



GUIDELINES

for Sanitary Waste Management

DRAFT

THIS DRAFT IS BASED ON –

Preliminary Discussions with SM Technical Team for the preparation of 'Guidelines for Sanitary Waste Management' on 17.04.2023, with representatives of Stake holding Organizations of the State dated 15.05.2023, KSWMP, KSPCB, CKCL, DHS etc., and after incorporating the suggested amendments from KSPCB and KSWMP received on 18.05.2023.

If observed essential, this draft may be subjected to further amendments, - after the,

The meeting with Private agencies engaged in sector related activities/ Meeting with the technical team of CBWTF

The final presentation and discussion for refinement of Guidelines is yet to be scheduled.

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SUCHITWA MISSION

GUIDELINE FOR SANITARY WASTE MANAGEMENT

1. BACKGROUND

Human interaction with the environment has always resulted in the creation of waste and waste management is a continuing scuffle. Recently, there experienced a shift in the approach, as some sectors of waste management have gained priority focus as evident in the case of Plastic, Hazardous and Bio-Medical waste. The forecasted growth in Indian population from current 1.31 billion to 1.65 billion by 2030 which will engender an increased waste generation, calls for due consideration. India has had a biomedical waste management rule since 1998, which was modified in 2016, failed to impart the obligatory attention in the Domestic Sanitary and Bio-medical Waste management and this has left a gaping hole in addressing this already-neglected paradigm in public health. Hence, Domestic Sanitary and Bio-medical Waste management now stresses a mission-mode approach.

The state of Kerala with 1.2 percent of the nation's total land area, holds 3 percent of its population. This high density of population, along with the State's socio-economic peculiarities and the rural-urban continuum, have resulted in the scarcity of suitable land for Centralized high-capacity waste management facilities. Thus, it became most pertinent to devise environment-friendly options for all developments in this sector and to recognize best suited models for Kerala, in order to improve institutional capacities to devise, plan, and manage these.

2. FOREWORD

Therefore, the focus here is to organize the sector in order to channelize the Domestic Sanitary Waste and Bio-medical waste from the source towards disposal by segregated collection, proper handling, monitored transportation, effective neutralization and safe disposal. The strategy is to develop an authorized channel with safe practices based on scientific methodologies and to converge all progressive efforts to emerge into an effective framework. Further, the principle of generator's primary responsibility for environmentally benign disposal of waste has been the focal point in this endeavour.

3. ABBREVIATIONS

SL.NO.	ABBREVIATIONS	DESCRIPTION
1	APCD	Air Pollution Control Device.
2	AYUSH	Ayurveda Yoga Unani, Sidha and Homoeopathy.
3	BMW	Bio Medical Waste.
4	BMW Rules	Bio-medical Waste Management Rules.
5	CBWTF	Common Bio Medical Waste Treatment and Disposal Facility.
6	CHC	Community Health Centre.
7	CHWTSDF	Common Hazardous Waste Treatment Storage & Disposal Facility.
8	CRZ	Coastal Regulation Zone.
9	CSR	Corporate Social Responsibility.
10	DMTAC	District Monitoring cum Technical Advisory Committee.
11	EC	Environmental Clearance.
12	EIA	Environment Impact Assessment.
13	EPR	Extended Producer Responsibility.
14	ETP	Effluent Treatment Plant.
15	GPS	Global Positioning System.
16	HCF	Health Care Facility.
17	HOWM&TM Rules	Hazardous and Other Waste (Management & Transboundary Movement) Rules, 2016.
18	IEC	Information Education and Communication.
19	KEIL	Kerala Enviro Infrastructure Limited.
20	MoEF&CC	Ministry of Environment, Forest & Climate Change.
21	OECMS	Other Effective area-based Conservation Measures.
22	PCC	Pollution Control Committee.
23	PHC	Primary Health Centre.
24	PPE	Personal Protective Equipment.
25	PSWTF	Private Sanitary Waste Treatment Facility.
26	SEIAA	State Environment Impact Assessment Authority.
27	SLF	Secured Landfill.
28	SPCB	State Pollution Control Board.
29	SMTAC	State Monitoring cum Technical Advisory Committee.
30	SW	Sanitary Waste.
31	TSDF	Treatment Storage and Disposal Facility.

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5. INTRODUCTION.

The Kerala State Government's endeavour is to develop a well-ordered SW management system by introducing state of the art as well as environment friendly technologies and by adopting innovative practices. In order to promote this, the Government envisages an appropriate and effective guideline to facilitate and promote establishments of "Sanitary Waste Management Facilities" in the State, which will undertake the scientific processing/disposing/recycling of Sanitary Waste. The guideline is designed to instigate the right direction for overall activities - such as collection, segregation, transportation, data recording, treatment and disposal and includes all other related logistics for scientific disposal of SW; in an organized, economical, safe and environment-friendly manner.

5.1 Sanitary Waste generation in Kerala.

As per the Census of India 2011, the population of Kerala was 3,34,06,061 or 2.76 percent of India's population and the density of population as per the 2011 census is 860 persons per sq. km. Higher population densities effect in scarcity of land for necessary infrastructural developments. Total solid waste generated in the State is around 15000 tons per day at around 450 grams per capita per day. The State Government introduced a Solid Waste Management Policy, 2018, and has also created institutions at the state level to support service delivery. As part of the SWM Policy 2018, keeping the waste generators in view, the state government has charted "My Waste My Responsibility" philosophy, whereas converging on the role of the manufacturers, it has also considered the 'Extended Producer Responsibility' (EPR) in its purview. These have been laid down with a focus of creating a circular economy around solid waste, domestic treatment of biodegradable waste, reducing the overall waste generation, and improving societal consciousness towards the environment. But there is not much accountability when it comes to the SW generated at individual domicile. The increase in life expectancy points out the increasing level of personal care at domicile, especially in the case of old aged, and this results in increased generation of SW. Increasing trend in the shift towards residence based medical attention and the increased scope in household care for the ever-expanding spectrum of ailments have contributed extensively towards the graveness of the issue. Till now this remains as an unaddressed major threat. Sanitary-pads, adult/child diapers, dressing bandages, plaster casts, material contaminated with blood, catheters, used condoms, urine bags etc. used at

homes are disposed of un-scientifically. There is only a vague idea in relation not only to the volume of SW generated in the State, but also to the managing methodologies that are practised in the sector. Further, the established systems in this sector are yet to ascertain a distinct picture with regard to the range and complexity of the environmental issues caused in this sector. Most households in the state, dispose of unwrapped sanitary napkins, soiled diapers, syringes, blood-soaked cotton and stained medical gauges into the dry waste bin and this has turned out to be an environmental threat. SW generated from households are assumed to be the major portion of the total biomedical waste generated in the state, by the experts. The lack of data on SW generation and its management worsens the situation. SW include expired medicines, used adult/baby diapers, soiled sanitary napkins, injected needles, bloodstained cotton, used buds, used condoms, urine bags, spilt mercury, used band-aid, used X-ray films, pregnancy and blood sugar test strips and discarded insulin pens to name a few. In clinical set-ups where such waste is generated, it is segregated and treated as per protocol laid by Biomedical Waste Management Rules, 2016. As per this rule, Common Biomedical Waste Treatment Facilities (CBWTFs) are responsible for environmentally safe-handling of bio-medical waste in its coverage area. CBWTFs are required to function in compliance with the standards notified under Bio-Medical Waste Management Rules (BMW rules 2016) and the guidelines issued by Central Pollution Control Board (CPCB). However, this rule did not adequately address the issue of SW. At present two CBWTFs are functioning in the State. M/s IMAGE, Palakkad with 55.8 TPD capacity and M/s KEIL, Ernakulam with 16 TPD capacity.

5.2. Need of Effective SW management guideline.

The overall importance of safe-handling and proper disposal of SW is based on the safe management of waste material potentially hazardous to health and environment. The methodological treatment of SW, neutralizes it from any harmful properties and restricts the spread of infectious diseases. Eco-friendly disposal methodologies will ensure a safer as well as greener habitat. The prime need of quantifying and recording the overall activities in the sector will not only provide the required clarity for setting the goals but also will aid in evaluating the progress towards the set milestones. This facilitates effective monitoring and thereby aids in effective implementation of rules and regulations. Structuring this as an organized sector will ensure providing livelihood for many, bringing about significant contribution to the social and economic progress of the State.

The present need is to develop a well-ordered, safe, environment friendly and economically viable SW management system. The prerequisite to attain that is a well-defined 'Guideline' with a structured 'Standard Operating Procedures' (SOP) and a focussed and target-oriented team effort for the set goals. However, to embrace this progressive momentum initiated at the policy establishment level, a supportive framework of all stake holding organizations is essential. It is in this context that the Government of Kerala initiated a ground-breaking phase to establish an organized frame-work.

5.3. The Audience.

Anyone who is engaged or involved in Waste management sector related activities, should be well acquainted with the content and purpose of this guideline, as this guideline is structured in recognition of the hazardous properties of SW, to alternate the same with safe practices as well as to introduce adequate measures. This may include following parties who are related to the sector.

- Authorised LSGIs,
- Enforcing authorities and agencies of the State,
- Various implementing, monitoring and governing agencies of the State,
- Managing entity of LSGD owned/associated/supervised or managed facilities,
- Other Stake-holding organizations,
- Private sector facilities, Organizations, NGOs, Social groups,
- Owners, Association representatives, Agents, Contractors,
- Persons in various regulatory capacity related to the sector,
- Individuals engaged in sanitation activities in varied sorts and capacities,
- Independent Service/Logistic/Technology providers,
- Various sector related Committees, Agencies, Societies, Support & Welfare groups.
- Common Public and other SW generators.

5.4. Scope and Limitation.

In order to streamline the activities related to safe management and proper disposal of SW generated in the State of Kerala, the authority envisages an appropriate and efficient guideline. This guideline is designed to impart right direction for the general activities of the

SW Management sector – such as segregation, collection, sorting, packaging, transporting, processing, data recording and disposal, in an organized, economical, safe and environment-friendly manner.

Nevertheless, this document pertains only to SW and the scope does not include waste generated from hospitals, nursing homes, clinics, dispensaries, veterinary institutions, animal houses, pathological laboratories, blood banks, AYUSH hospitals, clinical establishments, research or educational institutions, health camps, medical or surgical camps, vaccination camps, blood donation camps, first aid rooms of schools, forensic laboratories and research labs. Further, these guidelines are not applicable to radioactive wastes, lead acid batteries hazardous wastes, E-waste under and hazardous microorganisms genetically engineered microorganisms and cells as there are Rules exclusively for managing these wastes.

However, any other aspects that needs attention and if it has not been covered under the guidelines, then the prescribed authorities are to be notified to take suitable action in the interest of the protection of the environment in consultation with MoEF&CC / CPCB / SPCB. This ‘guideline’ considers and adopts the authorized and approved protocol established through various literatures of MoEF&CC / CPCB / SPCB and other regulatory agencies.

5.5 Applicability of this Guideline.

All persons who generate, collect, receive, store, transport, treat, dispose, or handle SW in any form at independent residences, apartments, hostels, shared accommodations, kindergartens, lodges, general camps, or any other such venues at the level of personal care but not restricted to it, are considered to be under the purview of this guideline.

6. DEFINITIONS.

- 6.1 **‘Advisory Authority’**, the State Suchitwa Mission or its appointed agency or other designated statutory bodies to be the competent authority to monitor and issue necessary advisory instructions as may be deemed fit to ensure activities befitting relevant Policies/Acts in the State.
- 6.2 **‘Authorisation’** - Authorisation means granting permission for activities pertaining to collection, reception, segregation, treatment, transport, storage, recovery, recycling and disposal in accordance with different laws enumerated and issued by different competent authorities as stipulated under the respective Act.
- 6.3 **‘Authorised Collection Agency’ (ACA)**, is the agency with adequately trained workforce authorized by the authority to carryout door-to-door collection of SW in the prescribed manner and responsible for the safe storage for the period till the transfer to the processing agency for the necessary treatment.
- 6.4 **‘Authorized Sanitary Waste Treatment Facility’ (ASWTF)** is a private owned/ PPP model or public sector treatment facility authorized by the authorizing agency which functions and operates as per the guidelines, rules and regulations stipulated by various governing agencies, to receive Sanitary Waste from Collection agencies for effective treatment of the same in order to neutralize the harmful properties and for the safe disposal of the residue.
- 6.5 **‘Authorised Transporting Agency’ (ATA)**, is the agency with obligatory infrastructural facility and adequately trained workforce who are authorized by the authority to carryout transfer of SW from the facility of ACA to the treatment facilities, in the prescribed manner. They are responsible for the safe and timely transit and transfer of SW and should satisfy the mandatory requirements (GPS tracking, safe handling gears etc.) and maintenance/sanitation standards of the vehicles.

- 6.6 **‘Authorising Authority’** is the appointed nodal agency for designating statutory body/agencies as the competent authority to issue necessary permissions, clearances and instructions as may be deemed fit to ensure activities befitting relevant Policies/Acts. In the context of this guideline ‘Suchitwa Mission’ to be recognized as the Authorizing agency and hereafter will be referred as ‘SM’, in this document.
- 6.7 **‘Authority’** is the regulatory capacity vested with a government appointed body/agency or an existing statutory body of the State, to govern/regulate/manage/permit or restrict activities based on Policies/Acts, that are relevant to the sector.
- 6.8 **‘Build Own Operate Transfer (BOOT)** is a public-private partnership (PPP) project model by which a private organization conducts a large development project under contract to a public-sector partner, such as a government agency. The public-sector partner contracts with a private developer - typically a large corporation or consortium of businesses with specific expertise - to design and implement a large project. The public-sector partner may provide limited funding or some other benefit (such as tax exemption) but the private sector partner assumes the risks associated with planning, constructing, operating and maintaining the project for a specified time period. During that time, the developer charges customers who use the infrastructure that's been built to realize a profit. At the end of the specified period, the private-sector partner transfers ownership to the funding organization, either freely or for an amount stipulated in the original contract.
- 6.9 **‘Collection Activity’** – In the context of this guideline, the collection activity can be defined as all the activities involved in door-to-door collection of SW, that is kept segregated and sealed in polythene bags or in a specified packing by the waste generator under a contract agreement by an agency or an organization.
- 6.10 **‘Common Bio-medical Waste Treatment and Disposal Facility’ (CBWTF)** is a set up where biomedical waste generated from member health care facilities is imparted necessary treatment to reduce adverse effects that this waste may pose on human health and environment. The treated recyclable waste may finally be sent for disposal

in a secured landfill or for recycling. According to the Bio-medical Waste Management Rules, 2016, "bio-medical waste treatment and disposal facility" means any facility wherein treatment, disposal of bio-medical waste or processes incidental to such treatment and disposal is carried out, and includes common bio-medical waste treatment facilities and "operator of a common bio-medical waste treatment facility" means a person who owns or controls a Common Bio-medical Waste Treatment and Disposal Facility (CBWTF) for the collection, reception, storage, transport, treatment, disposal or any other form of handling of bio-medical waste.

- 6.11. **‘Disposition facility’** a facility or part of a facility at which hazardous waste is intentionally placed into or on any land or water, and at which waste will remain after closure. The term does not include a corrective action management unit into which remediation wastes are placed.
- 6.12 **‘Hazardous Waste’** - is discarded material that has substantial or potential threats to public health/ the environment and in the context, it means the hazardous waste as defined in Clause (17) of Sub-rule (1) of Rule 3 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.
- 6.13 **‘Sanitary Waste’ (SW)** – According to the Solid Waste Management Rules, 2016: Sanitary waste includes used sanitary napkins, diapers, condoms, tampons, incontinence sheets and other similar waste. In the context of this guide line, SW includes menstrual waste (used panty liners, sanitary pads and tampons) as well as used condoms, diapers, cotton and bandages, all of which contain bodily fluids and are categorised as domestic hazardous waste as well as medicine packing material, strips, medicine containers plastic or glass, expired medicines in the form of tablets, capsules, other in the form liquid, gels, and powder, used syringes with and without needles, used needles etc.
- 6.14 **Secondary storage** - means the temporary containment of solid waste after collection at secondary waste storage depots/disposition centers for onward transportation of the waste to the Treatment Storage Disposal facility; TSDF.

- 6.16 **‘Segregation Activity’** - this activity in the context of this guideline pertains to the categorization of SW into different categories as specified by the guideline and as well include the activity of separately storing in colour-coded polythene bags for transferring to the authorized agency for effective disposal.
- 6.17 **‘Treatment’**, in this context means the processing of SW by involving any or more than one of the required treatment processes to neutralize the harmful/hazardous properties in order to ensure safe disposal and this include methods such as Chemical / Thermal/ Mechanical/ Irradiation and Biological methods.
- 6.18. **‘Treatment facility’** - is the Transport, Storage, Disposal Facility (TSDF) facility/agency/set-up responsible for receiving the SW from the ‘Collection Agency’, for generating/recording the required data in the specified format, for subjecting SW for appropriate treatment method/s and for safe disposal of the residue.

7. GUIDING PRINCIPLE.

- ... Guideline observes its fundamental principles in elevating ‘Environmental Health’, sustaining ‘Ecological Biodiversity’ and developing ‘Safer habitats’.
- ... The overarching principles that apprise the development and implementation of the Guidelines are: shared responsibility, transparency, engagement, and continuous improvement.
- ... Key pathways for the implementation of the Guidance Principles will be through the commitment of decentralized facilities with adequate coverage of area sufficient to cater all grama panchayats, municipalities and Corporations of the State. Government aims to actively collaborate with all interested organizations on such integration.
- ... Inculcating standardized practices, monitoring activities and exercising controls in sector related activities.

8. LEGISLATIVE BACKGROUND.

Consequent to the judicial intervention by the Hon’ble Supreme Court of India, a comprehensive report on the management of municipal solid waste was prepared by an Expert Committee in March 1999. India notified Municipal Solid Waste (Management and Handling) Rules 2000. It emphasized segregated collection, transportation, treatment and disposal of municipal solid waste by all Local Self Government Institutions (LSGIs). In 2016, the Rule was superseded by Solid Waste Management Rules, 2016 with emphasis on the responsibilities of waste generators in addition to various other pertinent aspects. The Supreme Court directions (issued on 30 July 2020) on Bio-medical waste, has directed CPCB to monitor the real-time OCEMS from CBWTFs and to make this data available to the public. This is the first time the Supreme Court has stepped in and directed that data from emissions monitoring be made available to all, as it will increase transparency and credibility of the data. CPCB has also been directed to work on a national bar-coding system so that biomedical waste is tracked in each state— from generation to processing to incineration and also recycling. 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. Vide order dated 18.06.2020, the National Green Tribunal Principal Bench took note of the Swachh Bharat Mission Guidelines (SBM-G) and Menstrual Hygiene Management (MHM), giving details of various options in handling the situation for control of pollution.

9. GOVERNING LEGISLATIONS.

The Governing Legislations of this guideline include various Acts, Policies and other following legislations with its latest subjective amendments, governing rules, official notifications/orders and guidelines, that had been published subsequently by respective authorities/governing institutions.

1. Environment (Protection) Act, 1986, amendment 1991, various rules published, along with the Environment Protection Second Amendment Rules, 2022; issued by MoEF&CC.
2. Water (Prevention and Control of Pollution) Act, 1974, Act No. 6 of 1974' amended 1988; statutory body - Central/State Pollution Control Board under MoEF&CC.
3. The Air (Prevention and Control of Pollution) Act, 1981, Act no.14 of 1981, amended 1987; statutory body - Central/State Pollution Control Board under MoEF&CC.
4. The National Green Tribunal Act, 2010; vide notification no. S.O. 2569 (E) October 2010; under the Ministry of Law and Justice.
5. The Public Liability Insurance Act, 1991; Published by the Ministry of Law and Justice.
6. Hazardous & Other Wastes (Management & Transboundary Movement) Rules, 2016 and amendment Rules 2022; issued by MoEF&CC.

7. Solid Wastes Management Rules, 2016; S.O. 1357(E); issued by MoEF&CC.
8. The Ozone Depleting Substances (Regulation and Control) Rules, 2000, vide S.O. 670(E) 2000; issued by MoEF&CC.
9. The Bio-medical Waste (Management & Handling) Rules, 2016, notified under G.S.R. 343(E) by MoEF&CC.
10. The Plastic Waste Management (Amendment) Rules, 2018, notified under G.S.R. 320 (E) by MoEF&CC. The Plastic Waste Management Rules, 2021; Guidelines on Extended Producer Responsibility (EPR) as per Amendment notification on 16.02.2022 by MoEF&CC.
11. Kerala Occupational Safety, Health and Working Conditions Rules 2021, Kerala Gazette No. 3695; 2021.
12. Govt. of Kerala - Local Self Government Department – State Policy on Solid Waste Management in terms of Rule 11 and 15 of Solid Waste Management Rules, 2016. GO. (P) No. 65/2018/LSGD - 2018
13. Revised Guidelines for Common Bio-Medical Waste Treatment and Disposal Facilities notified by Central Pollution Control Board in December 2016.
14. Menstrual Hygiene Management National Guidelines issued on December 2015 by the Ministry of Drinking Water and Sanitation, Govt. of India.
15. Disposal of Menstrual Waste under The Guidelines for Swatchh Bharat Mission (SBM)-Urban and SBM-Gramin.
16. Guidelines for Management of Sanitary Waste as per Solid Waste Management Rules, 2016; issued in May 2018 by Central Pollution Control Board, MoEF&CC, Govt. of India.
17. Guideline for Household Bio-medical Waste – Collection, Storage and Disposal activity issued by Local Self Government (WM) Department, Government of Kerala via no. 1227/2022/LSGD dated 16.05.2022.

10. OBJECTIVES.

The guideline aims to achieve, following objectives –

1. To promote safer handling and to standardize the practices in the sector.
2. To promote a formal and well-organized methodology for ecosystem management that enables proper data assimilation and monitoring features.
3. To promote systematic collection of SW material with a formalized door-to-door collection mechanism followed by technically reinforced processing for neutralizing the hazardous properties of the same. To ensure safe disposal, in order to minimise the potential negative effect of the same in the landfills as well as in restricting environmental pollution.
4. To encourage public-private participation in the SW management sector and to promote economic models to ensure private participation. To encourage business models in this sector by strategizing the action plan for economic progress, livelihood generation and infrastructural development.
5. To ensure a safer working environment for sanitation workers as well workers involved in neutralizing and disposal activities.
6. To advance the sector to a responsive ecosystem by involving all partakers.
7. To practically implement the concept of ‘My waste my responsibility’.
8. Improving recovery of Secondary Resources, facilitating Co-processing.
9. To set up means for handling, treating and disposal of waste items in compliance with various Acts, Rules, Guidelines and Orders brought out by competent authorities that are involved in various governing, regulatory roles.

11. IMPLEMENTATION OF GUIDELINE.

For the implementation of this framework, as well as to effectively transform this framework to function as a sustainable waste management ecosystem, it requires significant involvement and adequate engagement of multiple stake-holders, such as

- ... Local Self Government Institutions such as Municipal Corporations, Municipalities and Grama Panchayats; hereinafter referred as LSGIs
- ... Kerala State Pollution Control Board hereinafter referred as KSPCB
- ... Suchitwa Mission, under the Local Self Government Department, Kerala; hereinafter referred as SM - State / District level managing bodies
- ... Clean Kerala Company Ltd, Government Stake holding entity hereinafter referred as CKCL
- ... Kudumbashree, community organization of Neighbourhood Groups (NHGs) of women in Kerala.
- ... Haritha Kerala Mission - State / District and LSGI level managing bodies
- ... Treatment Storage & Disposal facilities engaged in neutralizing hazardous nature for the final conversion of SW into material safe for disposal.
- ... Collection Agencies, Line-workers engaged in SW collection/transport activities.

Following implementation for the guidelines have been laid down for SW management-

11.1 Infrastructural Facilities

All SW management activities should take place in the following four categories of facilities.

- (-) Authorized Collection Agencies (ACA); as defined in section (6) point (6.3), responsible for segregated collection, secondary segregation of SW and secured handing over to treatment facilities through Authorized Transporting Agencies.
- (-) Authorized Transporting Agency (ATA); as defined in section (6) point (6.5), responsible for the secured transport of SW from the ACAs to Treatment and Disposal Facilities (TSDF).
- (-) Authorized Sanitary Waste Treatment Facility (ASWTF) as defined in section (6) point (6.4), responsible to receive SW in tune to the assigned capacity for the adequate neutralizing treatment within the assigned capacity.

(-) Common Bio-medical Waste Treatment and Disposal Facility (CBWTF) as defined in section (6) point (6.10) and responsible for treatment and disposal of SW.

* LSGIs are responsible for engaging required agencies with assigned capacities to address the Collection, Treatment and Disposal of SW. LSGI should organize all required operational procedures to setup adequate facilities for safe management of SW within their functional territory. LSGIs shall earmark safe and remote areas that are less densely populated to carryout decentralized operations and the network of such operating centres will incorporate the overall sector related activities of the State, in order to progress towards a safe environment.

* LSGIs should ideally earmark adequate land within every 20kms radius for establishing 'Disposition Centres'. LSGIs with technical and operational inconvenience to establish 'Disposition centres' should intimate the authorizing agency about the same and are responsible to find alternate arrangements by engaging any substitute agency to perform the function. For this purpose, LSGIs should invite tenders inviting private agencies and should make contractual arrangements for engaging in sector related activities.

* Existing regulations in purview of waste management, propose Specialized Centres in Industrial Estates, whereby 5% of the total geographical area of the Industrial Park has to be assigned for Waste management activity. LSGIs can utilize this provision to allocate adequate land for SW management whereby they are advised to either open 'Disposition Centres' or assign such facilities for ACA or ASWTF. The LSGI can engage with such agency by providing land with/without monetary terms in suitable capacity deemed as required to meet the purpose.

* In this regard LSGIs can as well consider to identify non-functional State-owned facilities within the Government sector that are safer to carry out SW sector related activities and necessary steps to be taken to provide such facilities to the private sector for SW management activities in 'PPP' model preferably in the 'BOOT' system. This arrangement either can be on a profit-sharing basis or on any other supportive arrangement beneficial to the State.

* LSGIs should coordinate with Health Department of the State for collaborating SW management activities in the possible ways. LSGI should ideally work out action plans to

utilize the facilities of Health Department within the functional territory of LSGI. For this, LSGI may coordinate with existing facilities for Bio-medical waste management with the Health Care facilities and organize a contractual tie-up with ACA for purposeful engagement.

* Similarly, LSGI may consider the viability of including, Disposition Centres or SW treatment facilities within the existing MRF/RRF facilities within the functional territory. LSGI can as well chalk out suitable operational arrangements in this regard to effectively collaborate SW management within the MRF/RRF facilities.

* Technical Support Groups, should aid in modernizing the infrastructural facility, by introducing new innovative technological solutions. SM & KSPCB should provide necessary guidance and facilitate suitable technical support in adequately equipping the facilities for effective operation.

11.2 ‘Registration’ and features of Registering Web-Portal

A mechanism for registration of all sector related facilities and the line-workers, will be developed in order to effectively transform the existing system into a formal centrally coordinated sector. The design and development of the web portal will be the responsibility of SM in the capacity as the authorizing agency. The registration will be facilitated through this on-line platform developed for this particular purpose. The registration of entities will be with the ‘LSGIs’ and the designated soft-ware will manage to generate a unique ‘serial number registration code’ for each registering entity. A geo-tagging feature will be provided, which enables pinpointing the exact location of the registering entity. The geotagging of the entities will be carried out by the LSGIs. Due consideration will be given to incorporate a provision for a grading system on the basis of the ‘processing-capacity’ and this role of grading to be done by the concerned LSGI where the facility is to be located. The Portal/Software will facilitate, SM, as the authorized system-administrator, with control of the overall systems including access to complete data. This will enable SM to generate specific data suiting the requirement. In order to facilitate various governing roles, SM will provide restricted temporary access to other governing agencies, for necessary data assistance for contributing towards sector related activities.

The online registration portal will also feature the provision to register individuals engaged in the activities in each of the entities. All facilities/agencies are responsible to carry-out the registration of their workforce (individuals engaged in various sector related activities such as line-workers for waste collection, workers engaged in segregation, and treatment, machine operators, handling and transporting team, staffs engaged in data recording and those who are engaged in various other related activities) in their facilities. Web-portal will enable registering entities to print out a system generated ID-card for their work-force. Each entity will be required to register the work-force associated with them and the LSGIs should encourage this. The simple registering process will require the Aadhar Card of the registering individual as the identity proof.

The online registration portal will as well feature the facility to portray the logistical infrastructure and services available with the entities (like transportation loading/off-loading machineries, weighbridge services etc.). This not only will enable us to gather valuable information regarding the associated supporting sectors, but also will set the ground for incorporating these sectors in the next level drive, and as well fetch the necessary data for formalizing it.

Beneficial features of the Web-Portal, for the registering facilities include,

- ... a feature that will update official announcements from the authorities, latest developments in the sector, information on innovative technology and logistics providers, reports of various activity pertaining to this sector, announcements on upcoming work-shops and seminars etc., will be beneficial for all of those who are engaged in the sector.
- ... the web-portal will generate a unique registration certificate with a unique 'registration code'. Companies/facilities can download this certificate, print and maintain the copy as the authenticated 'Certificate of registration'.
- ... From the Web-portal facilities can download, print and issue identity cards for their registered workforce.
- ... Registered establishments will have the facility to dispose of the reject/inert in coordination with LSGIs.

11.3 Standardizing the Operations –

The standardization of operating procedures for segregated collection and treatment of SW materials in accordance with all relevant Acts/ Policies / Guidelines / Rules of Central as well as State Government; will be documented. The structure of this ‘SOP’ is designed to facilitate a safe environment by safe handling to neutralize the harmful/hazardous properties of SW material, to minimize the quantity of SW reaching the landfills, quantity minimization and safe disposal of residue. Due consideration will be there to inculcate economic benefits to those actively involved.

11.4 Monitoring

Necessary steps will be undertaken for periodic inspection and review of the activities of ACA, ATA, CBWTF & ASWTF. SM can organize inspections on a periodic basis, through ‘LSGIs’ and for this purpose the lead role of KSPCB is to be recognized. Supporting roles of HKM, CKCL and Kudumbasree units may be utilized for this purpose. For this, an action plan has to be developed by SM, by forming a SMTAC including various stake holding organizations in capacity. The structure and working methodology of the committee may be finalized by the committee after consultation with relevant authorities/ agencies.

11.5 Technology Upgradation

Technology upgradation and adoption of Best Available Technology (BAT) for SW management to be promoted in line with existing environmental compliances. SM to take a lead role in this. Provisions are to be laid down to neutralize the harmful/hazardous properties of SW and reduce the impact of residues in the environment. A technical committee formed in the official capacity is required to provide awareness and deliver necessary directives for this purpose. Seminars and Workshops with the participation of technology providers, stake-holding organizations, associations, facility owners and concerned officials will help in a long way for upgrading the existing systems. The scope and use of custom made soft-wares can as well facilitate the upgradation process. Capable organizations who are ready to work in this direction have to be recognized and promoted. Promoting the use of software platforms for tracking the material flow will ensure transparency and effective controls.

11.6 Research Initiatives

The government will encourage and provide support to Research & Development (R&D) programmes in the SW management sector. The scope for institutional mechanism for carrying out detailed studies and advance research related to SW management, will be considered. It is observed that Internships and Project Studies can attract ‘focused thought-process’ to this sector, which can promote progressive developments. Participation of R&D experts in the activities of Technical Support Group will be advantageous. R&D experts can as well contribute to the sector by their active participation and effective engagements in Seminars, Workshops and Training sessions.

11.7 Private-Sector Participation

Encourage the private-sector participation, by introducing them to the business potential and economic benefits latent in this sector. Simplifying the process of establishing business, standardizing as well as stream lining associated activities and facilitating smooth-functioning, will yield huge economic benefits to the public sector, in the form of reduced expenses on waste disposal and increased revenue in the form of tax, fees and other revenues from the sector. Encouraging new entrepreneurs to comprehend the business model latent in these activities and promoting their involvement will result in an effective circular economy system, which will have far reaching effects in channelizing the activities and enhancing the benefits. For effective and productive projects, the authority should be flexible in considering long-term contractual arrangements the various modes of arrangement in the PPP model (like BOOT-system).

12. WORKING MODEL of the Guideline.

12.1 Scenario considered:

There has been a substantial increase in SW generation and this trend is expected to go up. The increase in life expectancy in recent decades, have resulted in increasing levels of personal care at domicile especially in the case of old aged, and thereby increased generation of SW. Further, the shift towards residence based medical attention and the increased scope household care for ever-expanding spectrum of ailments have contributed extensively towards the graveness of the issue. Neither the existing facilities nor similar expansion plans will be adequate to address this issue in future and this points to the requirement of new innovative decentralized methods to tackle the issue of SW management.

State has only two CBWTF in operation, one in Palakkad and other one in Ernakulam. This is observed as inadequate, if not presently, but for certain in the near future, for addressing the SW management. It is obvious that more facilities are required and it is and more effective to have decentralized units across the State which shall significantly save the efforts, cost and time of an effective SW management solution. However, many constraints block the establishment of such facilities, the prime being the land constraint.

LSGIs, as a part of their role in establishing de-centralized 'Disposition Centres' may also consider the alternative solution, whereby decentralized facilities in Public Private Partnership (PPP) in Build-Own-Operate-Transfer ('BOOT') model. Preferably, the establishment of such facilities to be distributed to cover the geographical area of 20kms in radius. Such facilities may as well be assigned the role either of ACA or TSDF and are considered in this guideline, as suitable models to address the issue of collection, processing and disposal of SW in the State. This system envisaged is to base the activities in tune with the scientific as well as environmental facets, however it does not limit the scope of other models or arrangements based on the obligatory stipulations. This guideline reinstates the obligatory responsibility of all those who are involved in this sector-related activities to have infrastructural & service facilities in accordance with the standards and requirements specified by various regulating agencies like CPCB/SPCB, LSGIs etc.

12.2 Collection of SW:

Authorized Collection Agency (ACA), is to be assigned to collect SW from a pre-chartered geographical area, on a door-to-door basis. ACA will be responsible for effective collection of SW from the households in the assigned area and is restricted to engage in activities outside the assigned area. For this, public sector agencies like HKM or Kudumbasree can be engaged. In the absence of such agencies, services of private organizations can be sought on a contractual basis with adequate measures to guarantee the necessary performance. ACA will be responsible to impart awareness to the public with regard to details pertaining to the type, nature of SW as well as the measures of segregation and safe storage in colour coded sealed polythene bags. ACA has to provide the waste generators with adequate polythene bags required for this. Such segregated and sealed SW in colour coded bags is to be collected on a door-to-door basis from the waste-generator at regular intervals on a pre-scheduled basis by ACA and the same to be handed over to treatment facilities. ACAs should possess necessary facilities for secondary segregation if required and for the safe storage of segregated SW. ACA is responsible for safely handing over the segregated SW to the agency assigned with the responsibility of transportation of SW to the treatment facility.

12.3 Transportation of SW:

For the transportation of SW, ACA can resort to the services of logistic providers (ATAs) under contractual agreement. It is mandatory that the infrastructural facilities of ATAs should be in accordance with the standards and requirements specified by various regulating agencies like CPCB/SPCB, LSGIs etc. The vehicles used for transportation of SW should be enabled with GPS tracking and the maintenance and sanitation should be carried out in consonance with the specified norms and regulations mentioned under BMW management rules. ACAs can as well use the services of the transportation facility of the SW treatment facility (CBWTF or ASWTF) under a contractual agreement. However, all the logistical facilities including the transportation and handling of SW should be in consonance with all applicable norms and standards stipulated by various regulatory and authorizing agencies.

12.4 Transfer of SW:

Each ACA should ideally be associated under a documented contractual agreement with either a CBWTF or ASWTF for receiving the SW for its treatment and disposal. ACA can have contractual agreement to any one or more of these facilities. In the case where an ACA has not made a contractual agreement with a treatment facility, they are directed to handover the collected material only to another ACA who possesses a contractual agreement with a treatment facility. The transfer of material including its handling and loading should be as per the stipulated norms applicable. ACA is vested with the responsibility of engaging into contracts with those treatment facilities that are authorized.

12.5 Treatment and Disposal of SW:

Treatment and Disposal facilities (ASWTF and CBWTF) should have the infrastructural and service set-up as per the standards prescribed by various governing agencies (as stipulated by various regulatory agencies via relevant Rules/ Acts/ Guidelines etc., as mentioned here under 'Governing Legislations in Para 9). These facilities would require necessary license/permit/consent to operate in this sector which will be issued by competitive authority on the base of obligatory compliance to the prescribed standards (of various regulatory/governing agencies). Safe, healthy and environment-friendly measures to be adopted by all parties involved in operations related to this sector (as stipulated) for the storage, handling, treatment and disposal, related logistical arrangements as well as in the transportation of SW materials. ASWTF with limited facilities that can provide effective treatment only for selected items of SW are not advised to take other items in their possession. There should be proper arrangement to record and update the data with regard to the receipt, treatment and disposal of SW. ASWTF and CBWTF are required to follow the instructions and guidelines in all sector-related operations and should follow SPCB/LSGI instructions for the disposal of residues. The sanitation and maintenance of the facility should be as per the specified terms.

13. METHODOLOGY of the Guideline.

This Guideline for SW management activity is applicable to every Local body, Manufacturer, Waste generators, Collection agencies as well as to the processors of SW. The structure is designed to upgrade the segment into an organized set-up, regulate the activities in appropriate manner to suit the multi-fold purposes of objectives and to instil overall progress in the waste management sector. For this purpose, the SW management sector is categorized into the following four categories.

13.1 Categorization of Facilities.

All SW management activities should take place in the following four categories of facilities.

- ... Authorized Collection Agencies (ACA); as defined in section (6) point (6.3)
- ... Authorized Transporting Agencies (ATA); as defined in section (6) point (6.5)
- ... Common Bio-medical Waste Treatment and Disposal Facility (CBWTF) as defined in section (6) point (6.10) and
- ... Authorized Sanitary Waste Treatment Facility (ASWTF) as defined in section (6) point (6.4).

13.2 Registration of Facilities.

All entities/establishments that are currently performing in SM related activities and those intended to newly establish, are directed to make registration through an on-line platform, whereby the registration of the entity will be sited with the 'LSGIs'. The registration procedure and formalities shall remain same for all existing as well as new facilities.

Registration process

1) For the purpose of registration, an existing entity who is presently functioning in this field or a new establishment intending to engage in this line of activities, has to categorize themselves into any one or all of the above categories (mentioned above as in para 13.1) in their respective sectors (public or private as featured in registering web portal), based on the types of activity ('performing' or 'intending to perform').

2) The entity has to make an online registration in the assigned web-portal assigned to the LSGI and authorized by the Authorizing Agency. The web portal will comprise formats for collecting maximum details of the establishment in regard to the particulars of owners, work-force, activities, facilities, location, etc. It is mandatory for the entities to furnish maximum details pertaining to their activity in an accurate manner.

3) The registration is also applicable for the base level work force and all engaged in base-line activities will be registered as line workers.

The work-force, (i.e., associated Line-workers or the workers engaged for processing activities) of an establishment will be linked to these establishments (ACAs, ATAs, CBWTFs or ASWTFs). The registration of the workforce will be the responsibility of that particular agency who have engaged the workforce and to be carried out by them in a prescribed format as specified in the web-portal. The web-portal registration requires providing relevant information of the entity, (such as details of owner/responsible persons/ address/ type of activity/ Item categories/ workforce details etc.). Once the registration process is successfully completed, LSGIs will be responsible for geo-tagging these registered entities. After geo-tagging, the registered entities can download the 'Registration Certificate' from the web-portal, print and maintain it as the authenticated proof of registration. The registered entities can as well download, print the 'identification card' (in the name of the registering facility) and issue the same to their workforce.

13.3 General requisites for Entities.

Mandatory requisites required for units that are engaged in SW management activities (ACA, ATA, CBWTF or ASWTF) primarily include the terms, criteria & standards stipulated by various regulatory agencies via relevant Rules/ Acts/ Guidelines etc., as mentioned here under 'Governing Legislations in Para 9. They also placed under the obligatory responsibility operating standards for safe handling and treatment of SW for final conversion to non-hazardous and environment friendly streams of recyclable or disposable material. The requisites if additionally prescribed include: -

- a. All entities should possess the necessary license/consent/permit/registration issued by the competent authority to be mandatory, to carry out the specified activity in the opted capacity. In the case of private engagement, the feasibility and viability of the prescribed activity on that specified location will be evaluated by the competent authority based on the standards and regulations set by various regulatory/governing agencies.
- b. All entities have to be registered (as per the procedures mentioned in para 13.2 (a)); and they should also meet the mandatory requirement of registering their workforce with their personal identification details; in the web-portal. While registering in the assigned web-portal, all entities are required to furnish full and clear details with regard to the establishment, particulars of owners/authorized person, work-force, activities, location, etc., through the designated format.
- c. All establishments should be geared to attend with first hand response to emergencies like fire accidents or other physical accidents, as per the Health and Safety standards as prescribed by Kerala Occupational Safety, Health and Working Conditions Rules, Kerala Gazette No.3695, 2021.

13.4 Operation – Standards & Requisites.

The Guideline prescribes following specific requisites and standards for entities pertaining to their functional role and operational capacity and mandates that these requisites and standards for their legal existence and rightful operations.

13.4.1 Operation Standards & Requisites for ACAs

- a. The entity should possess adequate infrastructure, with state-of-the-art technologies and skilled workforce in order to accomplish the operational capacity for the specified activity and targeted capacity. The area requirement for such facilities should be minimum 15 cents of land area with proper boundary walls and road access for heavy-duty trucks. There should be at least one covered enclosure of minimum 1500 square feet with proper roofing, complete wall structures with securable access doors for safe keeping and handling of SW. The ACA should possess legal document for the land area (ownership deed/lease agreement) assigned for the facility. In the facility, there should be adequate water source with safe and approved drainage

system. There should be adequate electricity source with safe and secure electric installations approved by Kerala State Electricity Board. The premises should possess First-aid facilities and Fire-fighting system as stipulated by competent authorities.

- b. The ACAs should obtain necessary legal obligations of establishment such as, the consent to operate issued by the SPCB, registration and license from LSGI, legal document from LSGI stating the assignment of geographical area to be covered for the collection activity, contractual agreement with the transporting agency, contractual agreement with treatment facility and other applicable documents as specified by LSGI/regulatory agencies, if any.
- c. For the operations in relation to the collection activity there should be adequate number of competent work force who are skilled and specifically trained to perform necessary activities. The workforce to be trained in practices of Occupational Safety and Health Measures and has to follow the operational standards as directed in 'Kerala Occupational Safety, Health and Working Conditions Rules, 2021. In order to manage the entity in an eco-friendly manner, necessary training to be provided to the workforce, and the management should follow the directives of Environment Protection Act, 1986; Ministry of Environment, Forest and Climate Change (MoEFCC) – amended 1991 & the Bio-medical Waste (Management & Handling) Rules, 2016, notified under G.S.R. 343(E) by MoEF&CC
- d. In the premises of ACAs, there should be adequate facility to securely store materials that can potentially contaminate the soil or water bodies; for this the measures stipulated by the State Pollution Control Board (SPCB) are to be adopted. The entity should have dry areas (free from water logging), impermeable surfaces like concrete flooring, The area assigned for material collection, segregation and treatment to be suitably organized to prevent the contamination of soil or water bodies.
- e. Workforce to be provided with appropriate handling tools, PPE and passable safety gears like helmets, gloves, goggles, face-masks, other protective gears etc. as per the specifications instructed by Health Department and other regulatory agencies from time to time. In this regard, the operations of entities to follow Kerala Occupational Safety, Health and Working Conditions Rules 2021, Kerala Gazette No. 3695; 2021.
- f. There should be adequate facility for data recording in relation to the flow of material as well as adequate facility and workforce for the effective reporting of the same.

13.4.1 Operation Standards & Requisites for ATAs

- a. ATAs under contractual agreement with ACAs, should possess infrastructural facilities in compliance with the standards and requirements specified by various regulating agencies like CPCB/SPCB, LSGIs etc.
- b. ATAs should have vehicles registered in the specified category with the State Motor Vehicle Department, for transportation of SW. Vehicles should be in fit for the purpose of engagement, enabled with GPS tracking and designed/structured as per specified norms and regulations mentioned under BMW management rules 2016. Entity should possess contractual agreements vouching arrangements of adequate logistical facilities in relation to parking, sanitization and maintenance. Trained Manpower trained for sector related activity is mandatory and should be provided with PPE kits.
- c. 'Log register' for recording type and quantity of SW as well as 'movement register' to record the transfer details, should be maintained and updated promptly with accuracy.

13.4.1 Operation Standards & Requisites for ASWTF.

- a. ASWTF facility should ideally be in a secluded area, away from densely populated area and with clear access roads. There minimum area requirement is 50 cents of level land with proper boundary walls and road access for heavy-duty trucks. There should be a single or cluster of separate covered enclosures within the premises for a total of minimum 3000 square feet with proper roofing, complete wall structures with securable access doors for safe keeping and handling of SW. All constructions within the premises should be legally approved by the competent authority and in this regard, the entity should possess adequate documented proof. ASWTF should possess legal document for the land area (ownership deed/lease agreement) assigned for the facility. However, the minimum requirement with regard to the total area and the roofed enclosure can be overlooked on the base of the requirements based on the treatment activities opted by the facility and in this regard the concerned LSGI is deemed to take suitable verdict.
- b. The entity should have adequate water supply with suitable drainage facility approved by the competent authority.

- c. The entity should have provision for electricity specifically assigned for the purpose with adequate payloads in tune with the activities of the setup. All installations in the facility should be approved by the competent authority.
- d. The entity should have fully integrated fire security system and should possess documented approval of the competent authority in this regard.
- e. ASWTF entities should possess adequate infrastructure, with state-of-the-art technologies and skilled workforce in order to accomplish the operational capacity for the specified activity and the assigned capacity. In this regard relevant standards specified in the 'Revised Guidelines for CBWTF (issued by CPCB in December 21, 2016) are applicable.
- f. All machineries and installations should satisfy the standards prescribed by SPCB and in this regard the facility should possess adequate consent documents. Machineries and installations in line with Incinerator, Plasma Pyrolysis and Autoclave etc., should meet the emission standards and in this regard the entity should obtain necessary document proof from the manufacturers.
- g. For the operations in relation to the treatment activity there should be adequate number of competent work force who are skilled and specifically trained to perform necessary activities. The workforce to be trained in practices of Occupational Safety and Health Measures and has to follow the operational standards as directed in 'Kerala Occupational Safety, Health and Working Conditions Rules, 2021. In order to manage the entity in an eco-friendly manner, necessary training to be provided to the workforce, and the management should follow the directives of Environment Protection Act, 1986; Ministry of Environment, Forest and Climate Change (MoEFCC) – amended 1991 & the Bio-medical Waste (Management & Handling) Rules, 2016, notified under G.S.R. 343(E) by MoEF&CC
- h. In the premises of ASWTF, there should be adequate facility to securely store materials that can potentially contaminate the soil or water bodies; for this the measures stipulated by the State Pollution Control Board (SPCB) are to be adopted. The entity should have dry areas (free from water logging), impermeable surfaces like concrete flooring, The area assigned for material collection, segregation and treatment to be suitably organized to prevent the contamination of soil or water bodies.

18. Workforce to be provided with appropriate handling tools, PPE and passable safety gears like helmets, gloves, goggles, face-masks, other protective gears etc. as per the specifications instructed by Health Department and other regulatory agencies from time to time. In this regard, the operations of entities to follow the specifications under the Bio-medical Waste (Management & Handling) Rules, 2016, notified under G.S.R. 343(E) by MoEF&CC and Revised Guidelines for Common Bio-Medical Waste Treatment and Disposal Facilities notified by Central Pollution Control Board in December 2016.
- i. The entity shall be equipped with a de-pollution system. Should resort to use the best available technology (BAT) for treatment of SW materials, preferably with minimum discharge of inert/rejects. The facility shall comply with the regulations and environmental norms as laid down by MoEFCC-CPCB/SPCB, Hazardous & Other Wastes (Management & Transboundary Movement) Rules, 2016; The Bio-medical Waste (Management & Handling) Rules, 2016, notified under G.S.R. 343(E) by MoEF&CC for such operations.
 - j. The premises should have a proper weighing mechanism in tune with the operations and should as well possess adequate handling devices appropriate for intended activities. There should be adequate arrangement to store segregated materials in a safe and orderly manner and within the boundaries of the premises as stipulated in the Bio-medical Waste (Management & Handling) Rules, 2016, notified under G.S.R. 343(E) by MoEF&CC CPCB.
 - k. ASWTF entities should have adequate infrastructure and facility to maintain log-registers to record various activities as per the requirement specified under the role and responsibilities.
 - l. ASWTF should preferably accredit their centres/ units with the latest version of quality standards viz ISO 9001 (Quality management system), 14001 (Environmental Management System) and 18001 (Occupational health and safety) besides compliance to other norms / rules as laid down in various statutory rules/regulations.

13.4.1 Operation Standards & Requisites for CBWTF.

- a. CBWTF entities should possess the operational set-up with adequate infrastructure with specified performance/emission standards, procedural/sanitation methods as specified, prescribed maintenance and standardized disposal methods as per the 'Revised Guidelines for CBMTF issued by CPCB in December 21, 2016; available in the official website 'www.cpcb.nic.in'. Land requirement and location should be as per the 'Revised Guidelines for CBWTF issued by CPCB in December 21, 2016; available in the official website 'www.cpcb.nic.in'.
- b. CBWTF should preferably accredit their centers/ units with the latest version of quality standards viz ISO 9001 (Quality management system), 14001 (Environmental Management System) and 18001 (Occupational health and safety) besides compliance to other norms / rules as laid down in various statutory rules/regulations.

13.5 Service Charges for Collection and Treatment activities

As it plays an important role in financial viability and sustainable operation of service charges to be collected to cover the operating cost and to sustain the economic viability of business operations. In this regard, the charges collectable from various segments of the sector to be pre-fixed on the base of weight or other suitable criteria by the Authorizing agency.

- a. ACAs should be authorized to collect a pre-fixed processing fee on a periodical basis from the waste generator and against that the ACAs should provide an authentic receipt to the waste generator.
- b. The service charges thus collected should be sufficient to cover the operating cost of collection activity, transportation, loading/unloading/ treatment at ASWTF/CBWTF and all related activities.
- c. The ACAs should pay the pre-fixed charges of the treatment facility to CBWTF/PSWTF as per the terms of the contractual agreement, for providing the best treatment services and for ensuring compliance to the BMWM Rules.
- d. The fee amount should be finalized with a minimum and maximum ceiling to ensure proper controls and in this relation, the finalization of fee-structure is to be done by a State Monitoring cum Technical Advisory Committee (SMTAC) in consultation with stake holders and other relevant parties involved in sector related activities.

14. Roles and Responsibilities of Stakeholders

14.1. Role & Responsibilities of Households (SW Generator):

- a. The public (waste generator) should ascertain the principle of ‘my waste – my responsibility’ and should be conscious of personal responsibilities towards sustaining a healthy environment. They should have inclination for upkeeping public hygiene and should seek relevant information in this regard. They should understand and follow the guidance and instructions of the collection team of ACA. They should extend all possible support towards achieving the goal of safer environment and should restrict themselves from hazardous practices.
- b. The waste generator shall segregate all SW as required by the ACA and will keep them in separate colour-coded polythene bags provided by the ACA. These segregated and sealed waste material will be kept in a safe, dry and secured place away from children, animals, insects, pets and from similar pressures. On the scheduled day this sealed waste material to be handed over to the door-to-door collection team of ACA.
- c. The details of information and instructions for the waste generator, pertaining to proper segregation, schemes of colour-coding and safe storage methods of SW are detailed in Section (14.2) sub-section (a)- points 1 to 9.

14.2. Role & Responsibilities of Institutions (SW Generator):

- a. Managing bodies and custodians of Institutions such as hotels, girls/working women hostels, day care facilities, educational institution for girls, palliative care units and centres functioning in similar capacities should have adequate SW management arrangements. Such facilities should ideally have systems to process diapers and sanitary napkins within the premises or else should have alternate adequate arrangement for meeting this purpose. To ascertain the principle of ‘my waste – my responsibility’, the role demands for a befitting social attitude and worthy efforts.

14.3 Role & Responsibilities of ACAs:

a. ACAs to ensure that the segregation and door-to-door collection to be based as per the standards and criteria specified in this Guideline and also as per following specifications under the Guidelines for Household Bio-medical Waste – Collection, Storage and Disposal project, issued by LSG(WM)Dept, Govt. of Kerala via No. 1227/2022/LSGD on 16.05.2022.

1. SW to be collected from the source in colour coded polythene bags. The waste generator will be responsible to do the preliminary segregation to keep the SW ready for collection in a safe and dry storage area and should handover to the collection team of ACA.
2. ACA to provide necessary awareness, information and instruction to the waste generators, with regard to the packaging in colour coded sealed bags and the safe storage of the same. Whereas it is the obligatory responsibility of the waste generator to follow the instructions to segregate the SW, store the same safely in the sealed colour-coded polythene bags till the time of collection.
3. ACA to distribute adequate colour-coded polythene bags to those places from where SW to be collected. These bags are to be distributed well in advance of the collection schedule. If required, these bags can be sourced from KEIL.
4. Sanitary napkins, Diapers and other materials that are blood stained or contaminated with body fluids should be stored for collection in yellow coloured polythene bags.
5. Useless and expired medicines, tablets, empty tablet strips etc. should be stored for collection in blue coloured polythene bags.
6. Syringes with needles, Needles, Blades, other blood/body-fluid stained or spoiled sharp objects etc. should be stored for collection in white coloured polythene bags.
7. Disposable items like Tubes, Gloves, Urine-bags, Syringes without needles, plastic/glass containers of medicines etc. should be stored for collection in red coloured polythene bags.
8. Items collected in the sealed polythene bags are neither to be opened nor to be taken out by the door-to-door collection team.

9. The door-to-door collection team to be provided with adequate safety and protection gears, by the ACA.

b. ACAs to ensure that there is adequate facility within their premises, to securely store materials that can potentially contaminate the soil or water bodies and such materials have to be stored in a befitting manner that will prevent such hazards. The handling and storage activities have to be in tune with the mandatory performing standards stipulated by the State Pollution Control Board (SPCB).

c. Further segregation or/and any initial processing methods if required, then the same have to be adopted with the help of skilled workforce and appropriate handling tools. Workforce to be provided with PPE kits and passable safety gears like helmets, gloves, goggles, face-masks, other protective gears etc. as per the specifications mandated by Health Department and other regulatory agencies from time to time.

d. ACAs to fulfil the obligatory responsibility of providing necessary information and awareness to the households (waste-generators) in relation to the type of SW, its safe storage and safe handing-over to the collection team. ACAs to provide necessary colour coded polythene bags with relevant packing instructions as mentioned under Section (13) point (g)

e. ACAs should make adequate contractual arrangements with ATA and TSDF, in proportion to the geographical area assigned and for the quantity of the SW collected. ACAs may make contractual agreements with more than one facility, for selective treatment options that are functionally viable for the purpose.

f. ACAs are responsible for the safe and secure handling, storage and are responsible to engage adequate transportation as specified to transfer the SW to contractually engaged treatment facilities. In this connection, if 'secondary segregation is required, the standards and specifications mandated should be followed at the premises of ACAs.

g. ACAs are responsible for the segregated SW collected from the households. This role demands that, with regard to the transfer of SW to the treatment facility, ACAs should handover only those material that can be treated within the scope of the assigned capacity of the treatment facility. Those material outside this scope should be transferred to the CBWTF for safe treatment and disposal.

h. ACA should keep log-registers to record inflow as well as outflow of materials. All data should be updated with regard to the inventory and movement of stock in the web portal on a regular basis as decided by the competent authority.

i. ACAs are responsible for collection of fees against the 'collection, transport, treatment and disposal of SW material. The fees in this regard to be collected from the households on the base of quantity/weight basis and proper receipt should be provided to the households against the fee collection. ACAs are responsible to make proportionate applicable fee payments to transporting and treating facilities. ACAs are required to keep proper accounts for all these transactions. They are required to include applicable GST in the fee structure and required to make timely tax payments.

14.4 Role & Responsibilities of ATAs:

- a. ATAs should have documented contractual agreement with ACAs, for their operations and should be aware of the roles and responsibilities. It is obligatory on their part to obtain necessary information and technical knowhow from ACAs.
- b. ATAs should obtain registration for the vehicles used for transportation of SW from the State Motor Vehicle Department, under the specified category. They should ensure that the vehicles are maintained in good condition for the purpose of engagement. The vehicles are to be enabled with GPS tracking and designed/structured as per specified norms and regulations mentioned under BMW management rules 2016.
- c. The drivers and supporting staff assigned to activities in relation to transportation/sanitation and maintenance of the vehicle should be trained adequately for the purpose. Necessary PPE kits should be provided for the work force engaged in activities.
- d. 'Log register' for recording type and quantity of SW as well as 'movement register' to record the transfer details, should be maintained and updated promptly with accuracy.

14.5 Role & Responsibilities of ASWTF:

- a. ASWTF should make adequate contractual arrangements with ACAs for procuring SW material. Transfer of SW material to their facility will be the responsibility of ACA, however ASWTF is responsible for proper handling, segregation, storage, treatment and disposal of collected SW material.
- b. ASWTF in the capacity of treatment facility should only collect SW materials that can be treated within their capacity and should refrain from dealing or handling other material.
- c. ASWTF should coordinate with the relevant LSGIs for proper disposal of inert/reject and should ensure transporting such material in the specified mode to respective sites as directed by LSGI authorities.
- d. ASWTF entities should keep log-registers to record inflow as well as outflow of materials. Separate log book for treatment operations involving the Incinerator/Plasma Pyrolysis and Autoclave should be maintained. All data should be updated regarding the inventory and movement of stock in the web portal on a regular basis as decided by the competent authority.
- e. ASWTF should ensure that all activities in the facility are executed by skilled and trained workforce. The workforce to be provided with adequate training on a continuous basis for keeping them updated with the latest technical/scientific developments. Workforce to be provided with appropriate handling tools, PPE kits and passable safety gears as specified by various regulatory agencies from time to time.

14.6 Role & Responsibilities of CBWTF:

The role and responsibility of CBWTF may remain the same as per the 'Revised Guidelines for Common Bio-Medical Waste Treatment and Disposal Facilities notified by Central Pollution Control Board in December 2016.' However, they should incorporate the collection of un-treatable SW material from ACAs for treatment within their facility. They should make necessary arrangement for data recording of such activities within their existing scope.

14.7 Role & Responsibilities of Manufacturer:

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 are not exposed to SW 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. Engage and support with EPR program in work out a functional model to share the responsibility and cost of SW management.
- c. Indulge in providing mass education and awareness in proper handling, segregation and disposal of SW materials, associating with other stake holders in the sector.
- d. Explore the possibility of alternate recyclable product or the maximum use of green/environment-friendly/less toxic/recyclable materials in their products.

14.8 Role & Responsibilities of Private Agencies:

- a. Economic benefit is a significant motive in any business activity. However, the role of private agencies should not be limited to the tune of a business activity and in this regard, they are expected to assume a larger role of being at service to the society and thereby to adopt operational methods that are beneficial to the environment.
- b. As an Authorized Collecting Agency – the organization is responsible for imparting necessary information and providing proper guidance related to the nature and types of SW, the segregation criteria and storage methods – as specified.
- c. In the capacity of ASWTF– the segregated SW are to treated and neutralized as specified by various regulatory/governing agencies referred in relevant sections of this guideline. Depending on the type, quantity and nature of the SW material effective treatment methods can be adopted from the Chemical / Thermal /

Mechanical / Irradiation / Biological treatment methods prescribed in CPCB guideline and in BMW Rules 2016, for ensuring quantity minimization and effective neutralization of SW material for safe disposal.

14.9 Role & Responsibilities of SPCBs/PCCs

- a. SPCB/PCCs may allow sale and operation of machineries and methods intended for decentralized operations of minimal scale (like mini and modular incinerator) for treatment of SW based on the specified norms & guidelines of the State Pollution Control Board. For allowing such modular incinerators, SPCB/PCCs shall ensure the following;
- 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 SPCB/PCCs. In this regard, they shall produce test certificate from EPA recognized/accredited laboratory so as to sell their Product.
- c. In view to the Rule no.17 of Solid Waste Management Rules 2016, all manufacturers of disposable products or brand owners who introduce such products in the market shall provide necessary financial assistance to local authorities for establishment of waste management system. KSPCB shall take lead role in implementing this with an effective timeline.
- d. Considering low volume of flue gases, the cleaned flue gases after complying with standards shall be vented through stacks of height at least 2m above the roof or the nearest building or as may be decided by SPCB.
- e. Convergence and coordination with different ministries, departments, schemes and awareness creation around SW management through well targeted commutations and media plans.

14.10 Role & Responsibilities of SM

- a. SM to design web-portal incorporating the specified formats as specified in the 'Revised Guidelines for CBWTF issued by CPCB in December 21, 2016; available in the official website 'www.cpcb.nic.in'.
- b. SM to provide necessary SOP (Standard Operating Procedures) and a comprehensive guideline ensuring safe practices for sector related activities incorporating various Rules, regulations and Laws issued by various competent authorities in Center and State level. These Guidelines need to be updated and upgraded including necessary progressive measures as and when required.
- c. SM to organize various IEC programs in technical collaboration with Social-groups, other Service-oriented Organizations. With the participation and cooperation of Stake-holding organizations and Research Institution awareness campaigns to be organized.
- d. SM to coordinate with various associations, business organizations, public representatives and relevant government departments for the effective implementation of various sector related reformative programs.
- e. SM to collaborate with other regulatory/governing agencies for introducing an agenda for the manufacturers to involve/associate and contribute towards the progressive measures adopted by the Government through their Corporate Social Responsibility (CSR) and promotion of Extended Producers Responsibilities (EPR) schemes.

14.11 Role & Responsibilities of LSGIs

As per the mandate, LSGIs shall make necessary arrangements for collection and disposal of SW. Association/assistance of Manufacturers and other social groups with purposeful intentions should be encouraged. The following options are envisaged for disposal;

- a. LSGIs are primarily responsible to organize SW management facilities (in specified categories) within their functional territory. They should ensure adequate system for collection, storage and disposal of SW within the fixed parameters of the guideline.

In this regard, LSGIs should take lead and active role in the facilitation of all sector related infrastructural facilities as described in this guideline under Section (11), Implementation of Guideline under Sub-section (11.1) - Infrastructural Facilities.

- b. LSGIs are responsible to ensure that the infrastructural facilities satisfy the regulatory requisites and adhere to standards and regulations specified under Section (13) sub-section (4) Operation Standards and Requisites.
- c. LSGI should take initiatives in establishing ACAs and TSDFs within their functional territory and in this regard, they should collaborate with stake holding departments and organizations to facilitate interventions. LSGIs are responsible to bring in private participation and in this regard, they are expected to engage themselves in all viable approved methods such as tender invitation for private participation, technical and logistical facilitation, sanctions and approvals for activities etc.
- d. LSGI are responsible to assign ACAs with their operational territory. The geographical area to be covered by each ACA for the collection activity to be specified and the coverage area should be assigned based on the functional and operational capacity of the ACA; by the concerned LSGI.
- e. LSGI is also responsible for granting ASWTF with/without selective treatment options. In this regard they are required to verify the logistical/infrastructural requirements as well as other specified requisites mentioned in this guideline. For granting operative sanction for such facility, LSGI should ensure that these facilities have necessary registration, consent of KSPCB and other requisites for obtaining license as per the stipulated terms under the State legislations.
- f. LSGI should ensure that, through ACAs the segregated SW is collected on a door-to-door basis at regular intervals and transported in a prescribed manner to waste management options for final incineration/disposal. (These options can be facilities of ASWTFs, TSDFs or CBWTFs)
- g. In case of delays in setting up of operational systems and arrangements, till such time LSGI should ensure that a proper system is set for collection, treatment and disposal of SW. If SW is collected as part of segregated non-recyclable dry-waste, then LSGIs

may make arrangements to transfer suitable material from this to CBWTF or to Waste to Energy plants.

- h. LSGI is responsible to create awareness of the negative consequences of poor waste management on health and the environment due to SW material.
- i. LSGI, to encourage producers involved in manufacturing sector related products in development of alternate environment friendly products, recyclable products, less hazardous and easily disposable. To encourage Industrial Groups & Commercial Groups involvement in SW management (collection to disposal) under CSR and EPR, for productive associations.
- j. LSGIs should collaborate with other stake-holding departments, social groups and other organizations with similar interest to organize IEC programs to bring out required awareness among the public about the necessity of safe handling practices in SW management.

15 RESTRICTIONS FOR ACTIVITIES

Certain restrictions are placed as a precautionary step for a safe working environment and to prevent the activities that are hazardous to the environment.

The facilities under the scope of this guideline are not permitted to conduct any activity in connection with hazardous waste category, until and unless they are authorized to perform such activities by the authorizing agencies and if only equipped with adequate capacity as per 'Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2016' issued by Ministry of Environment, Forest and Climate Change, (MoEF&CC). Under this rule, the hazardous wastes generated in any establishment shall be sent or sold to a recycler or re-processor or re-user registered or authorized under these rules or shall be disposed of in an authorized disposal facility. The hazardous wastes transported from the origin to a recycler for recycling or reuse or reprocessing or to an authorized facility for disposal shall be transported in accordance with the provisions of these rules.

16 AUTHORIZATION/DE-AUTHORIZATION

Authorization for any facility to perform SW management activity will be based on the criteria stipulated in this guideline and in addition, the facilities shall necessarily adhere to the following statutes / relevant guidelines issued by the various authorities mentioned under section (9) in this guideline. Authorizing agency may de-authorize such centers, those are found to be violating the norms and regulations issued by any of the above-mentioned agencies.

17. POWER TO AMEND.

Notwithstanding anything contained in the foregoing paras, the Suchitwa Mission, under Ministry of Local Self-Governing Department of Kerala; may amend various aspects of this guideline from time to time as required depending upon the experience gained during implementation, market dynamics, social requirement, participant interest, environmental benefits etc.

18. CONCLUSION.

This guideline envisages to promote and facilitate the SW management sector of the State, to bring overall development in the sector, which will facilitate its recognition as an Industrial sector. The guideline as well focuses in developing a self-sustainable business model with an Environmentally Sound Management system for SW management. The structure of the guideline is designed to bring multiple advantages, such as – to bring out a safer environment, to create a circular economy model, to emerge into a formal sector, to enhance the conservation of valuable resources/energy, to adopt to environment friendly methods, to reduce pollution, to improve economic benefits of all the stakeholders, to uplift the living standards of individuals, and in general a better habitat.