

Swachhata
— **Green Leaf Rating** —
in Hospitality Facilities



पर्यटन मंत्रालय
MINISTRY OF
TOURISM



केंद्रम एवं संचालन विभाग
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Swachhata — **Green Leaf Rating** — in Hospitality Facilities

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Preface

A clean India would be the best tribute the nation could pay to our revered Father of the Nation, Mahatma Gandhi. This mantra was voiced by our Honourable Prime Minister, Shri Narendra Modi, who guides and motivates us to work relentlessly towards achieving a Swachh Bharat. Because of his vision and support to the programme, India has recently converted 75 per cent of its villages to the status of open defecation free (ODF) Plus, in which the ODF status is sustained and the village has arrangements to ensure handling of either solid or liquid waste. Recently, our Honourable Prime Minister linked cleanliness to tourism by stressing on world-class levels of hygiene and sanitation in tourist facilities.

It is in this context that the Department of Drinking Water and Sanitation (DDWS), in collaboration with the Ministry of Tourism under Travel for LIFE Campaign, is planning to bring out the **Swachhata Green Leaf Rating System** for hospitality facilities such as resorts, hotels, homestays and other places of tourist stay in the country based on their compliance with the Safe Sanitation Practices outlined in these guidelines.

Swachh Bharat Mission (SBM) aspires to realize Gandhiji's dream of a Clean India through *jan bhagidari* (people's participation). In the same way, the tourism and hospitality sector is encouraged to voluntarily participate in this Swachhata Green Leaf Rating System for achieving the dream of a Clean India and change the perception about the tourist areas in the country.

Vision statement

We envision this rating system, which is sought to be achieved through active public participation, to voluntarily engage the hospitality sector and contribute to cleaner and more sustainable tourism practices in India.





Chapter 01

Introduction

SBM is a national flagship programme of the Government of India being implemented in both urban and rural areas for ensuring overall sanitation.

The objective of SBM is to improve the levels of cleanliness and thereby improve the quality of life and public health in rural and urban areas of the country.

An ODF Plus village is defined as a village which sustains its ODF status and ensures either solid waste management, liquid waste management. Currently, around 80 per cent of India's villages are ODF Plus.

On the other hand, an ODF Plus Model Village sustains its ODF status; has arrangements for both solid waste management and liquid waste management; observes visual cleanliness, that is, has minimal litter, minimal stagnant wastewater and no plastic waste dump in public places; and displays information, education and communication (IEC) messages related to ODF Plus prominently. Thus, it ensures regular use of toilets, no open defecation or visible faeces in the environment, management of biodegradable and non-biodegradable waste, greywater management (GWM) and faecal sludge management (FSM).

Tourism is one of the major contributors to the Indian economy. The development of this sector depends on the memories tourists take back with them after visiting a destination.

The reputation of any tourist destination is also influenced by its aesthetic appeal and sanitation levels. It is an enormous challenge to manage waste which is generated by a large number of tourists, to reduce risks to public health of local communities and to protect the environment.

India has a myriad of landscapes, great heritage, culture and varied flora and fauna which make it an ideal tourist destination. It has diverse food habits, cultures which attract many a traveler. India being home to cultural and spiritual awakening that promotes and follows the traditions of *Vasudhaiva Kutumbakam* which appeals to spiritually inclined travelers.

Diversity in India



In India, hill states are repositories of rich biodiversity and nature spots, which obviously become popular tourist destinations. There are several hospitality facilities such as resorts, hotels, homestays and dharmshalas, which provide accommodation facilities in rural areas, that is, within the jurisdiction of Gram Panchayats. It is critical that these facilities maintain sanitation within their facility and support the local bodies/Gram Panchayats to achieve and sustain ODF Plus Model status.

The task of maintaining high levels of cleanliness is challenging and demands coordinated planning and action. It is expected that the operators of these hospitality facilities develop adequate infrastructure, adopt good practices and support awareness generation on sanitation and cleanliness as part of responsible tourism. In this context, DDWS, in collaboration with the Ministry of Tourism, has decided to roll out a 'Swachhata Green Leaf Rating System' for the hospitality facilities in the country. This would also form a part of 'Travel for Life' commitment of the Ministry of Tourism under Mission LIFE of NITI Aayog.





Chapter 02

Launch of Swachhata Green Leaf Rating System

It is proposed to launch the Swachhata Green Leaf Rating System in all the hospitality facilities of the country.

The rating system will sensitize the hospitality sector to follow practices for promoting 'safely managed sanitation', thereby promoting adoption of this rating system. It is envisaged that the protocol will not only promote the zeal to achieve the ODF Plus Model status in the country but also help to build a positive image and branding of the tourist entity as promoters for achieving sustainable development goals.





Chapter 03

Target Groups

The proposed rating system is intended for all the tourist facilities, with or without restaurants.

These norms will apply to all categories of public and private tourist facilities, viz. hotels, homestays, dharamshalas, lodges, camps including portable toilet facilities or trekking groups.

Target Groups





Chapter 04

Swachhata Green Leaf Rating System

Maintaining sanitation and hygiene involves the management of the waste generated owing to human activity in a scientific and environmentally acceptable manner.

It needs certain infrastructure, practices (following norms) and awareness generation as well as innovations for desired behaviour. Since safe sanitation and cleanliness are paramount for a healthy life, the hospitality sector with its investment in the desired direction of responsible sanitation would attract increased tourist footfall while simultaneously achieving brand value for itself.

Rating System

The rating system will direct the collective efforts towards achieving sanitation objectives in a sustainable

Key Requirements for Sanitation and Hygiene



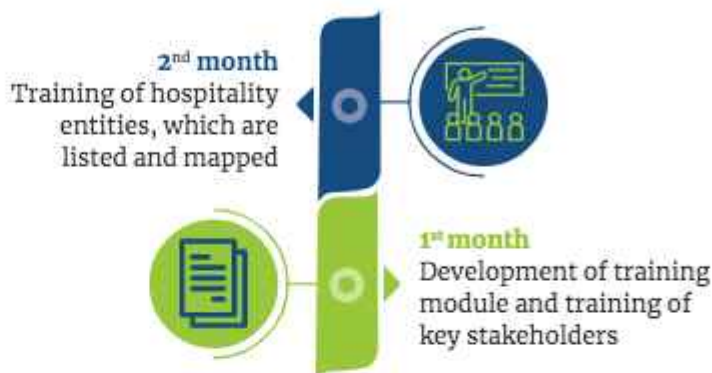
way. It will be a voluntary system where the hospitality facility will be encouraged to participate by orienting them about the direct gains and larger benefits of sanitation and hygiene, which is ultimately aimed at a multi-fold increase in tourist turnout.

The proposed rating system will have the following three phases.

i. Orientation Phase

In this initial phase, State teams of SBM(G) and the Department of Tourism (with the support of district units) will list and map the hospitality entities. States would then organise a workshop to orient select key stakeholders on the concept, process and the desired outcomes.

Timelines: 2 Months



It is also advisable to organize regular training of the cleaning/housekeeping staff and ensure adoption of the safety protocol along with use of appropriate Personal Protective Equipment (PPE) in the hospitality entities.

Subsequently, the States will conduct district- or division-level workshops where the listed entities will be oriented on the concept of 'safely managed sanitation' and the contribution they can make. They will also be informed about the rating system based on the training module developed. The orientation phase should be completed in two months.

ii. Voluntary Declaration Phase

Based on the guidelines, the listed entities will carry out internal audit and take necessary steps to become 'safely managed sanitation' compliant, that is, developing infrastructure and achieving the desired sanitary parameters. The entities will then evaluate their sanitation status again in a formal way and communicate the rating in the **Current Certification Status** (CCS format) to the District Committee with supporting evidence.

iii. Verification Phase

The District Committee will forward the CCS ratings to the Verification Sub-Committee for affirmation. The rating provided by the entity will be reviewed using an assessment tool/matrix including photo, video evidence along with tools for verification. This

exercise will be a combination of desk review and site visits by the Verification Sub-Committee representatives. The Verification Sub-Committee will be formed by the Sub-Divisional Magistrate, and he or she could draw upon the representatives from various key stakeholders, that is, SBM(G), Health department, Pollution Control Board and any other department under his jurisdiction. The Verification Sub-Committee will review the **Current Certification Status** submitted by the tourist entity. The District Committee shall meet every two months to discuss the observations recorded post survey.

Based on the findings of the survey, the District Committee will issue Rating Certification to the tourist entity. The entity can then display the rating certificate at its property/ business and may also use it for its branding. It is envisaged that the exercise will ensure safe sanitation and promote healthy completion among the entities. The proposed rating would be issued as compliant with '1 leaf', '3 leaf' and '5 leaf' status to the tourist entity.





Chapter 05

Composition of Proposed Committees

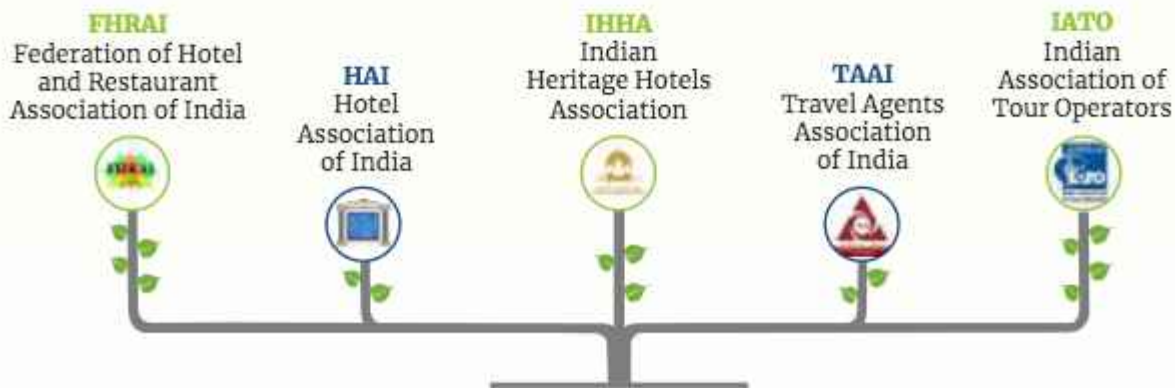
For the execution of the Swachhata Green Leaf Rating System, the following committees are proposed.

i. State-level Committee

At the State level, there will be a state-level committee chaired by the Chief Secretary of the state and will have the Secretary of the State Tourism Department and Secretary in-charge of Rural Sanitation. The State MD of SBM(G) would be the convenor of the committee along with Regional Director of Tourism as the Member Secretary.

Committee Members

The committee will comprise representatives from the following state-level associations:



The Committee will be free to include any member, temporary or permanent, depending on their utility to the committee.

The committee will meet every quarter to review the work of District Committee and extend an advisory role to the District Committee.

ii. District Level Committee

The District Committee will be chaired by District Collector. The CEO of Zilla Parishad (ZP), Chief Development Officer (CDO), District Development Officer (DDO) or equivalent would be the Vice Chairman. The district head of SBM(G) would be the Member Secretary. The district representatives of State Government, Department of Tourism, district coordinators (SBM[G]), representative from panchayati raj institutions (PRI) would also be part of the committee and the inclusion of independent representatives from tourism industry would be decided by the Chairman. The Chairman will have powers to co-opt other members as he or she deems fit. The committee will meet every month to discuss the submissions received and forward submissions to the Verification Sub-Committee.

iii. Verification Sub-Committee

The Verification Sub-Committee will be formed by the Sub-Divisional Magistrate (SDM) and it is recommended that SDM may designate a team with appropriate representation from various key stakeholders such as SBM(G) and other government departments for the on-ground verification. The Verification Sub-Committee will inspect the Current Certification Status submitted by the tourist entity and submit a report to the SDM who will send it with his comments to the District Committee for final rating.





Chapter 06

Safe Sanitation Parameters

The hospitality entities (resorts, hotels, homestays, dharmshalas, restaurants, etc.) participating in the self-rating sanitation protocol are expected to adopt and adhere to the SBM(G) parameters related to faecal sludge management, solid waste management and greywater management by way of creating essential infrastructure, ensuring desirable practices and creating awareness.

i. State-level Committee

At the State level, there will be a state-level committee chaired by the Chief Secretary of the state and will have the Secretary of the State Tourism Department and Secretary in-charge of Rural Sanitation. The State MD of SBM(G) would be the convener of the committee along with Regional Director of Tourism as the Member Secretary.

Theme	Infrastructure	Practices	Awareness generation
A. Solid Waste Management	<ul style="list-style-type: none"> Separate wet and dry waste bins of appropriate size for source segregation of the waste. Instructions for disposal of sanitary waste On-site biodegradable waste management system (composting/vermi composting) should be provided Arrangements for own shredding waste unit for plastic waste management (PWM) or linkage to nearby PWM unit 	<ul style="list-style-type: none"> Prohibition on burning of any kind of waste (except through incinerator for sanitary waste disposal) Prohibition on littering outside the premises Segregation of waste into dry waste and wet waste Promotion of alternatives to Single-Use Plastics Hand over the segregated waste daily if door-to-door collection is operational in the village/ area Payment of user charges imposed by the local body, regularly If local body level collection is not possible, entity makes arrangement for the composting of the wet waste within the premises or outside using scientific methods Arrangements for removal of non-biodegradable waste (plastic) on regular basis to a collection/processing facility The waste other than wet/dry waste like biomedical medical waste and e-waste should be segregated and handled separately as per the norms 	<p>The entity creates awareness by way of posters/ wall writing / paintings or a model.</p> <ul style="list-style-type: none"> 3R concept (reduce/reuse/ recycle) Ban single-use plastics. Segregation of waste at source should be encouraged Proper menstrual, sanitary, and domestic hazardous waste disposal should be encouraged
B. Faecal Sludge Management	<p>Toilet:</p> <ul style="list-style-type: none"> The property should have improved sanitation facilities, i.e., toilets for human excreta management Adequate handwashing facilities <p>Containment unit:</p> <ul style="list-style-type: none"> Properly designed septic tank, i.e., watertight tank with baffles (partition walls) and its outlet connected to a dedicated soak pit 	<ul style="list-style-type: none"> Zero tolerance to open defecation practice The size/number of units should be according to the number of visitors 	<ul style="list-style-type: none"> Cleanliness and hygiene in toilet usage Proper disposal of menstrual and sanitary waste Periodic desludging of septic tanks The entity creates awareness by way of posters/wall writing/paintings or a model.

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Theme	Infrastructure	Practices	Awareness generation
	<ul style="list-style-type: none"> ● On-site sewage treatment plants (STPs) should be provided where mandated by the Ministry of Environment, Forests and Climate Change (MoEFCC) or state or local norms ● Or the excreta transported through a sewer with wastewater and then treated off-site) ● Or the excreta should be transported to nearby STP/faecal sludge treatment plant (FSTP) in a strictly mechanised manner ● Or single-pit system properly lined 	<ul style="list-style-type: none"> ● The effluent from the septic tank should not be discharged in open or storm water drains ● The septic tanks should be desludged periodically ● Desludging is done mechanically. (No manual desludging/human contact) 	<ul style="list-style-type: none"> ● Properly designed septic tank (i.e., the tank is watertight and with baffles – partition walls, and its outlet is connected to a dedicated soak pit)
C. Greywater management (In areas without sewer system)	<ul style="list-style-type: none"> ● Recycling of wastewater from washing/cleaning through kitchen gardens, soak pit, or leach pit should be provided to manage greywater on-site and use of recycled wastewater in non-potable use such as landscaping and flushing ● Nahani traps, grease traps, and settlers should be provided as required ● Only in case adequate space is not available within the premises greywater should be managed through community-level greywater management (GWM) systems (decentralised wastewater treatment systems (DEWATs), Phytoid etc). ● Measures to avoid water stagnation/logging (if required) 	<ul style="list-style-type: none"> ● Nahani traps, grease traps and settling tanks should be cleaned regularly and residues disposed of with solid waste appropriately ● Rainwater harvesting from rooftops and any other surfaces for storage and/or recharge ● Low flow devices for wash basin, showers ● Preferred solution of zero liquid discharge 	<p>The entity creates advantages by way of posters/wall writing / paintings or a model.</p> <ul style="list-style-type: none"> ● Reduce consumption of water ● Reduce laundry loads by encouraging multiple use of towels ● On avoiding water logging conditions in and around entities





Chapter 07

Swachhata Green Leaf Rating System – Scoring Method

As stated earlier, there are certain norms of safe sanitation which the hospitality facilities (resorts, hotels, restaurants, homestays, dharamshalas, etc.) are expected to follow.

However, the purpose is to motivate the tourist entity and gradually attain the status of total compliance. Therefore, the self-scoring method is devised where marks are awarded for achieving each parameter, and accordingly deduction of marks is proposed for non-compliance.

There are three focused themes – Solid Waste Management, Faecal Sludge Management (Management of Human excreta) and Greywater Management – in the proposed rating systems. The parameters and indicators are further divided in four sections: (i) related to infrastructure, (ii) related to practices, (iii) support in awareness generation (promotion for causes) and (iv) any innovations displayed on these themes in the facility.

Focused Themes in Proposed Rating Systems



Solid Waste
Management



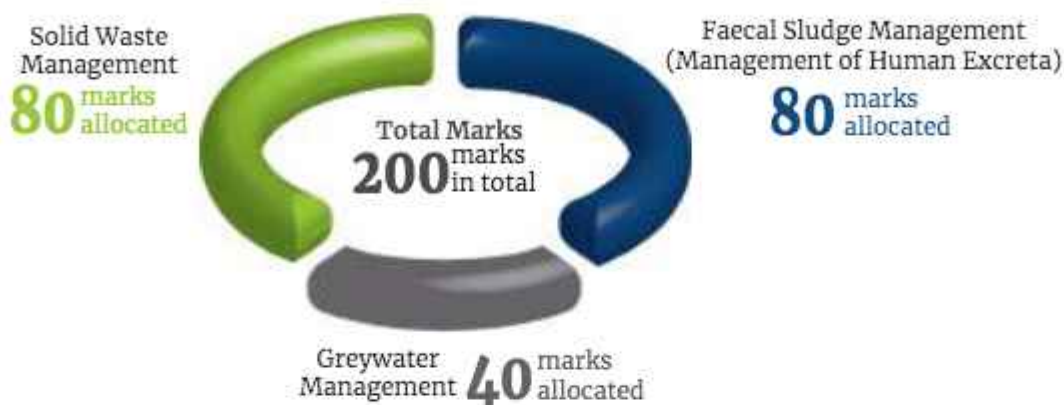
Faecal Sludge
Management



Greywater
Management

A total of 200 marks are to be awarded, out of which 80 marks are for Faecal Sludge Management (Management of Human excreta), 80 marks for Solid Waste Management and 40 marks for Greywater Management.

Allocation of Marks in Rating System



The participating entities need to score at least 50 per cent of the marks in each theme to become entitled for Swachhata Green Leaf certification (1 Leaf, 3 Leaf or 5 Leaf). In due course, these ratings should be made a part of industry branding ratings such as those by Trip Advisor, OYO, bookings.com and others to integrate 'safely managed sanitation' related indicators also in their evaluation of facilities. This may be done in collaboration with the national SBM(G) mission. The details of the evaluation criteria for Current Certification Status are provided below.

1-Leaf Status



Minimum Score

- FSM – 40
- SWM – 40
- GWM – 20

Range for rating
100–130 marks

3-Leaf Status



Minimum Score

- FSM – 50
- SWM – 50
- GWM – 20

Range for rating
130–180 marks

5-Leaf Status



Minimum Score

- FSM – 60
- SWM – 60
- GWM – 30

Range for rating
180–200 marks

< 100 marks – No Rating



The Rating System broadly termed as the 'Swachhata Green Leaf Rating' may be appropriately modified to more convenient terms such as 1 Leaf status, 3 Leaf status and 5 Leaf status based on the obtained scores by the tourist entity.

Template of Current Certification Status

Aspects	Parameter	Indicators	Status	Max Marks	Marks obtained	Remarks
A. Faecal Sludge Management (80 Marks)						
i. Infrastructure (48 marks/ 60% weightage)						
Toilet Facility	Improved sanitation facilities, i.e., toilets for human excreta management	Functional flush /pour flush type toilets available in the premises/ facility	Yes	8		
		<ul style="list-style-type: none"> Adequacy (every room, common areas, servants quarter etc.) – 4 Marks Quality standards (ambience or settings) – 4 Marks 				
	Functionality of toilets	Functional toilets facility is available for men, women and differently abled persons as per the need (Functional refers to regular cleaning, odourless etc.)	Yes	8		
		Or				
		Toilets facility is available for men, women and differently abled but not regularly/properly maintained	Yes	6		
Containment Type	Type of containment unit and how excreta are treated and disposed of in situ or off - site.	Single - pit type toilets available in the premises/ facility	Yes	-8		Negative Marks
		Or				
		Properly designed septic tank, i.e., the tank is watertight and with baffles (partition walls) is available in the premises/facility. Its outlet is connected to a dedicated soak pit.	Yes	22		
		<ul style="list-style-type: none"> Adequacy and design of septic tank should conform to IS:2470(BIS) Checklist for Septic Tank Is the Septic tank completely watertight? 				

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Aspects	Parameter	Indicators	Status	Max Marks	Marks obtained	Remarks
		<ul style="list-style-type: none"> Are the risers watertight with no visible leaks? Are the risers free of cracks or visible damage? Is the tank free of strong, overpowering odour? Where is the liquid level in the tank? <ul style="list-style-type: none"> <input type="checkbox"/> At the base of the outlet pipe <input type="checkbox"/> Above <input type="checkbox"/> Below Can you clearly see the baffles above the scum layer? Is the scum layer well below lid opening? Are baffles free of clogs and leaks around the seals? Is it connected to a dedicated soak pit? 				
		Mechanical desludging of septic tank is done regularly, and sludge treatment is ensured as per standards/guidelines	Yes	10		
		Or				
		Excreta transported through a sewer and then treated off-site (through STP) <ul style="list-style-type: none"> Adequacy and design of Sewage treatment plant should conform to IS:2470(BIS) The sewerage system should be at a safe distance away from drinking water supply utilities. 	Yes	32		
		Or				
		Properly designed and maintained decentralised STP in the premises of the facility	Yes	32		
ii. Practices (8 marks/ 10% weightage)						
	Maintenance and pollution control measures of containment units	The effluent from the septic tank is NOT connected to open/storm water drains and not discharged in open or storm water drains. <ul style="list-style-type: none"> Periodic cleaning of clogs, drains etc. of septic tank and sewer lines to ensure functionality Regular maintenance of STP Visual cleanliness of toilets 	Yes	8		

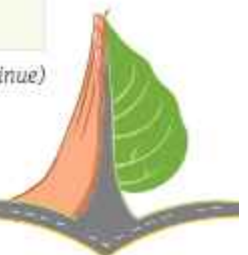
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Aspects	Parameter	Indicators	Status	Max Marks	Marks obtained	Remarks
iii. Awareness generation (8 Marks/ 10% weightage)						
Awareness generation	Type of toilets	The entity creates awareness by way of posters/wall writing/paintings or models <ul style="list-style-type: none"> ● Proper construction of STP and properly designed septic tank (i.e., the tank is watertight and with baffles – partition walls, its outlet is connected to a dedicated soak pit) ● Periodic cleaning and desludging of septic tanks through mechanical means ● Visual cleanliness of the entity (interiors/campus) 	Yes	8		
iv. Innovations (16 Marks/ 20% weightage)						
Innovation in Faecal Sludge Management	Innovation in toilet units and septic treatment units	<ul style="list-style-type: none"> ● Any innovative toilet construction method adopted with safely managed sludge ● Innovation in septic tank construction to combat space constraint, etc. ● Innovation in the maintenance of toilet and septic tank/ on-site decentralised STP ● Any innovation to make toilet unit disaster resilient including flood proofing measures, use of limited water in flushing etc. 	Yes	16		
Subtotal A				80		
B. Solid waste management (80 Marks)						
i. Infrastructure (48 marks/ 60% weightage)						
Segregation	Segregation of solid waste at source	Garbage bins/ containers/ buckets (blue and green) of appropriate size for source segregation and instructions for disposal of sanitary/menstrual waste available <ul style="list-style-type: none"> ● In all rooms, public spaces, common areas like garages, parking, staff quarters, etc. 	Yes	18		
Treatment / disposal of waste	Treatment / disposal of solid waste	<ul style="list-style-type: none"> ● For biodegradable waste natural / mechanical composting infrastructure such as drum composters or Narayan Devrao Pandripande method (NADEP), etc. available as per the quantity of the waste OR a biogas unit ● Disposal of garden waste especially leaves waste 	Yes	10		

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Aspects	Parameter	Indicators	Status	Max Marks	Marks obtained	Remarks
	Treatment/ disposal of other waste generated like biomedical waste, mattresses, rubber, metals, e-waste, consumables etc.	Menstrual waste is handled scientifically (separate bin) and provisioning of incinerator for treatment/forward linkages with incinerator for disposal of sanitary waste	Yes	6		
		Plastic waste is segregated and sent to Plastic Waste Management Unit/ cement factories/any sustainable forward linkages	Yes	8		
		<ul style="list-style-type: none"> ● Linkage with large waste processing unit for disposal of such wastes ● Linkage with e-waste processing unit for disposal of e-waste 	Yes	6		
ii. Practices (8 marks/ 10% weightage)						
Treatment / disposal of waste	Treatment / disposal of waste	The waste other than wet/dry waste like biomedical medical waste and e-waste should be segregated and handled separately as per the norms	Yes	2		
		<ul style="list-style-type: none"> ● No indiscriminate dumping/ pilling/ littering of waste outside ● Complete prohibition of burning of any kind of waste (except for sanitary waste in incinerator) 	Yes	2		
		Promotion of alternatives to single-use plastic like glass bottles	Yes	2		
		Payment of user charges imposed by Gram Panchayat/private entity, regularly (payment by the hotel)	Yes	2		
iii. Awareness generation (8 marks/ 10% weightage)						
Awareness generation	Environmental concern	<p>The entity creates awareness by way of posters/ wall writing / paintings or models</p> <ul style="list-style-type: none"> ● Discourage use of single-use plastics ● Proper segregation of waste ● No indiscriminate dumping/ piling or burning of waste ● Safe menstruation hygiene practices ● Cleanliness of surroundings (interior/campus) 	Yes	8		

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Aspects	Parameter	Indicators	Status	Max Marks	Marks obtained	Remarks
iv. Innovations (16 marks/ 20% weightage)						
Innovation	Innovation in solid waste management	Any unique practices that improve management of either biodegradable waste or non-biodegradable waste and sanitary waste. <ul style="list-style-type: none"> Promotion of alternatives of single-use plastic 	Yes	16		
Subtotal B				80		
C. Greywater management (40 Marks)						
i. Infrastructure (24 Marks/ 60% weightage)						
Treatment / disposal of greywater (In areas without sewer system)	On-site management of greywater	Space is available and structures like soak pit, leach pit, kitchen garden, etc. are constructed based on the quantity of the greywater	Yes	16		
		Measures to avoid water stagnation/ logging if required through drainage system/rainwater harvesting/pump set/soak pit etc.	Yes	8		
ii. Practices (4 Marks/ 10% weightage)						
Separation	Separation of black and greywater	Greywater is not mixed with blackwater (water containing human excreta) except in the case of piped sewer systems	Yes	2		
Recycling	Recycling of treated water	Recycling of wastewater from washing/ cleaning for use in non-potable purpose, i.e., landscaping and flushing	Yes	2		
iii. Awareness generation (4 Marks/ 10% weightage)						
Awareness generation	Environmental conservation	The entity creates awareness by way of posters/wall writing/paintings or models. <ul style="list-style-type: none"> Reduce laundry loads by encouraging multiple use of towels Promote reuse and recharge of water Promote water conservation and avoid water logging conditions 	Yes	4		
iv. Innovations (8 marks/ 20% weightage)						
Innovations	Innovations in greywater management	<ul style="list-style-type: none"> Any innovative method displayed in the facility for management of greywater (wastewater from bathroom etc.) Innovation in the reuse of treated greywater within the facility Promotion of zero liquid discharge (ZLD) measures 	Yes	8		
Subtotal C				40		
Grand total (A, B and C)				200		



Annexure

List of Technologies



A General Technologies

S. No.	Name of Technology	Unit size for waste handling capacity	Nature of process	Duration/ retention time for process (Days)	Space required for one unit (in sqm)	Initial cost for one unit (Rs.)	O & M
A.1	Biodegradable waste (wet waste)						
A.1.1	Pit Composting	1420 Kg per unit	Natural	90-100	4-5	1,100	Part time labour cost
A.1.2	Bin Composting	100 per unit Kg	Natural	90-100	1.5	300	No direct expenses
A.1.3	NADEP	1252 Kg per unit	Natural	100-120	5-4	7,500	Part time labour cost
A.1.4	In-vessel composting	200 Kg per unit	Mechanical	15-30	4	35,000	Electricity charges if turning is done mechanically
A.1.5	Vermicomposting	2777 kg per unit	Natural	120	9	7,500	Labour for sprinkling water
A.1.6	Biogas Technology	50 kg Per day per unit	Natural	Daily (initially it takes 30 days)	12	30,000	9,500
A.2	Liquid Waste Management						
A.2.1	Community Soak Pit	350 - 10000	Natural	Few hours	3	20,000	Cleaning of boulders once in 1-2 years
A.2.2	Community Leach pit	350 - 10000 LPD	Natural	Few hours	1.25 mx 0.65 mx 0.65 m (LxBxH)	22,000	Cleaning of silt chamber and pit once in 1-2 years
A.2.3	Kitchen garden	Up to 250 LPD	Natural	Few hours	2	3800	Cleaning of chambers once in 1-2 years
A.2.4	Waste Stabilization Tank (WSP)	210 KLD	Natural	10-12 day	2050	16,50,000	Rs. 9,650, Need part time manpower for up keeping, removing vegetation in the tank and desludging in 2-3 years

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S. No.	Name of Technology	Unit size for waste handling capacity	Nature of process	Duration/retention time for process (Days)	Space required for one unit (in sqm)	Initial cost for one unit (Rs.)	O & M
A.2.5	Septic tank with soak pit	200-350 LPD	Natural	1-3 days	3	4,500	Mechanical desludging needed in every 1-2 years
A.2.6	DEWATS – (Anaerobic baffle reactor)	210 KLD per unit	Natural	2-5 days	18	50,27,000	Need part time manpower for up keeping, removing vegetation in the tank and desludging in 1-2 years
A.2.7	Constructed wetland		Natural	3-4 days	800	36,38,000	40,000/- for 1 KLD and 3,60,000/- for 50 KLD
A.2.8	Community horizontal filter		Natural	1-2 days	4.5m x 3.5m x 1.5m (LxBxH)	1,33,000	10,000 per year
A.2.9	Community vertical filter		Natural	1-2 days	4.5m x 2.25m (Diameter x Depth)	1,27,000	10,000 per year
A.3	Proprietary technologies for LWM						
A.3.1	Phytorid	100	Natural	2 Days	120	51,000 per KLD	15000
A.3.2	Soil Biotechnology	500000 (LPD)	Natural	6-7 hours	1000		The treated water may need further treatment before using for irrigation
A.3.3	JOHKASOU	Up to 50 KLD	Physical		For 1 KLD 2 Square meter, 50 KLD 36 Square meter	1,65,000/- for 1 KLD and 19,50,000/- for 50 KLD	
A.3.4	ABSOLUTE VERMI-FILTER	Up to 100 KLD	Physical		For 10 KLD 5 Square mete For 100 KLD 130 Square meter	9,90,000/- for 10 KLD and 26,00,000/- for 100 KLD	2,40,000 for 10 KLD 4,80,000 for 50 KLD



B General Innovative technologies approved by the PSA Committee for Sanitation Technologies

S.No.	Name of Technology	Company Name	Contact Person Name	Contact Number	Mail Id
B.1	Tiger Bio Filter Technology for Faecal Sludge and Septage Management	PriMove Infrastructure Development Consultants Pvt. Ltd.	Sri Ajeet Oak	9822023369	aoak@primoveindia.com
B.2	P-OP Technology	Avyan Pashupathy Capital Advisors Private Limited	Rahul S. Sutar	9595939389	avyan.sanitation@gmail.com
B.3	Soil Scape Process	Shrishti Eco- Research Institute	Sayali Joshi	91-2048612042	sayali@seriecotech.com
B.4	Jhokasou STP Technology	Daiki- Axis India Pvt. Ltd	Sunil Saigal Kamal Tiwari	9810434380, 9810367527	sumil-s@daiki-axis.com kamal@daiki-axis.com
B.5	FBTec	Nixie Engineers Pvt Ltd	Sri Lalit Bajare	9822577328	lalit.bajare@iwtech.in
B.6	Absolute Vermi-Filter TM	GRACE GREEN INFRA PRIVATE LIMITED	Sri Ankit Santosh (No WhatsApp) Ajay Yadav	7860001444 9811981898	ankit@gracegreeninfra.com
B.7	Highly Efficient and Green Sewage Treatment	Organic Solutions	Aditi Agarwal, Kush Agarwal	9999862228, 9899823242	organicsolutions@gmail.com
B.8	Ozo Urinodeodor for Public urinals	Omniscient Treatment Technologies limited	Vishal Waindeskar	8390003686	ottpl@ottpl.com



