

# **GUIDELINES FOR MANAGEMENT OF SANITARY WASTE**

As per Solid Waste Management Rules, 2016



**CENTRAL POLLUTION CONTROL BOARD**

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## 1.0 Introduction

Sanitary waste disposal has become an increasing problem in India as the plastic used in disposable sanitary napkins are not bio-degradable and lead to health and environmental hazards. The impact is more pronounced because of the unorganized ways of municipal solid waste management and poor community collection, disposal and transportation networks in the cities and villages. Further, one major issue of sanitary waste has always been their categorization, i.e., whether it is biomedical or plastic waste. Soiled napkins, diapers, condoms, tampons and blood-soaked cotton, which are household waste according to the Solid Waste Management (SWM) Rules, 2016, are being disposed after segregation into biodegradable and non-biodegradable components. However, the Bio-Medical Waste Management Rules, 2016 indicate that items contaminated with blood and body fluids, including cotton, dressings, soiled plaster casts, lines and bedding, are bio-medical waste and should be incinerated, autoclaved or microwaved to destroy pathogens. The lack of concern for sanitary waste management in our country is reflected in the fact that there is no reliable statistics on the subject. Due to the lack of segregation of waste, there is hardly any documentation in this area, so through instructions for handling and management of sanitary waste are essential. As per the study conducted in 2011, titled ‘Sanitary Protection: Every woman’s health right’ estimated that only 12% of the 335 million menstruating women have access to disposable sanitary napkins. Environment portal Down to Earth estimated that 432 million pads are disposed every month.

## 2.0 Provisions of Sanitary Wastes in Solid Waste Management Rules (SWM), 2016

According to the provision of 3(46) of **Solid Waste Management Rules, 2016**, ‘solid waste’ was categorized as follows: solid or semi-solid domestic waste, **sanitary waste**, commercial waste, institutional waste, catering and market waste and other non-residential wastes, street sweepings, silt removed or collected from the surface drains, horticulture waste, agriculture and dairy waste, treated bio-medical waste excluding industrial waste, bio-medical waste and e-waste, battery waste, radioactive waste generated in the area under the local authorities. Further, as per the provision of 14(i) of **SWM Rules, 2016**, Central Pollution Control Board has a provision to “publish guidelines, from time to time, on environmental aspects of **processing and disposal of solid waste** to enable local bodies to comply with the provisions of these rules”. Therefore, in exercise of the power conferred by section 14(i) of the **Solid Waste Management, Rules, 2016** and the objections and suggestions received from the public, the Government of India through CPCB has framed the guidelines on **sanitary waste management** to ensure proper disposal of sanitary waste. Most of the existing sanitary waste management facilities are practicing under **SWM Rules, 2016**, which are as follows:

- Rule 3(19), “**dry waste**” means waste other than bio-degradable waste and inert street sweepings and includes recyclable and non-recyclable waste, combustible waste and **sanitary napkin** and **diapers**, etc;


- Rule 3(41), “**sanitary waste**” means wastes comprising of used diapers, sanitary towels or napkins, tampons, condoms, incontinence sheets and any other similar waste;
- Rule (4)(b), states that wrap securely the used **sanitary waste** like **diapers, sanitary pads** etc., in the pouches provided by the manufacturers or brand owners of these products or in a suitable wrapping material as instructed by the local authorities and shall place the same in the bin meant for dry waste or non- bio-degradable waste;
- Rule 15(zg) (iv) & (vi), stated that the Local Authority and Nagar Panchayat shall create public awareness through information, education and communication campaign and educate the waste generators on wrapping used **sanitary waste** securely as and when generated in the pouches provided by the brand owners or a suitable wrapping as prescribed by the local body and place the same in the bin meant for non-biodegradable waste. The Local Authority and Nagar Panchayat shall also educate public on segregation of sanitary waste at source.
- As per Rule 17, duty of manufacturer or brand owners of disposable products and **sanitary napkins and diapers** are given below:
  - (i) All manufacturers of disposable products such as tin, glass, plastics packaging, etc., or brand owners who introduce such products in the market shall provide necessary financial assistance to local authorities for establishment of waste management system.
  - (ii) All such brand owners who sell or market their products in such packaging material which are non-biodegradable shall put in place a system to collect back the packaging waste generated due to their production.
  - (iii) Manufacturers or brand owners or marketing companies of sanitary napkins and diapers shall explore the possibility of using all recyclable materials in their products or they shall provide a pouch or wrapper for disposal of each napkin or diapers along with the packet of their sanitary products.
  - (iv) All such manufacturers, brand owners or marketing companies shall educate the masses for wrapping and disposal of their products.

### **3.0 Menstrual Hygiene Management National Guidelines (December 2015)**

Menstrual Hygiene Management (MHM) is an integral part of the **Swachh Bharat Mission Guidelines (SBM-G)**. The MHM Guideline (Dec 2015) is issued by the Ministry of Drinking Water and Sanitation to support all adolescent girls and women. It outlines what needs to be done by state

governments, district administrations, engineers and technical experts in line departments; and school head teachers and teachers.

As per MHM guidelines, ‘**Safe disposal**’ means ensuring that the process of destruction of used and soiled materials is done without human contact and with minimal environmental pollution and ‘**Unsafe disposal**’ means throwing used cloth into ponds, rivers, or in the fields exposes others in the area to decaying material and should be avoided. Offsite disposal can be organized with the communal or town solid waste collection and management system. If a hospital with a safe and treatment unit for hazardous waste is nearby, this might be a best solution to explore. However, this is unfortunately not a viable option for many rural schools, and transport will be a logistical and financial challenge. Options for on-site disposal include disposal deep burial, composting, pit burning and incineration. The right option depends on key factors such as amount and type of materials, the available budget (investment and O&M costs) and environmental considerations. **Burning in open heap** should be totally avoided. If burning is the only option, a deep pit should be used.

<p><b>Unsafe</b></p>  <p><b>Safe</b></p>	<b><i>Common practices</i></b>
	Throw them unwrapped into fields, rooftops, etc.
	Wrap them in paper/ plastic bag and throwing them outside
	Drying, wrap in paper/plastic bag and throw in dustbins (mostly non-rural)
	Bury them for de-composting
	Throw them in latrine / toilets
	Burn it (rural areas and peri-urban areas)
	Use small scale incinerators (community or school level)
Municipal waste management / burning in health clinics (more urban)	

Source: MHM Guideline 2015

Lack of facility & disposal systems in India and other social stigmas attached to menstruation, affects the sanitary waste disposal behavior of women in the country. Considering this some of the common methods used for disposing sanitary waste:

#### 4.0 Provisions of Menstrual Hygiene Management (MHM) in the SBM-G Guidelines, 2017

**Swachh Bharat Mission Gramin (SBM-G)** is sensitive to menstrual hygiene needs of adolescent girls and women. Towards this end, guidelines on Menstrual Hygiene Management have been issued by the Ministry of Drinking Water & Sanitation in 2015 and must be adhered to. The SBM(G) implementation should ensure that the MHM facilities take into consideration issues such as ventilation. Action points taken in **MHM** under SBM(G) guidelines are as follows:

- Public toilet design should ensure safe and private entrance to women’s toilets, with ample lighting after evening hours. The location of the toilets should be decided through a participatory

process based on the feedback of users. The approach to the toilet should feel and be safe for women and girls e.g. ensuring that there are no public gathering spots on the path to the toilet where men gather socially.

- Adequate water and space inside the toilet should be ensured for the women users to change napkins/cloth and to wash themselves.
- Toilet cubicles may be provided with a shelf, hooks or niche to keep clothing and menstrual adsorbents dry.
- Disposal bins with lids should be placed within the toilet, as the initial point of waste collection.
- Funds under SLWM head may be used for setting up incinerators in community toilets.
- IEC plans should include MHM as a key component for raising awareness among girls and women. The MHM guidelines have a description of possible interventions.
- Efforts must be made through the IEC activities to emphasize that menstruation is a biological function and rid the community of taboos and superstitions associated with menstruation.
- CSOs and SHGs may be engaged to inform the communities about safe menstrual hygiene Practices and develop economic models to meet the demand for low-cost sanitary napkins.
- Studies show that when fathers of adolescent girls are made aware about the MHM needs of their daughters.
- Schools must have segregated toilets that are kept open and accessible during school hours, and have the above systems in place for menstrual waste management.
- Provision of MHM related facilities to schools including Communication interventions and as well as infrastructure creation, may be supported under the SLWM component of SBM (G).
- Counseling for adolescent girls, and special educational sessions around menstrual health and hygiene should be organized by qualified professionals as part of school education.
- Similarly, menstrual health and hygiene awareness camps may be organized for women in the community, at local health centres, Anganwadis, etc. by qualified professionals.

## 5.0 Current User Practices & Implementation Status

### 5.1 Current practices:

- (i) **Disposing in the open:** The disposal of sanitary napkins depends on the location where women are disposing soiled napkins. Often their behavior differs when they are not at home; women tend to leave the soiled napkins unwrapped in the corners or they throw the used pad in dustbins without wrapping them.
- (ii) **Disposing in the dustbin/garbage:** when at home urban women dispose their napkins in the garbage; most of the times they wrap it and throw it but when not at home there is a tendency of throwing the pad without wrapping it, in the dustbin.
- (iii) **Burying the menstrual waste in a pit:** Most rural women bury the menstrual waste in a pit; many would wash the used napkins and then bury the same in a pit. In a pilot study of around 1000 women in West Bengal it was discovered that girls using napkins in school carry the used ones home and around 78% of the women interviewed would bury them or dispose them alongside ponds.
- (iv) **Burning the menstrual waste:** in the above mentioned study only 2% women burn the soiled napkins. The burning of used pads is prevalent in rural areas than in urban areas as women have to take care of the final disposal of pads there; whereas in urban areas women forget about the consequences of disposal after they have thrown it in the dustbin.
- (v) **Using incinerators or special disposal dustbins:** Many institutions and schools have started using incinerators or 'feminine hygiene bins' for proper disposal of napkins. These incinerators are a sigh of relief for the school going girls and working women.
- (vi) **Flushing the soiled napkins:** as mentioned before the disposal habit changes according to the place; in public places, depending on the toilet type; for example when women are using flush toilets they try to flush the soiled napkins and if it doesn't get flushed they may wrap it and throw it in the dustbins. Things in this context might be changing now but because of lack of information on disposal facilities women even today flush used napkins in the toilet.

### 5.2 Implementation Status:

Barring some isolated practices, sanitary waste management is not implemented according to the provisions under SMW Rules, 2016. The initiatives made were mainly for disposal of used sanitary napkins for menstrual waste stream. No initiatives were reported for collection and disposal of other sanitary wastes such as infant diapers, adult diapers, tampons, condoms, incontinence sheets and other similar waste is yet to be evolved in the country by the key stakeholders namely Consumer, Producers and Local Authorities.

## 6.0 Waste Management Options

Option	Type of waste	Where to Use	Specifications/Pollution control norms
<b>Low-cost, locally made incinerators</b>	Napkins and other wastes. Best suited for pads with high cellulose content, not those that have super absorbent polymers (SAP)	Rural Girls School, Colleges, Institutions, Hostels etc.	<ul style="list-style-type: none"> <li>• Manually operated</li> <li>• Minimum Size: 3' × 3' × 3'</li> <li>• Design: As given in MHM Guidelines, Technical Guide 2</li> <li>• Capacity should be ~200 Napkins/Day</li> <li>• Comprises of two chambers (for firing and ash collection)</li> <li>• An emission control system along with a door for firing</li> <li>• Made of brick masonry</li> <li>• Opacity of the smoke shall not exceed 20%.</li> <li>• All the emissions to air other than steam or water vapor shall be odorless and free from mist, fume and droplets.</li> <li>• Operation temperature reaches up to 300°C</li> <li>• Assure 100% burning effectiveness.</li> <li>• The incineration chamber shall be designed to include an auxiliary gas or oil burner to be used as necessary to maintain the prescribed minimum combustion temperatures.</li> <li>• If diesel is used, low Sulphur diesel shall be used as fuel in the incinerator.</li> <li>• Compliance to General Emission Standards for air pollutants notified under <b>E (P) Act, 1986</b> or as may be prescribed by SPCBs/PCCs.</li> </ul>
<b>Electric incinerators</b>	Bulk amount of napkin wastes	Girls toilets, community toilets, complexes, Malls, Society Complex etc.	<ul style="list-style-type: none"> <li>• Ensure complete burning of napkin.</li> <li>• Ensure instant disposal in a scientific and hygienic way with fully automatic way and burn completely.</li> <li>• Burns 150 to 200 napkins/day, can be programmed for cycles/day</li> <li>• Self-disposal by user by directly putting into the incinerator.</li> <li>• Ash generation should not exceed more than 5% per napkin</li> <li>• Ash should be collected in separate tray and ensure stack on that tray.</li> <li>• Auto power &amp; thermal cut-off and automatic temperature maintenance should be there for safety of user.</li> <li>• Inside refractory lining should be excellent heat</li> </ul>



			<p>retention to avoid thermal loss.</p> <ul style="list-style-type: none"> <li>• The residence time for gaseous products in the combustion chamber will be designed to be at least 2 seconds to ensure complete combustion.</li> <li>• The emission from incinerators shall comply the General Emission Standards mentioned under <b>Standard for incineration</b> section in <b>SWM Rules, 2016</b>.</li> </ul>
<b>High-temperature incinerators for bio-medical waste</b>	Incinerate all types of pads (those with high cellulose content, high moisture content, and those with SAP) and all types of bio-medical waste	Waste burnt at central/combined incinerator facility	<ul style="list-style-type: none"> <li>• The incinerator shall be designed for capacity more than 50 kg/hr.</li> <li>• The double chamber incinerator shall preferably be designed on "controlled-air" incineration principle, as particulate matter emission is low in such incinerator. Minimum 100% excess air shall be used for overall design.</li> <li>• No incinerator shall be allowed to operate unless equipped with Air Pollution Control Device (APCD).</li> <li>• The incineration ash shall be stored in a closed sturdy container in a masonry room to avoid any pilferage. Finally, the ash shall be disposed in a secured landfill.</li> <li>• Emission control measures must be followed as per <b>Schedule II of the Bio-medical Waste Management Rules, 2016</b>, notified under the Environment (Protection) Act 1986.</li> <li>• The location, structural design etc. of the incinerator shall be as per the guidelines of <b>Bio-medical Waste Rules, 2016</b>, published by CPCB under <b>Guidelines for Bio-medical Waste Incinerator, 2017</b>.</li> <li>• A skilled person shall be designated to operate and maintain the incinerator.</li> </ul>
<b>Deep burial</b>	compostable sanitary pads (e.g., made of natural fibres), not pads made of bleached cellulose, SAP, and plastic covering	Villages and small towns	<ul style="list-style-type: none"> <li>• Once the used absorbent material is put inside the burial pit, it should be covered with soil or sand. It should not be kept exposed to open air.</li> <li>• The pit should be constructed at a distance of about 5 to 7 meters from drinking water source</li> <li>• Depending upon the number of users the size can vary.</li> <li>• Minimum Specification: 0.5 m × 0.5 m × 1.0 m, or even better 1.0 m × 1.0 m × 1.0 m (l×b×d).</li> <li>• The technical descriptions must be followed as per <b>Technical Guide 2</b>, notified under <b>MHM National Guidelines, December 2015</b>.</li> </ul>

<b>Composting</b>	Used paper, tissues, cloth based absorbents and even some sanitary napkins (if they made only of wood pulp and non-woven cotton) <b>Commercial disposable pads will not compost</b>	Composting can be made in communities (both urban and rural), and schools, encouraging for community based and community led composting	<ul style="list-style-type: none"> <li>• Used menstrual absorbent should be mixed and covered with materials such as leaves, dried plants or other bio-degradable material.</li> <li>• The need to be properly moist, which might requires watering during dry periods.</li> <li>• Once the pit is filled, it should be covered properly with soil so as to avoid smell, destruction from rodents, etc.</li> <li>• Minimum Specification: 0.5 m × 0.5 m × 1.0 m, or even better 1.0 m × 1.0 m × 1.0 m (l×b×d).</li> <li>• The technical descriptions must be followed as per <b>Technical Guide 2</b>, notified under <b>MHM National Guidelines, December 2015</b>.</li> </ul>
<b>Pit burning</b>	Plain cotton clothes of degradable sanitary material	Rural area, where there are no better options available	<ul style="list-style-type: none"> <li>• The burning should be carried out at about 1 m depth with some good burning material like dried wood or sometimes kerosene oil or fuel is used.</li> <li>• During the burning, there should be safety measures, such as a dedicated personal and avoid contact by unauthorized students.</li> <li>• Minimum specification: 0.5 m × 0.5 m × 1.0 m; 1.0 m×1.0 m×1.0 m (l×b×d).</li> <li>• The technical descriptions must be followed as per <b>Technical Guide 2</b>, notified under <b>MHM National Guidelines, December 2015</b>.</li> </ul>

**Recommended options for disposal of different sanitary wastes (as per MHM Guidelines 2015)**

Sanitary Waste	Waste management options				
	<i>Disposal into pit latrine</i>	<i>Deep burial</i>	<i>Composting</i>	<i>Pit burning</i>	<i>Incinerator</i>
Used tissues, paper, cloth, cotton	✓	✓	✓	Less recommended	Low cost/locally made inclinators or Electric inclinators
Cotton napkins (reusable or commercial)	Less recommended	✓	✓	Less recommended	Electric inclinators
Commercial napkins with plastic and liners	Less recommended	✓	Not possible	Less recommended	Bio-medical Waste Incinerator

## **7.0 Role of Customer/Producers/Private Agencies/SPCBs & PCCs/ULBs/Villages/Panchayat/Local levels**

The following options are suggested for disposal of sanitary waste through different stakeholders;

### **i. At Consumer Level:**

- (a) The consumer shall wrap the sanitary waste using self-wrapping straps or keep the sanitary waste in leak-proof pouches provided by producer and dispose the same along with dry waste or keep the waste in separate bin provided at the time of door to door collection by local agency. In case separate bin is not provided by authorized waste picker, the wrapped/pouched sanitary waste should be placed in dry-waste bin for collection by authorized waste picker (during door to door collection).
- (b) In case Producers does not provide wrapper or Pouch, the used sanitary waste should be wrapped in old newspaper and placed in dry-waste bin for collection by authorized waste picker (during door to door collection).

### **ii. At Producers Level:**

As per the mandate given under the SWM Rules, 2016 the Producers shall involve in following activities;

- (a) Provide wrapping pouches OR Provide suitable self-wrapping (sealing straps) for the used sanitary waste so that the sanitation staff (Safai Karmachari) are not exposed to sanitary waste during handling. Wrapping system or pouches provided by Producers shall have symbols for easy identification of waste thereby prompting the workers not to open the pack for examination.
- (b) Work with local agencies for achieving segregated collection and disposal of sanitary waste.
- (c) Indulge in providing mass education and awareness in proper handling and segregation and disposal of sanitary napkins.
- (d) Explore the possibility of using recyclable materials in their products.

**iii. By Private Agencies:**

- (a) Segregated sanitary waste can be disposed by Incineration through authorised common Biomedical Waste Treatment and Disposal Facilities. An authorised waste picker by local authorities (as per SWM Rules, 2016) can provide such services on commercial basis. The SPCBs/PCCs may authorise common CBWTDFs to receive sanitary waste from such service providers, only in case the existing CBMWTDF has adequate capacity to dispose the same.
- (b) In small cities, the sanitary wastes can be composted if cotton/clothes are separated from the products. Other-wise, the sanitary waste will go along with dry waste for disposal.
- (c) In Class I cities sanitary waste can be landfilled. The sanitary wastes also can be utilized in waste-to-energy or co-processing in cement kilns/power plants.

**iv. At SPCBs/PCCs Level:**

SPCBs/PCCs may allow sale and operation of mini and modular incinerators for disposal of sanitary napkins. Modular incinerators can be promoted only in case of remote locations (military establishments, camps etc.) or for the areas having no access to common incinerators. For allowing such modular incinerators, SPCBs shall ensure the following;

- (a) Depending on type of technology provider, modular incinerators can be based on twin chamber incineration, Magnetic Pyrolysis Furnaces, plasma pyrolysis furnaces, electrically operated furnaces, Clay-pot (Matka incinerator) etc..
- (b) Modular incinerators may have to demonstrate compliance to general emission standards for air emissions notified under E (P) Act, 1986 or as may be prescribed by SPCBs/PCCs. In this regard, they shall produce test certificate from EPA recognized/accredited laboratory so as to sell their Product.
- (c) Considering low volume of flue gases, the cleaned flue gases after complying with standards shall be vented through stacks of height atleast 2m above the roof or the nearest building or as may be decided by SPCBs.
- (d) SPCBs may randomly verify functioning of such incinerators, and in case of non- compliance to emission standards, they shall direct the manufactures/Producers to not to place their Products on the market.
- (e) Convergence and coordination with different ministries, departments and schemes and awareness creation around sanitary waste management through well targeted commutations and media plans.

- (f) The SBCSs is also responsible for identifying district level resources people and implementing partners, to assist the process of orienting all relevant district and sub district personals.
- (g) SPCBs shall organize the collaborative orientation programmes between the SWM Cell/ WSSO, Department of Education, Department of Women & Child Development, Department of Health and P&RD.

**v. At ULB/Local Level:**

As per the mandate, the ULBs in association or assistance with Producers shall make necessary arrangements for collection and disposal of sanitary waste. The following options are envisaged for disposal;

- (a) Send the segregated sanitary waste to available waste management options/incinerators for final disposal/incineration. (These incinerators may be of TSDFs or CBMWTFs)
- (b) The sanitary waste, if collected as part of segregated non-recyclable dry-waste may feed for Waste to Energy plants.
- (c) ULBs may also install a stand-alone common incinerator for disposal of sanitary waste and other wastes (such as STP/drain sludge).
- (d) Create awareness of the negative consequences of poor waste management on health and the environment due to sanitary waste.
- (e) Develop waste management systems at the local level and facilitate access to water, sanitation and waste disposal for women and girls, especially in rural areas.
- (f) Involve women in the design of sanitation and waste management structures to ensure menstrual waste-related needs for disposal, collection and treatment are taken into account.
- (g) Support from private sectors in development of menstrual waste management products that are environmentally friendly and accessible for women and girls.
- (h) Industrial Groups/ Commercial Groups to involve in sanitary waste management (collection to disposal) under Corporate Social Responsibility (CSR) and promotion of Extended Producers Responsibilities (EPR) for providing pouch /wrappers for safe handling of sanitary wastes and decentralized deposit centres.
- (i) Ensure implementation of sanitary waste guidelines and policies and monitoring of KPI and inclinators.
- (j) ULBs must conduct the training sessions in schools and communities along with the key messages of Hygienic practices as per the MHM Guidelines.

**vi. At Villages/Panchayat Level:**

At villages and Pachayat areas not having access to common incinerators, may dispose used home-made sanitary napkins made of natural tissues/paper/cloth/cotton as well as re-usable commercial cotton napkins in small **burial pits** of more than 50 cm deep or into pit latrines. In case of commercial sanitary napkins made with plastic and liners, low cost incinerators like **Matka Incinerator** kept in open areas (such as open backyard, open fields, terrace of the house, etc.).