b>	<b>3812</b>	<b>100.00</b>	<b>100.0</b>
Assam	4398542	52.34	88	40.37	46.36
Arunachal Pradesh	317369	3.78	26	11.93	7.85
Manipur	834154	9.93	28	12.1	
Meghalaya	595450	7.09	10	4.5	

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Mizoram	571771	6.80	23	10.55	8.68
Nagaland	570966	6.79	19	8.72	7.76
Tripura	961453	11.44	16	7.34	9.39
Sikkim	153578	1.83	8	3.67	2.75
Sub Total	8403283	100.00	218	100.00	100.0
Grand Total of Cities			4030		

\*Daman & Diu, Lakshadweep, Dadra & Nagar Haveli are not included in the list due to non availability

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**Technological Options  
For On-site Sanitation (OSS)  
Systems under  
Swachh Bharat Mission (SBM)**

This note explains the technical options for On-Site Sanitation (OSS) that are recommended under the Swachh Bharat Mission (SBM).

## ***Features of On-Site Sanitation (OSS) Systems:***

When sewage is collected, treated and/or disposed off at, or near the point of generation, without the use of an underground sewerage system, the system is called “on-site sanitation” (OSS) system. OSS systems are sanitation facilities provided for the use of individual households, community and the floating population. There are a number of situations when an underground sewerage system may not be feasible or desirable. For example, for smaller cities where construction of sewerage infrastructure may be expensive, or those cities that are in hilly areas or in undulating terrain where it may not be practical to construct a sewer network, or even in many cities that have grown organically and where not all households are connected to the existing sewerage network.

OSS systems consist of two main structures, the toilet (superstructure, including the pan and water closet) and the treatment unit. OSS retains waste in the vicinity of the toilet either in a pit, tank or vault. The treatment ranges from a basic sanitary facility such as twin-pit latrines, to a simple type of treatment system by combining a septic tank and a soak pit, or a bio-digester toilet (aerobic and anaerobic).

## ***OSS technology options recommended under SBM:***

The following technological options for OSS are recommended under Swachh Bharat Mission (SBM) for construction of Individual Household Latrines (IHL), group / shared latrines, and community and public toilets:

S. No.	OSS Option	Kind of Latrines				Application
		IHL	Shared Latrines/ Group Toilets	Community Toilets	Public Toilets	
1.	Twin-pit latrines / Leach Pits	Y				<ul style="list-style-type: none"> <li>• In low- to medium-density areas, particularly peri-urban areas, where there is space to install pits and where the digested sludge can be applied to local fields and/or gardens as a fertilizer and soil conditioner</li> <li>• Where water use is in the range 30–50 liters per capita per day depending upon the characteristics of the soil or groundwater level.</li> </ul>
2.	Septic Tank System with soak pit	Y	Y	Y	Y	<ul style="list-style-type: none"> <li>• Septic tanks are widely used to provide partial treatment of wastewater from individual homes, household clusters or institutional buildings where there is no sewerage network.</li> </ul>

S. No.	OSS Option	Kind of Latrines				Application
		IHL	Shared Latrines/ Group Toilets	Community Toilets	Public Toilets	
						<ul style="list-style-type: none"> <li>For soak pits to function, soil conditions must be suitable for infiltration of effluent from septic tanks</li> </ul>
3.	Bio-digester toilets (Anaerobic – developed by DRDO)	Y	Y	Y	Y	<ul style="list-style-type: none"> <li>Claims to provide 80% treatment of wastewater from IHL, household clusters or institutional buildings where there is no sewerage network.</li> <li>The effluent should be passed through a reed bed or soak pit before discharge.</li> <li>For soak pits to function, soil conditions must be suitable for infiltration of effluent from septic tanks</li> </ul>
4.	Aerobic BioTank	Y	Y	Y	Y	<ul style="list-style-type: none"> <li>It claims to provide 100% treatment of wastewater from IHL, clusters of houses or institutional building where there is no sewerage networks. It claims that the effluent can be directly discharged since it is completely safe;</li> <li>Chlorination needs to be followed after treatment</li> </ul>

**OSS vs. underground sewerage:** Wherever a sewerage system is **feasible within 30m from the proposed individual household**, community or public toilets, only the superstructure (i.e. toilets) may be constructed under SBM and connected to the existing sewerage system. No construction of treatment units such as twin pits, septic tank, bio-digester or bio- tank shall be allowed.

## **Technical features & specification for OSS Options under SBM**

The details of technical features and specifications are given as under. The costs are simply estimates at this point of time and should be verified at the time of selection and installation of the technology.

### **I. Twin Pit Latrine**

<b>Description</b>	<p>It consists of superstructure (Toilet) and treatment units (two chambers). The two underground chambers (pits) are provided to hold fecal sludge. These are normally offset from the toilet and should be at least 1 meter apart. A single pipe leads from the toilet to a small diversion chamber, from which separate pipes lead to the two underground chambers. The pits should be lined with open-jointed brickwork. Each pit should be designed to hold at least 12 months accumulation of fecal sludge.</p> <p>Wastewater is discharged to one chamber until it is full of fecal sludge. Discharge is then switched to the second chamber. Just before the second chamber is full of fecal sludge, the contents of the first pit are dug out. During the time of storage, digestion should ensure that it is odorless and free of pathogens.</p>
<b>O&amp;M Requirements</b>	<p>The pits must be used alternately and the diversion chamber must be accessible so that flow can be diverted between chambers. Wastewater should never be diverted back to the first chamber before digested sludge has been removed from it.</p> <p>Responsibility for O&amp;M of the twin-pit latrine rests primarily with the householder, who needs to ensure that the pits are used in the correct sequence and are emptied at the appropriate time. However, ULB utility or private contractors are required for emptying and to ensure safe disposal of septage at a treatment plant.</p>
<b>Additional Infrastructure / treatment requirements</b>	<p>If digested material cannot be used in local fields and gardens, provision will have to be made for transportation to areas outside the city for reuse on agricultural land.</p>
<b>Limitations</b>	<ul style="list-style-type: none"> <li>Households may not understand the system and as a result may not use the pits alternately, or may omit to rest the filled pit at least for one year so that the contents degrade and become harmless.</li> <li>Explanation of the operation and maintenance requirements is therefore essential at the time of installation.</li> <li>Water may percolate through the soil surrounding the pit and pollute groundwater, which is a potential problem if water is used for drinking.</li> </ul>
<b>Specifications</b>	<p>(a) <b>Size options for Toilet/ Super Structure</b> (as shown in Fig.1): Any one of the sizes given below may be adopted depending upon the space availability and affordability of the individual.</p> <ol style="list-style-type: none"> <li>750 mm x 900 mm x 1900mm; or</li> <li>800 mm x 1000 mm x 1900 mm ;</li> <li>900 mm x 1050 mm x 1900 mm</li> </ol> <p>(b) <b>Material</b> – Brick work (as per Fig. 1) / FRP/ Pre-cast Cylindrical Unit</p>



	<p>(c) <b>Minimum Land Requirement</b> – 40 Sq. ft. -60 Sq. ft. (depending upon the location of superstructure and distance between two pits)</p> <p>(d) <b>Size of Pits</b> is shown in Table -1 below</p> <table><tr><td></td><td colspan="2"><b>5 users*</b></td><td colspan="2"><b>10 users**</b></td><td colspan="2"><b>15 users***</b></td></tr><tr><td></td><td><b>Dia</b></td><td><b>Depth (A)</b></td><td><b>Dia</b></td><td><b>Depth (A)</b></td><td><b>Dia</b></td><td><b>Depth (A)</b></td></tr><tr><td><b>Pit size</b></td><td>900</td><td>1000</td><td>1100</td><td>1300</td><td>1300</td><td>1400</td></tr></table> <p>*- only for IHL</p> <p>** - Group household toilets</p> <p>The specification for pits given at Fig 2 may be referred to.</p>		<b>5 users*</b>		<b>10 users**</b>		<b>15 users***</b>			<b>Dia</b>	<b>Depth (A)</b>	<b>Dia</b>	<b>Depth (A)</b>	<b>Dia</b>	<b>Depth (A)</b>	<b>Pit size</b>	900	1000	1100	1300	1300	1400
	<b>5 users*</b>		<b>10 users**</b>		<b>15 users***</b>																	
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<b>Pit size</b>	900	1000	1100	1300	1300	1400																
<b>Cost (for 5 users)</b>	Tentative cost varies from Rs. 15,000/- to Rs. 20,000/- depending upon the construction material.																					

DESIGN OF PITS UNDER DIFFERENT CONDITIONS	
<b>Normal conditions</b>	<p>A typical pour flush latrine with circular pits for normal conditions is shown in <b>Figure 2</b>. In rocky strata with a soil layer in between, the leach pits can be designed on the same principle as those for low subsoil water level and taking the long-term infiltrative capacity as 20 l/m<sup>2</sup>/d. However, in rocks with fissures, chalk formations, or old root channels, pollution can flow for very long distances; hence these conditions demand careful investigation and adoption of adequate pollution safeguards. Pits in black cotton soil should be designed taking infiltrative rate of 10 l/m<sup>2</sup>/d.</p> <p>A vertical fill (envelope) of 300 mm in width with sand, gravel or ballast of small sizes should be provided all round the pit outside the pit lining in rocky strata with fissures and in black cotton soil.</p>
<b>In water-logged areas</b>	The pit top should be raised by 300 mm above the likely level of water above ground level at the time of water logging. Earth should then be filled well compacted all-round the pits up to 1.0 m distance from the pit and up to its top. The raising of the pit will necessitate the raising of latrine floor also. A typical pour flush latrine in water-logged areas is shown in <b>Figure 3</b> .
<b>In high subsoil water level</b>	Where the subsoil water level rises to less than 300 mm below ground level, the top of the pits should be raised by 300 mm above the likely subsoil water level and earth should be filled all round the pits and latrine floor raised as stated above. A typical pour flush latrine with leach pits in high subsoil water level is shown in Figure 4.
<b>Where space is a constraint</b>	Where circular pits of standard sizes cannot be constructed due to space constraints, deeper pit with small diameter (not less than 750 mm), or combined oval, square or rectangular pits divided into two equal compartments by a partition wall may be provided. In case of combined pits and the partition wall should not have holes. The partition wall should go 225 mm deeper than the pit lining and plastered on both sides with cement mortar. A typical pour flush latrine with combined pits is shown in Figure 5.

## II. Septic Tank

<b>Description</b>	A septic tank is a buried chamber that collects, stores and treats the wastewater under anaerobic conditions. Effluent from septic tanks should be discharged into a soak pit. A well-managed septic tank will remove about 50 to 60 % of the biological load in the wastewater																														
<b>Mode of operation</b>	Solids settle in the tank and digest anaerobically. This reduces sludge volume and enables wastewater to infiltrate into the ground without clogging the leaching system. Sludge settles in the tank and digests anaerobically over time, releasing methane and other gases.																														
<b>O&amp;M Requirements</b>	Septage must be removed from septic tanks at least once every 2 or 3 years and transported off-site for treatment prior to disposal. Municipal utility or private contractors are required for desludging of septic tanks and to ensure safe disposal of septage at a treatment plant. However the responsibility for O&M of the septic tank itself lies with the owner of the property																														
<b>Limitations</b>	<ul style="list-style-type: none"> <li>Cost and space requirements for the soak pit.</li> <li>Though septic tanks are designed for receiving black water, they often receive both black and grey water. As a result, the retention time in the septic tank is insufficient and the soak pit becomes hydraulically overloaded. This means that the septic tanks need to be de-sludged regularly</li> </ul>																														
<b>Specifications</b>	<p>(a) <b>Size options for Toilet/ Super Structure</b> (as shown in Fig.1): Any one of the sizes given below may be adopted depending upon the space availability and affordability of the individual.</p> <ol style="list-style-type: none"> <li>750 mm x 900 mm x 1900mm; or</li> <li>800 mm x 1000 mm x 1900 mm ;</li> <li>900 mm x 1050 mm x 1900 mm</li> </ol> <p>(a) <b>Material</b> – Brick work (as per Fig. 1) / FRP / Pre-cast Cylindrical Unit</p> <p>(b) <b>Minimum Land requirement</b> - 40 Sq. ft. to 50 Sq. ft. (depending upon the location of superstructure)</p> <p>(c) <b>Soak-pit size</b> - The seepage pit may be of any suitable shape with the least cross-sectional dimension of 0.90 m and not less than 1 m in depth below the invert level of the inlet pipe. The construction shall be of perforated brickwork</p> <p>(d) <b>Recommended sizes of septic tanks</b> for households (up to 20 users – group / shared toilets) is given in Table 2 below:</p> <table border="1"> <thead> <tr> <th rowspan="2">No. of users</th><th rowspan="2">Length (m)</th><th rowspan="2">Breadth (m)</th><th colspan="2">Liquid depth (m) (Cleaning interval of)</th></tr> <tr> <th>2 years</th><th>3 years</th></tr> </thead> <tbody> <tr> <td>5*</td><td>1.5</td><td>0.75</td><td>1.0</td><td>1.05</td></tr> <tr> <td>10**</td><td>2.0</td><td>0.90</td><td>1.0</td><td>1.4</td></tr> <tr> <td>15**</td><td>2.0</td><td>0.90</td><td>1.3</td><td>2.00</td></tr> <tr> <td>20**</td><td>2.3</td><td>1.10</td><td>1.3</td><td>1.80</td></tr> </tbody> </table> <p>*- only for IHL  **Shared/Group household toilets</p> <p><b>Note 1:</b> The capacities are recommended on the assumption that discharge from only WC will be treated in the septic tank</p>				No. of users	Length (m)	Breadth (m)	Liquid depth (m) (Cleaning interval of)		2 years	3 years	5*	1.5	0.75	1.0	1.05	10**	2.0	0.90	1.0	1.4	15**	2.0	0.90	1.3	2.00	20**	2.3	1.10	1.3	1.80
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	<p><b>Note 2:</b> A provision of 300 mm should be made for free board.</p> <p><b>Note 3:</b> The sizes of septic tank are based on certain assumption on peak discharges, as estimated in IS: 2470 (part 1) and while choosing the size of septic tank exact calculations shall be made.</p>
<b>Cost (for 5 users)</b>	<p>Tentative cost varies from Rs. 25,000/- to Rs. 30,000/- depending upon the construction material (toilet and septic tank).</p> <p>Pre fabricated septic tanks are available at lower cost in the market, which also may be explored to speed up the implementation.</p>

### III **Bio-digester Toilet (Developed by DRDO)**

<b>Description</b>	<p>A bio-digester toilet is an anaerobic multi-compartment tank with inoculum (anaerobic bacteria) which digests organic material biologically. The details of bio-digester toilets are shown in Figure 7. This system converts faecal waste into usable water and gases in an eco-friendly manner.</p> <p>It can be connected to the toilet or a series of toilets. The toilet can be a superstructure fixed on the bio-digester tank or a separate unit. Bio-digester tank has an inlet, an outlet and a gas pipe.</p> <p>The tank has two components, namely, anaerobic microbial inoculum (seed bacteria) and specially designed fermentation tank. The tank can be made out of stainless steel, mild steel, FRP or concrete or brick and mortar.</p> <p><b>The effluent from bio-digester tank is needed to be further disposed into a soak pit or a reed bed arrangement for its treatment to acceptable levels for reuse.</b></p>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>• <b>It is claimed that there is no sludge formation</b>, consequently there is no need for de-sludging and treatment and hence it is more economical in the long-term as it conserves water and has minimum O&amp;M</li> <li>• Night soil degradation occurs through microbial reaction which converts it into bio gas and odorless water.</li> <li>• Technology is environmental friendly, maintenance free and efficient without depending on conventional energy sources.</li> <li>• Permits use of toilet cleansing agents.</li> <li>• Suitable for mobile and stationary platforms.</li> <li>• Lifelong usage bio-digester tank does not need recharging, re-shifting or maintenance.</li> <li>• Costs lesser than the conventional toilets.</li> <li>• Easy to transport and install.</li> <li>• One-third to one-fourth capacity of septic tank</li> <li>• Space requirement is less.</li> </ul>
<b>Limitation</b>	<ul style="list-style-type: none"> <li>• If the digester is not in use for more than 4-5 months continuously, a small portion of inoculum to be fed for reactivation of Bacteria.</li> </ul>
<b>Specifications</b>	<p><b>Toilet Superstructure</b></p> <p>(a) <b>Size options for Toilet/ Super Structure</b> (as shown in Fig.1): Any one of the sizes given below may be adopted depending upon the space availability and affordability of the individual.</p>

	<div><div><div>a. 750 mm x 900 mm x 1900mm; or</div><div>b. 800 mm x 1000 mm x 1900 mm ;</div><div>c. 900 mm x 1050 mm x 1900 mm</div></div><div>(b) <b>Material</b> – Brick work (as per Fig. 1) / FRP/ Pre cast Cylindrical or Square</div><div><b>Bio tank</b><div><div>(a) Land requirement<div><div>a. 20-25 sq. ft.(superstructure above Bio Tank ,reedbed or soak pit)</div><div>b. 9-10 sqft (superstructure above Bio Tank)</div></div></div><div>(b) Tank internal dimensions – .715 m x1000 mm x 1000 mm</div><div>(c) Diagonal partition wall of 2.5-3mm thickness (adequately stiffened by ribs)</div><div>(d) Tank is buried 600mm deep and anchored by 300mm long stainless steel (SS316) anchor bolts at corners(Not required)</div><div>(e) FRP tanks of average 3mm(2.5-6mm depending on the volume) thickness</div><div>(f) Provision of water sealed outlet from the tank</div><div>(g) For 5-6 users:<div><div>a. Total capacity: 700 litres (1000 mmX700 mm and 1000 mm depth). Where space is a constraint the depth of the tank can be increased to 1.5 m</div><div>b. Volume of anaerobic Compartment (30% of capacity): 210 litres</div><div>c. Tank may be constructed with masonry also.</div></div></div></div></div></div>																		
	<div><div><b>Table 3 - Volume of bio-digester tank for various user groups:</b></div><table><tr><th>No. of users</th><th>Size of bio-digester / bio-toilet</th><th>Remarks</th></tr><tr><td>4-7 (Single family)</td><td>0.7m<sup>3</sup> (FRP / RCC material/ Brick and Mortar/ precast)</td><td>Individual</td></tr><tr><td>8-15 (two families)</td><td>1 m<sup>3</sup> (FRP / RCC material/ Brick and Mortar/ precast)</td><td>Group / shared</td></tr><tr><td>30-50</td><td>3 m<sup>3</sup> (FRP / RCC material/ Brick and Mortar/ precast)</td><td rowspan="4">Community</td></tr><tr><td>100-120</td><td>6.0 m<sup>3</sup> (FRP / RCC material/ Brick and Mortar/ precast*)</td></tr><tr><td>200-220</td><td>10.0 m<sup>3</sup> (RCC material/ Pre cast/Brick and Mortar/)</td></tr><tr><td>500-600</td><td>30.0 m<sup>3</sup> (RCC material/ Precast/Brick and Mortar)</td></tr></table><div>* It is not recommended to use FRP tank for volume of more than 5-6.0 m<sup>3</sup> as logistics will be difficult and transportation cost is high.</div></div>	No. of users	Size of bio-digester / bio-toilet	Remarks	4-7 (Single family)	0.7m <sup>3</sup> (FRP / RCC material/ Brick and Mortar/ precast)	Individual	8-15 (two families)	1 m <sup>3</sup> (FRP / RCC material/ Brick and Mortar/ precast)	Group / shared	30-50	3 m <sup>3</sup> (FRP / RCC material/ Brick and Mortar/ precast)	Community	100-120	6.0 m <sup>3</sup> (FRP / RCC material/ Brick and Mortar/ precast*)	200-220	10.0 m <sup>3</sup> (RCC material/ Pre cast/Brick and Mortar/)	500-600	30.0 m <sup>3</sup> (RCC material/ Precast/Brick and Mortar)
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<div>Cost Estimates</div>	<div><div><b>Super Structure Cost –</b></div><table><tr><th>Masonry</th><th>Precast Cylindrical Unit</th><th>Cement Board</th></tr><tr><td>19,000</td><td>12,000</td><td>16,400</td></tr></table><div><b>Bio-digester tank Cost -</b></div><table><tr><th>No. of users / Capacity</th><th>Masonry</th><th>Precast Cylindrical Unit</th><th>Fiber reinforced plastic</th></tr><tr><td>5 to 7 users (700 Litre)</td><td>17,100</td><td>11,600</td><td>22,000</td></tr><tr><td>10 to 12 users (1000 Litre)**</td><td>19,000</td><td>13,600</td><td>24,000</td></tr></table><div><div>**Group / Shared toilets.</div><div>Cost estimates for Biodigesters (Superstructure and Tank) are as given by NBCC. Taxes, as applicable and transportation costs as per actual have to be added.</div></div></div>	Masonry	Precast Cylindrical Unit	Cement Board	19,000	12,000	16,400	No. of users / Capacity	Masonry	Precast Cylindrical Unit	Fiber reinforced plastic	5 to 7 users (700 Litre)	17,100	11,600	22,000	10 to 12 users (1000 Litre)**	19,000	13,600	24,000
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	<p><b><u>Notes on Bio- Digester based Toilets</u></b></p> <p>1. Cost of construction will depend on the schedule rates of each state.</p> <p>2. The Claims made by Biodigester providers that “No sludge shall be produced” consequent to wastewater treatment,by addition of certain patented inoculums and processes in the bio tank “. It has been stated that use of phenyl and other chemical toilet cleansing agents will not unduly affect treatment efficiency, have not been independently verified by CPHEEO/MoUD.</p> <p>As such, while drafting contracts, the firms/ ToT holders engaged to construct toilets using this technology should be held to be financially and legally responsible for tenability of their claims.</p>

#### ***IV Aerobic Bio Tank/ Bio Toilets (Patented by a private operator and approved by Department of Science and Technology)@***

<b>Description</b>	<p>This technology differs from that of the bio-digester toilets developed by DRDO since the process adopted is aerobic- which involves a different multi-strain of bacteria which breaks down the waste matter through oxidization. Bio-toilets consist of a purpose built multi-chambered bio-tank in which the waste is stored as shown in <b>Figure 8</b>. The movement of the waste is slowed down as the waste flows from one chamber to another by a special process in the Bio-tank such that the multi-strain bio-media present in the tank can digest the waste and convert it fully into non-toxic, neutral water. This water then passes through the last chamber for disinfection. Here water is treated with Chlorine where the majority of the germs are killed. The resultant water is free from all sorts of E-coli and fecal coliforms.</p> <p>The bricks and mortar Bio-tank is described in the last diagram of Figure 8.The superstructure is made of bricks and mortar. These are available in both flush and non-flush models.</p>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>• Aerobic bacteria are very efficient in breaking down organic waste and the waste is decomposed into water by the bacteria within 24 hours.The end products of aerobic degradation are carbon dioxide (CO<sub>2</sub>) and water (H<sub>2</sub>O).</li> <li>• The aerobic pathway also releases a substantial amount of energy.</li> <li>• The Bio-toilet is available in both, portable as well as fixed models. The advantage of the portable model is that it can be shifted from one location to another as and when required, and the module can be assembled and disassembled easily.</li> <li>• <b>The Bio-toilet eliminates the need for any periodic sludge removal.</b></li> </ul>
<b>Limitations</b>	<ul style="list-style-type: none"> <li>• The bacteria functions best in temperatures between 4 and 55 degrees centigrade</li> <li>• Bio-toilets need proper bacteria inoculation periodically depending on the usage at particular sites. <b>An in-depth understanding of the operation and use of toilets in a given area must be undertaken BEFORE choosing bio-toilets as a solution.</b></li> <li>• Attention must be given to O&amp;M, especially in dense urban settlements</li> </ul>

	<p>where chances of blockage of bio-toilets increase, making it dysfunctional over a period of time if the inoculation is not done in time.</p> <ul style="list-style-type: none"> <li>• Phenyl/ Harpic or any strong detergent/acid and bleaching powder should not be used to clean the pan. Only herbal / ayurvedic cleaning agents should be used.</li> <li>• Chlorine dose is necessary for disinfection.</li> </ul>
<b>O&amp;M</b>	Responsibility of cleaning the toilet / superstructure is with the owner of the household in the case of IHLs / shared latrines and with the ULB in the case of community / public toilets.
<b>Specifications</b>	<p>(e) <b>Size options for Toilet/ Super Structure</b> (as shown in Fig.1): Any one of the sizes given below may be adopted depending upon the space availability and affordability of the individual.</p> <ol style="list-style-type: none"> <li>750 mm x 900 mm x 1900mm; or</li> <li>800 mm x 1000 mm x 1900 mm ;</li> <li>900 mm x 1050 mm x 1900 mm</li> </ol> <p>(a) <b>Material</b> – Bricks and Mortar walls of Bio Digester tank and Superstructure, PCC tank floor, RCC toilet floor, PVC Door and Frame, RCC/PVC/GI sheet Toilet Roof.</p> <p>(b) <b>The Bio-toilet system consists of:</b></p> <ul style="list-style-type: none"> <li>• Bio digester Tank(Bricks &amp; Mortar/FRP/Steel),</li> <li>• Superstructure(Bricks &amp; Mortar/FRP)</li> <li>• Indian Pan/WC</li> <li>• Size: 4 feet x 4 feet tank base, 4 feet tank height, 6 feet superstructure height.</li> <li>• Maximum usage recommended: 30 defecations/ day/ bio-toilet (no limit on urination)</li> </ul> <p>(c) <b>Land requirement</b> - 16 Sq. ft.</p>
<b>Cost Estimates</b>	The tentative cost of bio-toilet including super structure is approximately Rs.20,000/–, depending upon material of construction. The bio-toilets should be supplied by the manufacturers, and the O&M for at least 5 years (including the feeding of inoculums in the periodicity needed) along with IEC (to train users for O&M) by the manufacturer / supplier also should be built into the undertaking.

**Note-** The manufacturers of **Aerobic Bio-tank/ Bio-Toilet** have claimed that aerobic conditions shall be created in the bio-tank/ bio toilet solely through natural aeration and that no sludge production would take place. These claims have not been independently verified by the CPHEEO/ MoUD. As such, while drafting contracts, the firms/ ToT holders engaged to construct toilets using this technology should be held to be financially and legally responsible for tenability of their claims.

They have also stated that inoculums shall have to be fed at least once in a quarter (3 months) for proper functioning of the treatment unit. It is also suggested to use herbal/ Ayurvedic cleaning agents as chemical agents such as phenyl may harm the inoculums. How and by whom shall the inoculums be administered and what are the consequent O&M charges due to these requirement is a function of remoteness of the toilet from major urban areas. The same may also be accounted for in the cost of toilet.

## Norms and Specifications for Community and Public Toilets

Description	<p>A <b>community toilet block</b> is a shared facility provided for a group of residents or an entire settlement. Community toilet blocks are used primarily in low-income informal settlements where space and/or land are constraints. Pour flush option is generally used in this kind of OSS systems. It is also advisable to provide facilities like washing, bathing, and a small incinerator in this block for the use of the community</p> <p><b>Public toilets</b> are provided for the floating population / general public in places such as markets, train stations or other public areas, where there is a considerable number of people passing by.</p>																																				
Septic tanks for public / community toilets	<p>Recommended sizes of septic tanks for community/ public toilets (up to 300 users) is given below in <b>Table 5</b>.</p> <table><tr><th rowspan="2">No. of users</th><th rowspan="2">Length (m)</th><th rowspan="2">Breadth (m)</th><th colspan="2">Liquid depth (cleaning interval of)</th></tr><tr><th>2 years</th><th>3 years</th></tr><tr><td>50</td><td>5.0</td><td>2.00</td><td>1.0</td><td>1.24</td></tr><tr><td>100</td><td>7.5</td><td>2.65</td><td>1.0</td><td>1.24</td></tr><tr><td>150</td><td>10.0</td><td>3.00</td><td>1.0</td><td>1.24</td></tr><tr><td>200</td><td>12.0</td><td>3.30</td><td>1.0</td><td>1.24</td></tr><tr><td>300</td><td>15.0</td><td>4.00</td><td>1.0</td><td>1.24</td></tr></table> <p>Source: Manual on Sewerage and Sewage Treatment Systems, 2013 Part A Engineering</p> <p>Note 1: A provision of 300 mm should be made for free board.</p> <p>Note 2: The sizes of septic tanks are based on certain assumptions on peak discharges, as estimated in IS: 2470 (Part 1) and while choosing the size of septic tank exact calculations shall be made.</p> <p>Note 3: For population over 100, the tank may be divided into independent parallel chambers of maintenance and cleaning</p>					No. of users	Length (m)	Breadth (m)	Liquid depth (cleaning interval of)		2 years	3 years	50	5.0	2.00	1.0	1.24	100	7.5	2.65	1.0	1.24	150	10.0	3.00	1.0	1.24	200	12.0	3.30	1.0	1.24	300	15.0	4.00	1.0	1.24
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300	15.0	4.00	1.0	1.24																																	
Community Toilet - Norms for toilet seats	<ul style="list-style-type: none"><li>One seat for 35 men;</li><li>One seat for 25 women</li></ul>																																				
Public Toilets - Norms for toilet seats	<p>Norms for toilet sets for public toilets are given in <b>Table 6</b> below:</p> <table><tr><th>S. No.</th><th>Sanitary Unit</th><th>For Male</th><th>For Female (*)</th></tr><tr><td>i.</td><td>Water Closet</td><td>One per 100 persons up to 400 persons; For over 400 persons, add at the rate of one per 250 persons or part thereof</td><td>Two for 100 persons up to 200 persons; over 200 persons, add at the rate of one per 100 persons or part thereof</td></tr><tr><td>ii.</td><td>Ablution Taps</td><td>One in each W.C.</td><td>One in each W. C.</td></tr><tr><td>iii.</td><td>Urinals</td><td>One for 50 persons or part thereof</td><td>Nil</td></tr><tr><td>iv.</td><td>Wash basins</td><td>One per W. C. and urinal provided</td><td>One per W. C. provided</td></tr></table> <p>Source: Manual on Sewerage and Sewage Treatment Systems, 2013 Part A Engineering</p>					S. No.	Sanitary Unit	For Male	For Female (*)	i.	Water Closet	One per 100 persons up to 400 persons; For over 400 persons, add at the rate of one per 250 persons or part thereof	Two for 100 persons up to 200 persons; over 200 persons, add at the rate of one per 100 persons or part thereof	ii.	Ablution Taps	One in each W.C.	One in each W. C.	iii.	Urinals	One for 50 persons or part thereof	Nil	iv.	Wash basins	One per W. C. and urinal provided	One per W. C. provided												
S. No.	Sanitary Unit	For Male	For Female (*)																																		
i.	Water Closet	One per 100 persons up to 400 persons; For over 400 persons, add at the rate of one per 250 persons or part thereof	Two for 100 persons up to 200 persons; over 200 persons, add at the rate of one per 100 persons or part thereof																																		
ii.	Ablution Taps	One in each W.C.	One in each W. C.																																		
iii.	Urinals	One for 50 persons or part thereof	Nil																																		
iv.	Wash basins	One per W. C. and urinal provided	One per W. C. provided																																		

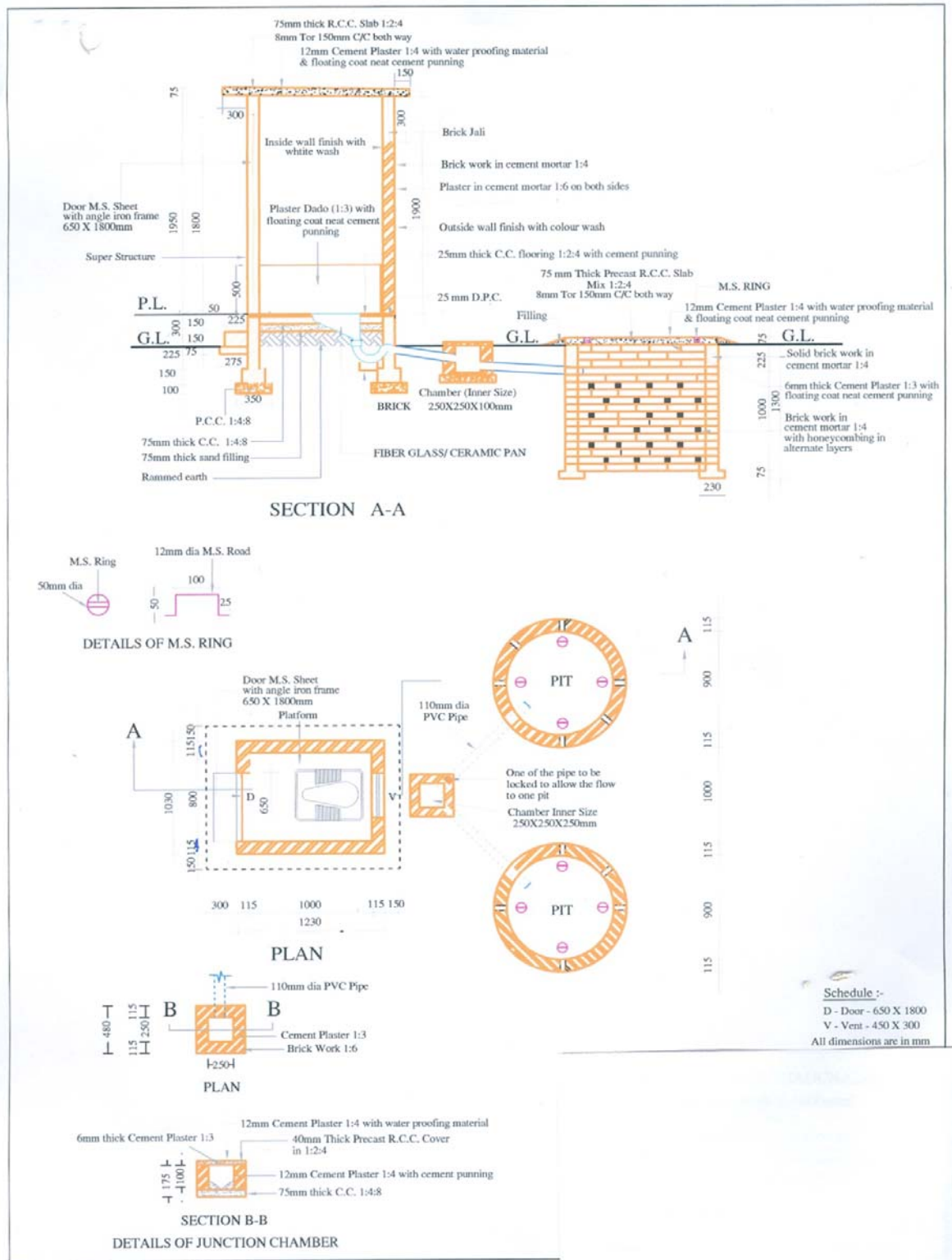
	<b>Note:</b> i) It may be assumed that two-thirds of the number are males and one- third females ii) One water tap with drainage arrangements shall be provided for every 50 persons or part thereof in the vicinity of water closet and urinals. * At least 50% of female WCs may be Indian pan and 50% EWC iii) Separate seat may also be provided for trans-genders iv) <i>Special arrangements may be made for physically challenged.</i>		
Treatment units	1. Bio Digester with reed bed systems/ soak pits 2. Aerobic Bio Tank 3. Septic Tank with Soak Pits		
Cost	Tentative basic cost for community toilets is Rs. 65,000/- per seat and public toilets is Rs. 75,000/- per seat. However, the cost per seat would vary depending upon the construction material, quality of construction, type of treatment technology adopted and O&M for specified period etc. However the cost of toilet using bio-digester technology given by NBCC, are as under.		
	Superstructure 5 Cubicle for 200 users		
	Pre Painted galvanized Sheets	Masonry	Cement Board
	Rs. 1,63,000.00/-	Rs.95,000.00/-	Rs. 80,000.00/-
	Superstructure 10 Cubicle for 400 users		
	Pre Painted galvanized Sheets	Masonry	Cement Board
	Rs.3,26,000.00/-	Rs. 1,80,000.00/-	Rs. 1,60,000.00/-
	Bio Digester Tank 10 KLD for every 200 users		
	Masonry		
	Rs. 1,74,000.00/- per 200 user		
Additional Infrastructure	It must be ensured that adequate water supply arrangement shall be made for proper functioning and upkeep of toilets. Wherever possible, ULBs should ensure that public and community toilets are outfitted with solar panels for the generation of electricity to ensure uninterrupted power supply and bring down O&M costs.		
Implementation Mode	All toilets shall be constructed through PPP mode with inbuilt provision of O&M for at least a period of 5 years.		

For additional details, the guidelines developed by NBCC can be downloaded. ([www.nbccindia.gov.in](http://www.nbccindia.gov.in))



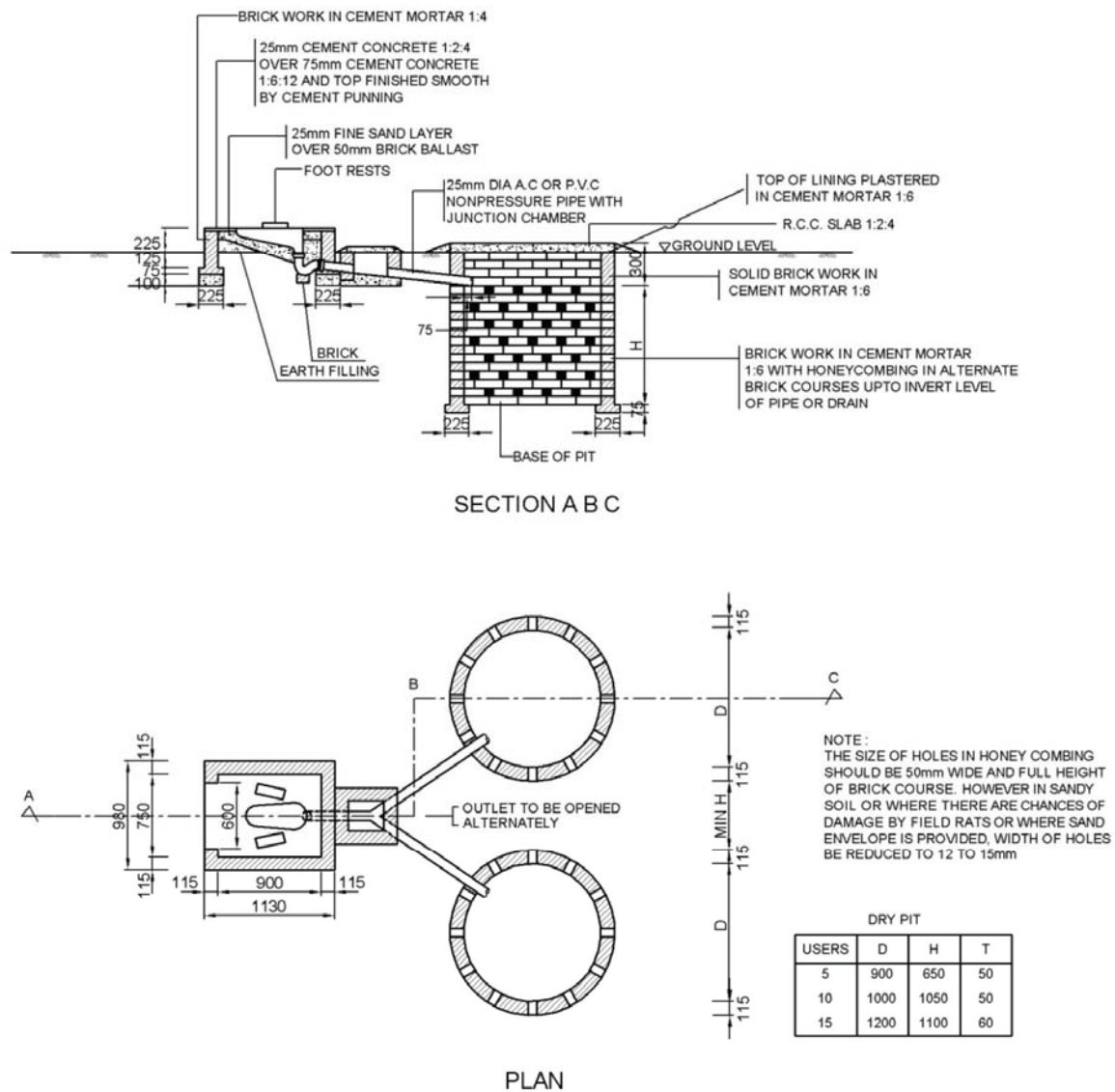
## ANNEXURE 1: FIGURES

Figure 1: Detailed layout of toilet



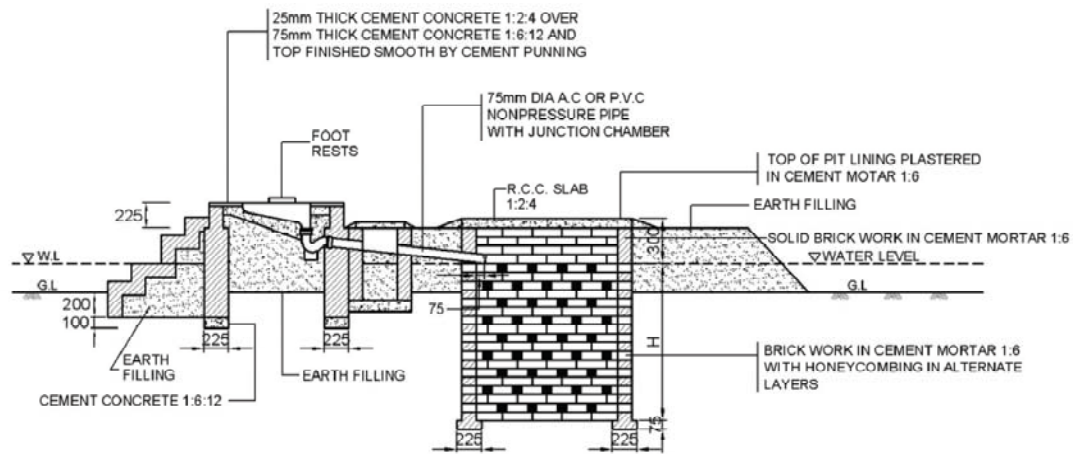
## Figure 2: Pour-flush latrine with circular pits

(Source: Manual on Sewerage and Sewage Treatment Systems, 2013, Part A: Engineering)

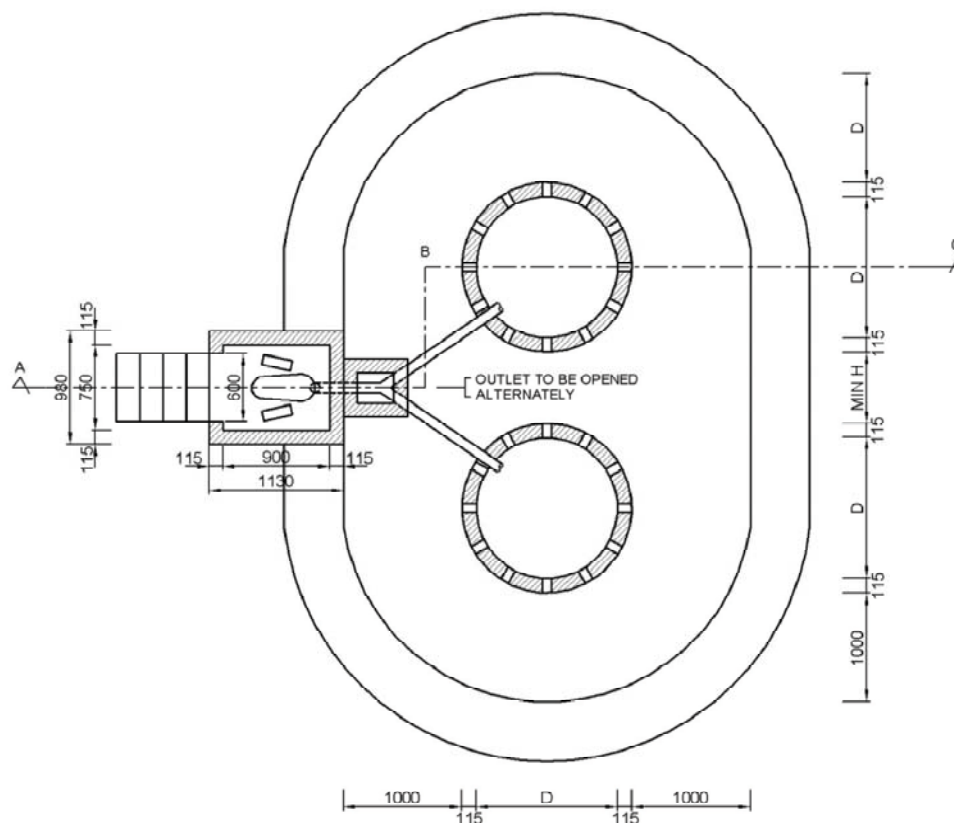


### Figure 3: Pour-flush latrine in water-logged areas

(Source: Manual on Sewerage and Sewage Treatment Systems, 2013, Part A: Engineering)



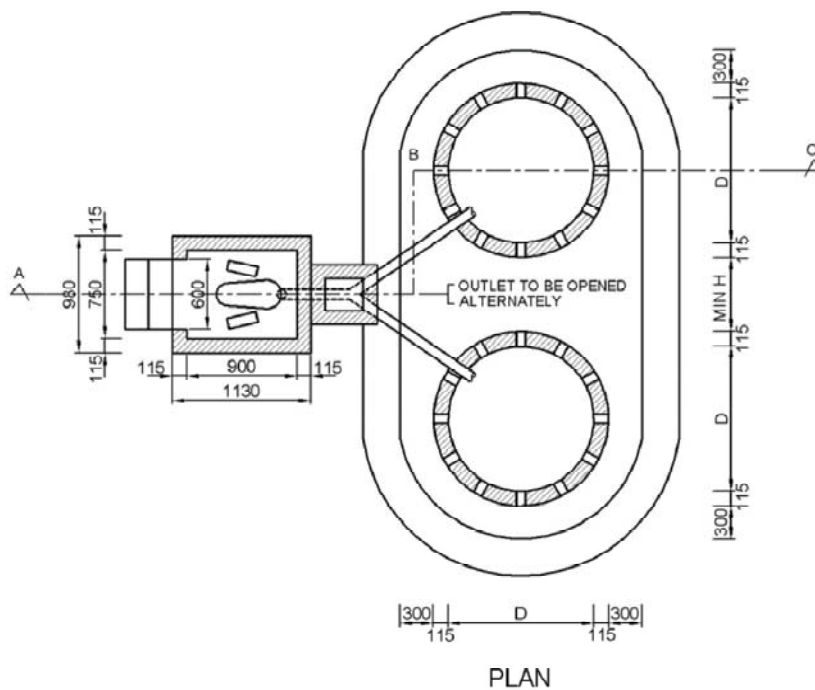
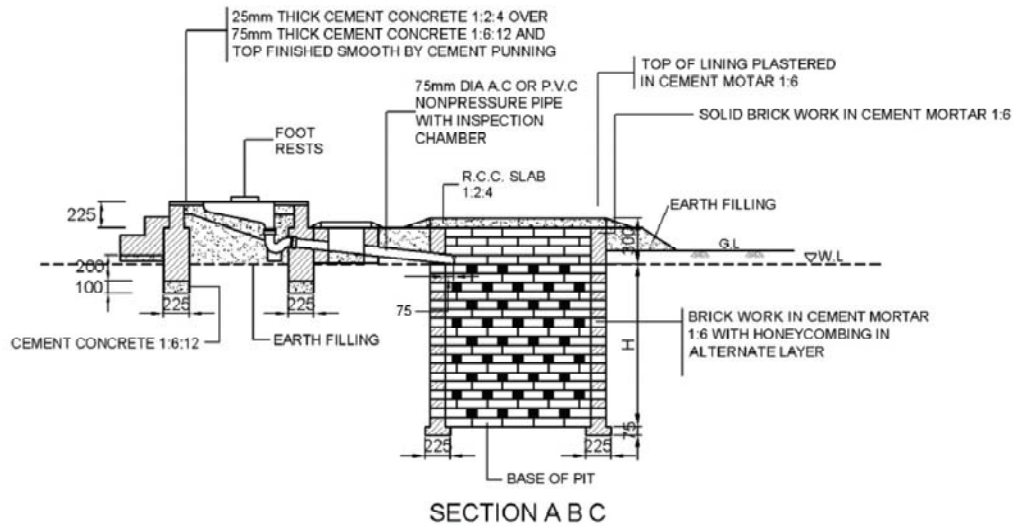
SECTION A B C



PLAN

## Figure 4: Leach pits in high subsoil water level

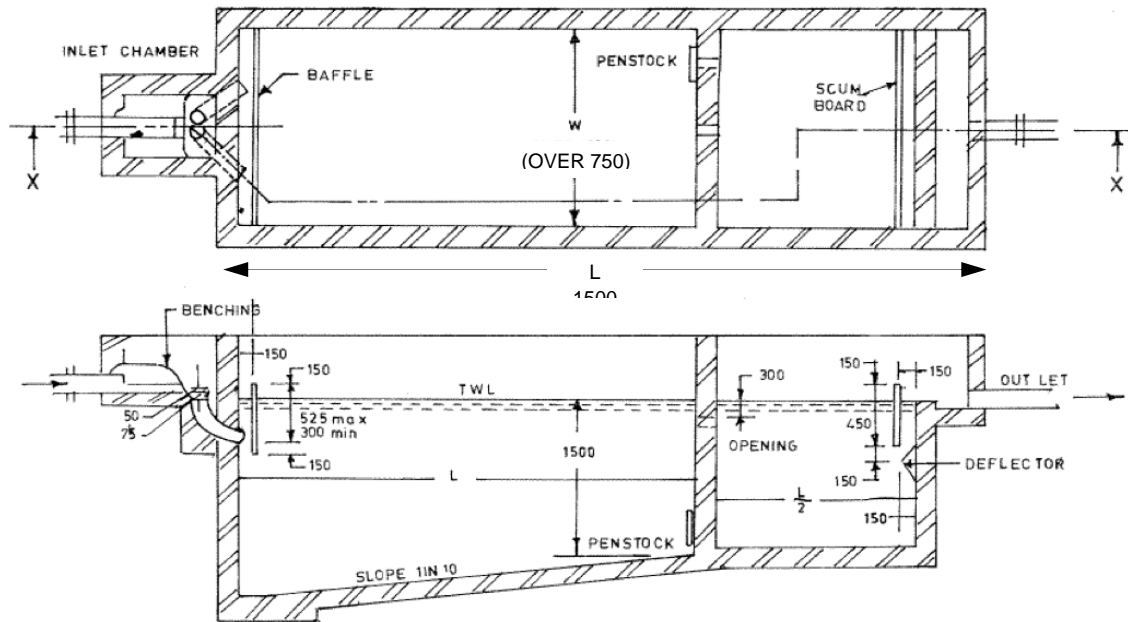
(Source: Manual on Sewerage and Sewage Treatment Systems, 2013, Part A: Engineering)



(Source: Manual on Sewerage and Sewage Treatment Systems, 2013, Part A: Engineering)



**Figure 6: Typical sketch of Two-compartment Septic Tank for 5 users** (Source: Manual on Sewerage and Sewage Treatment Systems, 2013, Part A: Engineering)  
(Dimensions in mm)

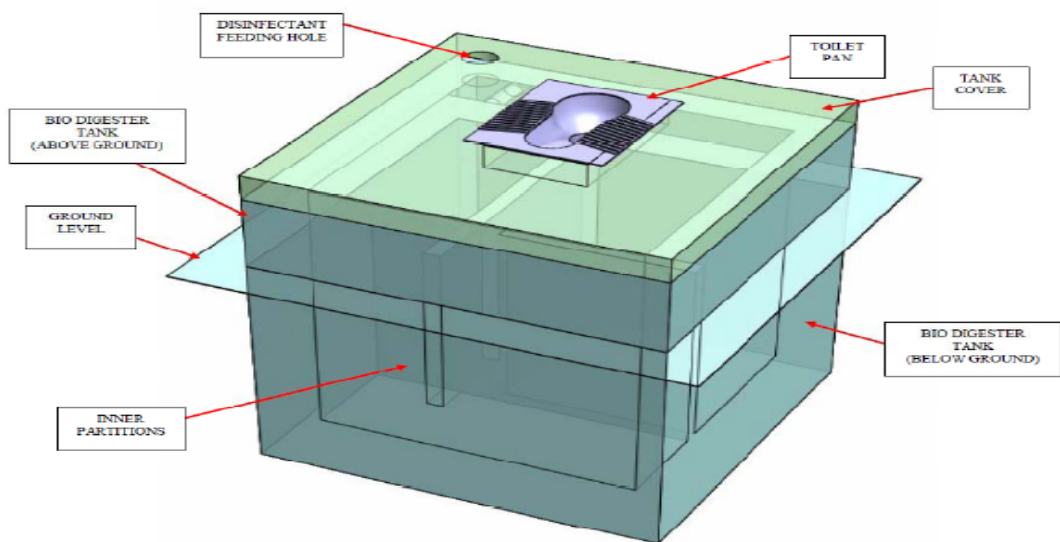
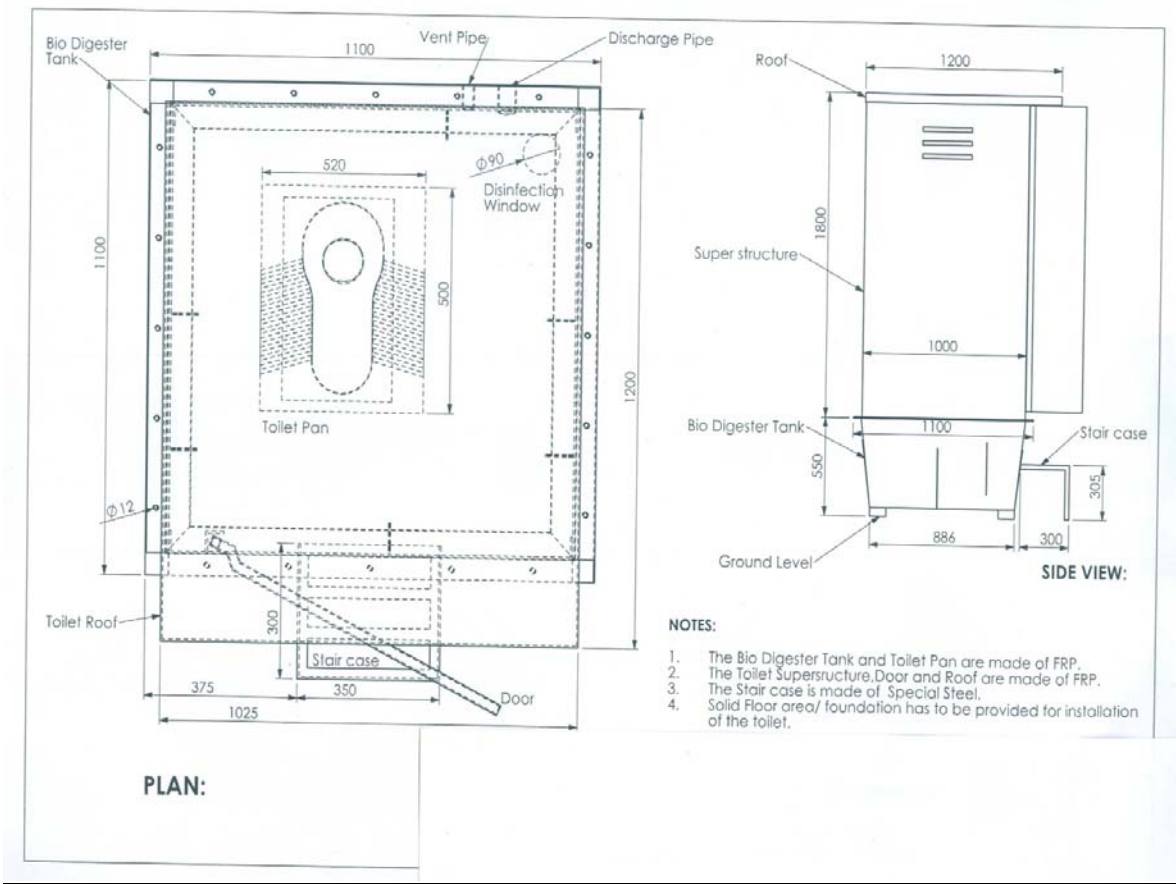


**Figure 7: Details of bio-digester with reed bed**(Source: DRDO)

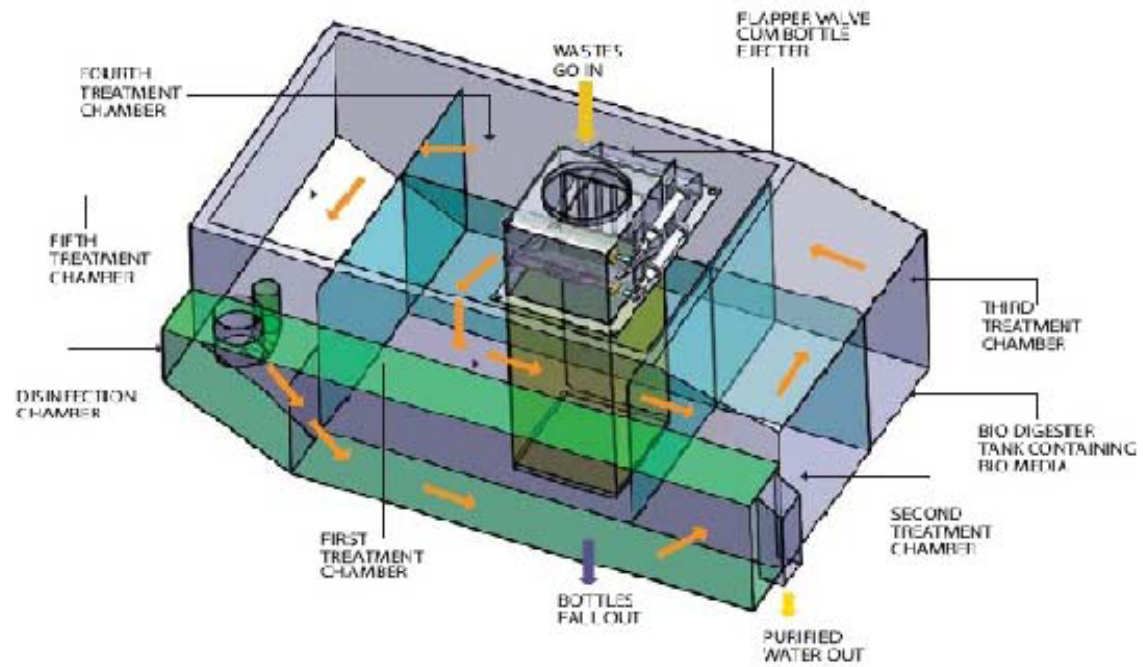




**Figure 8: Details of Bio-Toilet**(Source: Private Agency)







## **Concept Note on State Sanitation Strategy for the State of**

### **PART A: Parameters determining the existing urban sanitation situation**

<b>1</b>	<b>State Profile</b>	
1.1	Name of the state	
1.2	Total Urban Population	
1.3	Number of Statutory towns <sup>1</sup>	
1.4	Number of Census towns <sup>2</sup>	
1.5	Population of statutory towns (as per Census 2011)	
1.6	Population of census towns (as per Census 2011)	

<b>2</b>	<b>Status of Sanitation Situation as per Census 2011[FOR STATUTORY TOWNS ONLY]</b>	<b>Total (State)</b>	<i>Provide break-up with details</i>					
			<b>Class I</b>	<b>Class II</b>	<b>Class III</b>	<b>Class IV</b>	<b>Class V</b>	<b>Class VI</b>
<b>2.1</b>	<b>Total number of urban households</b>							
<b>2.2</b>	<b>Number of urban households having latrine facilities within premises (Sum 2.2.1-2.2.5)</b>							
2.2.1	Number of urban households (connected with sewerage system)							
2.2.2	Number of urban households dependent upon septic tanks (flush / pour flush to septic tanks)							
2.2.3	Number of urban households dependent on other systems (flush / pour flush to other systems)							
2.2.4	Number of urban households having pit latrines[Sum 2.2.4(a)-2.2.4(b)]							
2.2.4 (a)	Number of urban households with Pit with slab – ventilated improved pit							
2.2.4 (b)	Number of urban households with Pit without slab (open pit)							
2.2.5	Number of urban households having insanitary latrines [Sum 2.2.5(a)-2.2.5(c)]							
2.2.5(a)	Number of urban households with night soil disposed into open drain							
2.2.5(b)	Number of urban households with service latrine night soil removed by human							
2.2.5(c)	Number of urban households with service latrine – night soil serviced by animal							
<b>2.3</b>	<b>Number of urban households dependent upon public toilets (not in premises – public latrine)</b>							
<b>2.4</b>	<b>Number of urban households resorting to open defecation (not in premises – open)</b>							
<b>3</b>	<b>Status of Waste water generation and Treatment facility within the state [FOR STATUTORY TOWNS ONLY]</b>	<b>Total (State)</b>	<b>Class I</b>	<b>Class II</b>	<b>Class III</b>	<b>Class IV</b>	<b>Class V</b>	<b>Class VI</b>
3.1	Number of statutory towns with STPs							
3.2	Total Waste Water Treated in statutory towns (in MLD)							
3.3	Total Waste water generated in statutory towns (in MLD)							
3.4	Number of statutory towns with Septage Treatment							

<sup>1</sup> Statutory towns are all administrative units defined by statute as urban such as Municipal Corporation, Municipality, Cantonment Board, Notified Town Area Committee, Town Panchayat, Nagar Palika, etc..

<sup>2</sup> Census towns are administrative units identified by the Census 2011 as having urban characteristics based on certain criteria. These towns have been identified by the Census with the acronym “CT” in the census lists.

	Facility							
4	<b>Solid waste management [FOR STATUTORY TOWNS ONLY]</b>	<b>Total (State)</b>	<b>Class I</b>	<b>Class II</b>	<b>Class III</b>	<b>Class IV</b>	<b>Class V</b>	<b>Class VI</b>
4.1	Total Solid waste generated (in MT)							
4.2	Total Waste collected (in MT)							
4.3	Total Waste Transported to Treatment Facility (in MT)							
4.4	No of cities with SWM Disposal Facility							
5*	<b>Access to Drinking Water as per Census 2011 [FOR STATUTORY TOWNS ONLY]</b>	<b>Total (State)</b>	<b>Class I</b>	<b>Class II</b>	<b>Class III</b>	<b>Class IV</b>	<b>Class V</b>	<b>Class VI</b>
5.1	Number of urban households with access to Drinking water (tap water from treated source)							
5.2	Number of urban households with access to Drinking water (tap water from untreated source)							
5.3	Total Water Supplied							
6*	<b>Status of Storm water drainage as per Census 2011 [FOR STATUTORY TOWNS ONLY]</b>	<b>Total (State)</b>	<b>Class I</b>	<b>Class II</b>	<b>Class III</b>	<b>Class IV</b>	<b>Class V</b>	<b>Class VI</b>
6.1	Number of urban households (closed drainage)							
6.2	Number of urban households (open drainage)							
6.3	Number of urban households (no drainage)							

\*Not mandatory

#### PART B: Institutional Mechanism for Swachh Bharat Mission (SBM) - Urban

1		<b>Provide Details</b>		
A	Name of the Nodal Agency	<i>[Provide name of Nodal Agency; else if not designated, provide details of process by which nodal agency will be appointed]</i>		
B	Name and Designation of Nodal Officer	<i>[Provide name of Nodal Officer; else if not designated, provide details of process by which nodal officer will be appointed]</i>		
	<b>Institutional Mechanism</b>		<b>Start date (Month / Year)</b>	<b>End date (Month / Year)</b>
C	Constitution of State Level Sanitation Committee (SLSC) as per the NUSP 2008	<i>[Provide details of SLSC; else if not constituted, provide details of process by which SLSC will be constituted; timeline should be max. within 1 month of submission of concept note]</i>		
D	Setting up of PMU at the state-level under SBM	<i>[Provide details of PMU set-up; else if not set-up, provide details of process by which PMU will be put in place; timeline should be max. within 3 months of submission of concept note]</i>		
2	<b>Monitoring Mechanism</b>	<b>Provide Details</b>	<b>Start date (Month / Year)</b>	<b>End date (Month / Year)</b>
A	Constitution of the State-level High Powered Committee (S-HPC)	<i>[Provide details of S-HPC; else if not constituted, provide details of process by which S-HPC will be constituted; timeline should be max. within 1 month of submission of concept note]</i>		

B	Constitution of District-level Review and Monitoring Committee (DRMC) under SBM	<i>[Provide details of DRMC; else if not constituted, provide details of process by which DRMC will be constituted; timeline should be max. within 1 month of submission of concept note]</i>		
<b>3</b>	<b>Participatory Mechanism</b>	<b>Provide Details</b>	<b>Start date (Month / Year)</b>	<b>End date (Month / Year)</b>
A	Plan for engagement of the public sector (RWAs, Area Sabha, NGOs, CBOs, SHGs, etc.)	<i>[State governments should have a plan of action to engage citizens in the achievement of SBM (Urban). This plan should be ready max. within 2 months of submission the concept note]</i>		
B	Plan for engagement of the private sector	<i>[State governments should have a plan of action to engage the private sector and raise financial resources for the achievement of SBM (Urban), especially for community and public toilets, and solid waste management. This plan should be ready max. within 2 months of submission the concept note]</i>		
<b>4</b>	<b>Capacity Building</b>	<b>Provide Details</b>	<b>Start date (Month / Year)</b>	<b>End date (Month / Year)</b>
A	Capacity Building plan for Political Representatives, ULB officials and Community	<i>[Provide details of the CB plan under SBM (Urban); if not developed, describe the process by which the CB plan will be put in place. This plan should be ready max. within 3 months of submission the concept note]</i>		
<b>5</b>	<b>Public Awareness&amp; IEC</b>	<b>Provide Details</b>	<b>Start date (Month / Year)</b>	<b>End date (Month / Year)</b>
A	Action plan for public awareness on sanitation under SBM (Urban) (including media such as print, electronic, documentaries, plays, etc.)	<i>[Provide details of the CB plan under SBM (Urban); if not developed, describe the process by which the CB plan will be put in place. This plan should be ready max. within 3 months of submission the concept note]</i>		

**PART C: Component-wise action plan for Swachh Bharat Mission (SBM) - Urban**

1		Targets	Baseline 2014	Cumulative Projection upto2019	Reasons/Justification based on 2001-2011 data and other factors	Target 2015	Target 2016	Target 2017	Target 2018	Target 2019	Cumulative Target (2014-19)
A	a	Construction of new individual household latrines (IHL)	[80% of Part A, 2.4]								[100% of 2014 baseline]
	b	Conversion of pit latrines into sanitary latrines	[Part A, 2.2.4]								[60% of 2014 baseline]
	c	Conversion of insanitary latrines into sanitary latrines	[Part A, 2.2.5]								[100% of 2014 baseline]
B		Construction of Community toilets [NORM: 1 seat / 25 women and 1 seat / 35 men]	[20% of Part A, 2.4]								[100% of 2014 baseline]
C		Construction of Public Toilets [NORM: 1 seat / 50 women and 1 seat / 100 men up to specified numbers*]	[Part A, 1.2]								[5% of 2014 baseline]
D		Solid waste Management	[No. of cities proposed to be covered]								[100% of 2014 baseline]
E		Capacity Building	[Part A, 1.3]								[100% of cities]
F		Public Awareness & IEC	[Part A, 1.3]								[100% of cities]

\*Please also refer Manual on Sewerage & Sewerage Systems, Part A for more details (page No. 8-16)

(Rs. In Crore)

2	Funding [As per the funding pattern in the SBM Urban Guidelines]	2014-2019 (TOTAL)		2014-15		2015-16		2016-17		2017-18		2018-19	
		Total	Central Share	Total	Central Share	Total	Central Share	Total	Central Share	Total	Central Share	Total	Central Share
A	Construction of new individual household latrines (IHL)												
B	Conversion of pit latrines into sanitary												

	latrines												
C	Conversion of insanitary latrines into sanitary latrines												
D	Construction of Community toilets [NORM: 1 seat / 25 women and 1 seat / 35 men]												
E	Construction of Public Toilets [NORM: 1 seat / 50 women and 1 seat / 100 men up to specified numbers*]												
F	Solid waste Management												
G	Capacity Building & A&OE												
H	Public Awareness & IEC												
	<b>Total</b>												

## PART D: Timeline for Preparation of State Sanitation Strategy

1	<b>Timeline for Preparation of State Sanitation Strategy</b> (Maximum within six months of submission of Concept Note)	<b>Attach the concept note as a Annexure</b>
	<p><b>The concept note should be aligned to the Annexure 1 NUSP 2008. The main points to be included in the note are as follows:</b></p> <ul style="list-style-type: none"> <li>• Why a state sanitation strategy required?</li> <li>• Environmental and Health outcomes</li> <li>• Trend in urbanization and population growth</li> <li>• Status of urban sanitation infrastructure including: coverage of piped sewer, septic tanks, open defection, access to toilets ( households, public / community), waste water generated and treated, status of municipal solid waste management,</li> <li>• Access to sanitation facilities in urban slums</li> <li>• Role of state agency in service delivery, regulation and monitoring of infrastructural services</li> <li>• Analysis of manpower / staff available with the ULBs for sanitation services.</li> <li>• Capacity building and training required for the staff</li> <li>• Planning for urban sanitation infrastructure</li> <li>• Action points for improving and increasing the access of sanitation infrastructure.</li> </ul>	

### Timeline for Preparation of SSS (Indicative Only)

2	State Sanitation Strategy (Implementation)	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15
1	Submission of concept note on Sanitation	√										
2	Conducting SLSC meeting - Discussion on SSS		√									
3	Preparation of Sector Assessment Report (SAR)			√								
4	SLSC consultation for Finalisation of SAR				√							
5	Infrastructure gap identification as per SAR					√	√					
6	ULB Consultation / Stakeholder Consultation/ Workshop							√				
7	Draft SSS ( As per Annexure 1 of NUSP guideline)							√				
8	Process of Endorsement by SLSC and Nodal Agency								√			

## Annexure-I

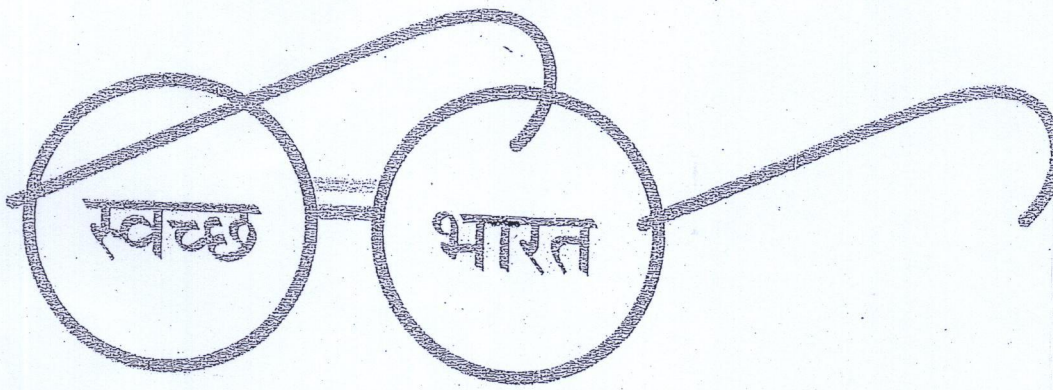
State wise break up of proposed Household Toilets in 4041 statutory towns (Conversion of pit and insanitary to sanitary toilets and new Toilets)

S. No	State	PIT LATRINES					INSANITARY LATRINES				OPEN DEFECACTION		Total Household (Statewise conversion/ construction under SBM )
		Other Pit latrines	Ventilated Improved Pit latrine	Open Pit latrine Without slab	Total no. of Pit latrines	Conversion proposed @60% on Column no. 4 (pit to sanitary latrine)	Night soil disposed into open drain	Night soil removed by human	Night soil serviced by animal	Conversion Proposed @ 100% on col. 6+7+8	No. of Household defecating in Open	*New Construction Proposed @ 80% on Col. No. 10	
		1	2	3	Col No 4= 1+2+3	Col. No. 5 =Col. 4 * 60%	6	7	8	Col. No. 9 =6+7+8	10	11	Col. No.12 =5+9+11
1	ANDAMAN & NICOBAR ISLANDS	122	12	23	157	94	9	-	5	14	1,209	967	1,075
2	ANDHRA PRADESH	75,605	194,961	11,045	281,611	168,967	131,621	4,127	23,378	159,126	581,673	465,338	793,431
3	ARUNACHAL PRADESH	4,895	3,496	5,595	13,986	8,392	230	100	138	468	4,241	3,393	12,252
4	ASSAM	39,485	86,017	59,509	185,011	111,007	5,183	5,025	2,588	12,796	27,900	22,320	146,123
5	BIHAR	66,823	62,270	23,094	152,187	91,312	10,064	3,738	5,015	18,817	546,409	437,127	547,256
6	CHANDIGARH	488	915	212	1,615	969	11	-	19	30	6,397	5,118	6,117
7	CHHATTISGARH	11,547	10,774	2,892	25,213	15,128	3,354	148	1,143	4,645	415,147	332,118	351,890
8	DADRA & NAGAR HAVELI	97	133	16	246	148	1	-	-	1	1,992	1,594	1,742
9	DAMAN & DIU	111	50	18	179	107	9	-	13	22	678	542	672
10	GOA	2,410	1,806	397	4,613	2,768	220	-	402	622	5,788	4,630	8,020
11	GUJARAT	24,956	95,036	6,858	126,850	76,110	16,038	1,119	2,052	19,209	388,836	311,069	406,388
12	HARYANA	29,643	99,020	14,932	143,595	86,157	25,569	607	1,905	28,081	128,059	102,447	216,685
13	HIMACHAL PRADESH	1,560	1,098	149	2,807	1,684	2,039	-	108	2,147	10,911	8,729	12,560
14	JAMMU & KASHMIR	25,788	12,913	5,245	43,946	26,368	53,935	14,405	3,765	72,105	44,501	35,601	134,073
15	JHARKHAND	15,849	13,842	4,019	33,710	20,226	4,594	498	2,201	7,293	254,374	203,499	231,018
16	KARNATAKA	61,645	569,302	17,234	648,181	388,909	50,714	5,581	15,300	71,595	534,829	427,863	888,367
17	KERALA	45,618	211,173	5,299	262,090	157,254	3,554	843	154	4,551	18,429	14,743	176,548
18	MADHYA PRADESH	45,070	42,995	15,214	103,279	61,967	29,882	2,614	5,864	38,360	789,555	631,644	731,971
19	MAHARASHTRA	85,102	189,967	21,889	296,958	178,175	129,138	4,996	31,568	165,702	694,830	555,864	899,741
20	MANIPUR	16,594	16,821	13,763	47,178	28,307	9,580	2,764	252	12,596	3,427	2,742	43,644
21	MEGHALAYA	4,286	3,879	6,411	14,576	8,746	163	281	110	554	1,887	1,510	10,809
22	MIZORAM	5,162	10,641	9,348	25,151	15,091	506	14	15	535	1,019	815	16,441
23	NAGALAND	7,321	6,654	8,740	22,715	13,629	399	108	56	563	2,279	1,823	16,015
24	NCT OF DELHI	19,063	16,266	1,632	36,961	22,177	52,550	583	320	53,453	62,210	49,768	125,398
25	ODISHA	31,234	41,384	14,017	86,635	51,981	12,357	6,511	5,938	24,806	408,170	326,536	403,323
26	PUDUCHERRY	632	1,212	39	1,883	1,130	547	108	20	675	18,941	15,153	16,958
27	PUNJAB	36,262	105,027	18,704	159,993	95,996	15,863	775	2,399	19,037	102,026	81,621	196,654
28	RAJASTHAN	68,347	117,047	30,184	215,578	129,347	82,931	1,420	3,794	88,145	431,290	345,032	562,524
29	SIKKIM	642	529	481	1,652	991	15	-	6	21	719	575	1,587
30	TAMIL NADU	82,718	463,897	20,713	567,328	340,397	128,097	13,794	9,812	151,703	1,128,692	902,954	1,395,053
31	TRIPURA	8,183	50,921	12,143	71,247	42,748	1,613	108	207	1,928	1,494	1,195	45,871
32	UTTAR PRADESH	137,883	156,246	35,121	329,250	197,550	92,819	100,634	19,455	212,908	965,922	772,738	1,183,196
33	UTTARAKHAND	5,730	25,060	1,740	32,530	19,518	4,569	930	380	5,879	19,206	15,365	40,762
34	WEST BENGAL	96,480	732,566	24,319	853,365	512,019	14,097	6,465	16,079	36,641	299,574	239,659	788,319
		1,057,351	3,343,930	390,995	4,792,276	2,875,366	882,271	178,296	154,461	1,215,028	7,902,614	6,322,091	10,412,485

\* Remaining 20% households to be provided with Community toilets

\*\* No ULBs in Lakshadweep





एक कदम स्वच्छता की ओर