Handbook For Implementation & Training on Bio-Medical Waste Management in Nagaland

An initiative of the Nagaland Health Project in collaboration with the Government of Nagaland

FOREWORD

"Safe handling and disposal of bio-medical waste" was one of the key concern finding during technical assessment of healthcare facilities. If the current bio-medical waste disposal method is unabated, it poses a great threat to the environment and denizen of Nagaland.

With the intention to curb spread of diseases and environmental concerns, the Department of Health and Family Welfare in collaboration with the World Bank aided Nagaland Health Project have included implementation of safe handling and disposal of bio-medical waste as a priority activity.

Taking into account the difficult terrace of the State of Nagaland, implementation of the latest guidelines and amendment Bio-medical waste Management Rules, 2018 issued by Government of India cannot be adopted completely. Provisions have been made to abide by the guidelines laid down in the Bio-medical waste Management Rules, 2018.

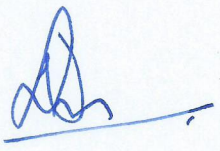
Appropriate and scientific management of biomedical waste, demands coordination of all categories of the hospital staffs including Doctors, Nurses, Pharmacists, Technicians, Housekeeping and maintenance staffs have been considered.

After series of consultative meetings and brainstorming with all stakeholders, this manual on 'Biomedical Waste Management' has been prepared by Nagaland Health Project, Directorate of Health and Family Welfare, Nagaland.

Implementation of this 'Biomedical Waste Management' manual will be an excellent first step to making our environment safe and create awareness amongst the various categories of staffs regarding the responsibilities and the method for segregation and scientific disposal of hospital biomedical waste.

This 'Biomedical waste management' training manual is intended to supplement the Bio-Medical Waste Management Rules and I hope this will give an overview of guidelines of biomedical waste management which in turn will help to reduce biomedical waste hazards and ultimately have an impact on quality of health care and infections free environment.

Many people have contributed to this work, by intellectual means and by sharing their experiences with us through articulating their needs and demands. I am sincerely grateful to everyone who has made such contributions. My particular gratitude goes to the State Pollution Control Board, Department of Municipal Affairs, and the World Bank. I want to thank the Project Management Unit of Nagaland Health Project, who co-operated closely with all stakeholders and provided inspiration and support. Their enthusiasm and dedication knew no limits.



(Dr. Vikeyie Losu)
Principal Director
Directorate of Health & Family Welfare
Kohima; Nagaland

July 2018

This version of the ***'Handbook for Implementation & Training for Bio-Medical Waste Management in Health Care Facilities'*** has been prepared after incorporating suggestions and comments of senior officers at NHP, BMWM division at DoH&FW Nagaland, Project Management Consultancy (PMC)-NRMC Pvt. Ltd, allied Departments of Government of Nagaland and reference material from Ministry of Health & Family Welfare Government of India and UPHSSP. The handbook has been prepared in the context of Biomedical Waste Management Rules, 2016.

Design & Layout by : Zhezhie Printex & Co

CONTENTS

LIST OF ANNEXURES

Annexure 1	Healthcare Facility BiomedicalWaste Internal Monitoring Form
Annexure 2	Biomedical Waste (BMW) Generation Station Monthly Scoring Record
Annexure 3	Biomedical Waste Collection Record
Annexure 4	List of Consumables, materials,equipment for BMW management
Annexure 5	BiomedicalWasteStorageShedCleaningRecord
Annexure 6	Health CareFacilityLevelTraining Record
Annexure 7	Contact Details of Concerned Officials & Resource Persons
Annexure 8	NPCB Office address
Annexure 9	DetailedSpecification of Consumables
Annexure 10	Biomedical Waste Management Rules, 2016

LIST OF ABBREVIATIONS

ABBREVIATIONS

BMW	Biomedical Waste
PHC	Primary Health Centre
CBWTF	Common Biomedical Waste Treatment Facility
CHC	Community Health Centre
CMO	Chief Medical Officer
CMS	Chief Medical Superintendent
CPCB	Central Pollution Control Board
DH	District Hospital
DMC	District Monitoring Committee
EP Act	Environment Protection Act
HCF	Healthcare Facility
IEC	Information, Education & Communication
NGT	National Green Tribunal
NHP	Nagaland Health Project
NO	Nodal Officer
NPCB	Nagaland Pollution Control Board
OPD	Out Patients Department
OT	Operation Theatre

SECTION 1
INTRODUCTION

This manual has been developed to provide its readers the necessary guidance for initiating steps for effective implementation of biomedical waste management at the healthcare facilities (HCFs), keeping in mind the requirements of applicable environmental regulations. This manual shall be helpful to all officials concerned with the responsibility of training healthcare personnel in BMW Management, implementation of BMW Management Plan at the HCF, and monitoring of training & implementation activities in the context of BMW generated during performing such services at healthcare facilities in the state.

MANUAL DESIGN: This manual is arranged as given below

Section 1 (Introduction): This section identifies the target audience for the Manual, learning outcomes and plan & design of the Manual.

Section 2 (The 5 W's And How of Biomedical Waste Management): This section explains what is (and isn't) BMW, where it is generated, why it must be segregated, treated and disposed according to norms, when BMW should be segregated and by whom. It also identifies the different categories of BMW, their segregation, treatment and ultimate disposal methodology.

Section 3 (Legal & Administrative Framework for Biomedical Waste Management): This section covers the main features of the legal provisions governing management and handling of BMW. In particular it clarifies the obligations and penalties applicable on health care facilities.

Section 4 (Key Roles and Responsibilities in Biomedical Waste Management): This section identifies the roles and responsibilities of key stakeholders (regulatory, government bodies and private organisations) at the state, district and facility levels.

Section 5 (Step-Wise Implementation of Biomedical Waste Management Plan at Healthcare Facility): This section covers the step-by-step guide for health care facility-level implementation of biomedical waste management systems. Notably it explains the procedures for obtaining authorisation from NPCB and contracting services of CBWTFs. It also provides guidelines for constitution of the BMW management committee, development of BMW management plan, training of health care personnel, monitoring, record keeping and BMW Management Information System.

Manual Outcomes: After reading this manual, it is expected that the reader shall be able to

1. Appreciate the need for BMW management at HCFs, types of wastes and their potential health and environmental impacts on healthcare service providers and communities.

2. Distinguish different categories of BMW, its segregation and treatment options.

3. Acquire an understanding about key legal requirements, administrative framework, and roles and responsibilities for implementing biomedical waste management at the healthcare facility and penalties in case of legal non-compliance.

4. Undertake procedures required for obtaining authorization of HCF (from NPCB), contract service providers (CBWTFs), and ensure service delivery and procurement of consumables and materials required for BMW handling, transportation and storage.

5. Develop and implement a biomedical waste management plan for different work areas of the HCF.

6. Provide training on BMW to different categories of healthcare personnel and create awareness on the subject.

7. Monitor training and implementation of biomedical waste management at the HCF.

8. Acquire a working knowledge of the BMW.

9. Acquire an understanding of Standard Precautions in the context of BMW & Mercury Spill Management.

Steering through the Handbook: Where to find What?

Sl. No.	Contents	Reference
1.	Authorisation from NPCB	Section 5.3
2.	Biomedical Waste Management Rules, 2016	Annexure 10 Section 3 (for main features in brief)
3.	BMW Category-wise Segregation, Treatment & Disposal	Section 2
4.	BMW Collection Record	Annexure 3
5.	BMW Management Committee at HCFs	Section 5.1 Section 4
6.	BMW Management Information System	Section 5.13
7.	BMW Management Plan at HCFs	Section 5.4
8.	Contact details of key personnel	Annexure 7
9.	Contract with CBWTF	Section 5.2
10.	Guidelines for BMW transfer from generation station to BMW storage shed	Section 5.8
11.	Guidelines for Display of IEC material/posters	Section 5.7
12.	Guidelines for Placement of Bins/Bags etc. for BMW	Section 5.5
13.	List of Consumables, materials, equipment for BMW management	Section 5.6 Annexure 4 Annexure 9
14.	Handbook Plan	Section 1

15.	Monitoring of BMW management at HCFs	Section 5.11 Annexure 1 Annexure 2
16.	Rewards & Recognition	Section 5.14
17.	Roles & Responsibilities in BMW management	Section 4
18.	Interim Collection Shed construction & maintenance	Section 5.9 Annexure 4
19.	Target Audience of handbook	Section 1
20.	Training on BMW management at HCFs	Section 5.10 Annexure 6
21.	Immunisation, Periodic Health Check-ups and Personal Protective Equipment for Healthcare Personnel	Section 5.15
22.	What, Where, Why, When & Who of BMW Management	Section 2

SECTION 2

THE 5 W'S AND HOW OF BIOMEDICAL WASTE MANAGEMENT

WHAT

IS BIOMEDICAL WASTE

- According to World Health Organization, Health-care waste includes all waste generated by health-care establishments, research facilities, and laboratories. It also includes waste produced in the course of health care undertaken in the home (dialysis, insulin injections, etc.).

- Between 80 to 85% of waste generated at healthcare facilities is "general" or non- hazardous waste. It includes waste generated during:
  - administrative activities o housekeeping activities o kitchen & food related
  - packaging
  - maintenance functions

- Only 15 to 20% of waste generated during delivery of patient care is "INFECTIOUS" in nature and carries various health risks. This hazardous or biomedical waste includes:
  - infectious waste cultures
  - sharps
  - pathological waste
  - pharmaceutical
  - Geno toxic
  - chemical and
  - radioactive wastes

- Approx. 1 - 1.50 kgs. biomedical waste is generated per bed at the healthcare facilities, which is hazardous and requires further treatment and disposal. Therefore, total quantities of biomedical wastes generated at different facilities in the state healthcare facilities is estimated at:
  - District hospitals (Average 100 beds) - 150 kg/day (on 100% Bed Occupancy)
  - Community Health Centre (30 beds) - 45 kg/day (on 100% Bed Occupancy)

WHERE

IS BIOMEDICAL WASTE GENERATED

Within healthcare facilities, different work areas generate different types of biomedical wastes. Broadly waste is generated in operation theatres & surgical wards, medical wards, laboratories, pharmaceutical & chemical stores, and dental clinics.

WHY

SHOULD BIOMEDICAL WASTE BE SEGREGATED, TREATED & DISPOSED

Everyone who either generates, handles or disposes the waste or those who come in contact due to accidental exposure in healthcare facility due to poor management controls, is exposed on the risks. The key risk groups include medical doctors, nurses, health-care auxiliaries, hospital maintenance personnel, visitors to health-care establishments, patients in health-care establishments or receiving home care, workers in support services allied to health-care establishments, such as laundry, waste-handling, and transportation, and workers in waste disposal facilities (such as landfills or CBWTFs), including scavengers.

RISK GROUP	NATURE OF HARM
• Health Care Providers (HCPs) • Staff handling BMW in HCF and waste treatment / disposal facility	• Infection • Injury • Toxicity
Visitors to Hospitals • Patients • Relatives • Support Service Providers (laundry, transportation etc.)	• Hospital Acquired Infection (HAI) • Blood-borne infection
Community • Residents of areas neighbouring HCFs, waste treatment/disposal facility, garbage dumps • Society at large	Pollution • Air • Water • Soil

WHEN

SHOULD BIOMEDICAL WASTE BE SEGREGATED

BMW should be segregated at the POINT OF GENERATION.
If this is not done, it can result in:

- Infecting all waste (including general uninfected waste).
- It is very difficult to segregate BMW after it has got mixed.
- Increases risk of injury and infection for persons engaged in waste handling.

WHO

SHOULD SEGREGATE BIOMEDICAL WASTE

Persons generating the waste should segregate it/waste segregation at source

Doctor ✓	Nursing Staff ✓	Paramedical Staff ✓
Lab Technicians ✓	Ward Boy ✓	Sanitary Staff ✓
Patient ✗	Patient's Relative ✗	

HOW

SHOULD BIOMEDICAL WASTE BE SEGREGATED, TREATED & DISPOSED

Biomedical waste should be segregated into different categories to enable proper treatment and final disposal in accordance with Bio-Medical Waste Management Rules, 2016. Given below are the different categories of bio-medical waste most likely to be generated in public health care facilities, and their prescribed segregation, treatment and final disposal method. For any other type of bio-medical waste not mentioned in the table below or any further clarification on segregation, treatment and disposal, refer to Schedule 1 of Bio-Medical Waste Management Rules, 2016 given in Annexure 10.

General waste should be collected separately and handed over to the municipal body.

Waste Category (Type)	Colour Code	Prescribed Treatment	Final Disposal
Human Anatomical Waste (human tissues, organs, body parts, fetus below viability period (as per Medical Termination of Pregnancy Act 1971, amended from time to time)	Yellow non- chlorinated plastic bag/bin	Incineration/ Deep burial	Ash disposal in municipal landfill
Soiled Waste (items contaminated with blood, body fluids like dressings, plaster casts, cotton swabs, discarded linen & mattresses, and bags containing residual or discarded blood and blood components)	Yellow non- chlorinated plastic bag/bin	Incineration/ Deep burial	Ash disposal in municipal landfill

Expired or Discarded Medicines (Pharmaceutical waste like antibiotics, cytotoxic drugs including all items contaminated with cytotoxic drugs along with glass or plastic ampoules, vials etc.)	Yellow non- chlorinated plastic bag/bin	Incineration	Ash disposal in municipal landfill
Microbiology, Biotechnology and other **Clinical Laboratory Waste** (Blood bags, laboratory cultures, stocks or specimens of micro-organisms, live or attenuated vaccines, human and animal cell cultures used in research, industrial laboratories, production of biological, residual toxins, dishes and devices used for cultures)	Yellow non- chlorinated plastic bag/bin	Pre-Treatment to sterilize/disinfect on-site as per NACO/ WHO Guidelines; thereafter incineration	Ash disposal in municipal landfill
Contaminated (Recyclable) Waste (disposable items other than sharps like tubing, bottles, intravenous tubes and sets, catheters, urine bags, syringes (without needles and fixed needle syringes), vaccutainers (with their needle cut) and gloves)	Red coloured non-chlorinated bag/bin	Sterilisation followed by shredding	Registered or authorised recyclers
Metallic Waste Sharps (needles, syringes with fixed needles, needles from needle tip cutter or burner, scalpel, blades)	White translucent puncture proof containers	Autoclaving followed by shredding	Iron foundries or sanitary landfill or designated concrete waste sharp pit
Glass Waste (intact & broken) (Broken/discarded and contaminated glass including medicine vials and ampoules except those contaminated with cytotoxic wastes)	Blue Bin / Leakproof Boxes Puncture-Proof Containers	Disinfection/ sterilisation	Recycler
Liquid waste	-	Pre-Treatment with Disinfectant/ Hypochlorite Solution	Discharge in drains or ETP

Note: According to Bio-Medical Waste Management Rules, 2016 laboratory waste, microbiological waste, blood samples and blood bags are to be pre-treated through disinfection or sterilisation on- site in the manner as prescribed by the World Health Organisation (WHO) or National AIDs Control Organisation (NACO) guidelines and then sent to the common bio-medical waste treatment facility for final disposal.

SECTION 3
LEGAL & ADMINISTRATIVE FRAMEWORK FOR BIOMEDICAL WASTE MANAGEMENT

Management of Bio-Medical Waste (BMW) from generation to final disposal is regulated by the **Bio-Medical Waste Management Rules 2016** (Annexure 10). These rules regulate the generation, handling, collection, storage, transport, treatment and disposal of BMW.

Main features of these Rules are given below:

1. These rules apply to all persons who generate, collect, receive, store, transport, treat, dispose, or handle bio medical waste in any form including 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.
2. The Rules define an **"occupier"** as the person having administrative control over the institution and the premises generating bio-medical waste, which includes a hospital, nursing home, clinic, dispensary, veterinary institution, animal house, pathological laboratory, blood bank, health care facility and clinical establishment, irrespective of their system of medicine and by whatever name they are called. The Occupier is duty-bound under the Rules to take all necessary steps to ensure that bio-medical waste is handled without any adverse effect to human health and the environment and in accordance with these rules.
3. **The Rules define the "operator of a common bio-medical waste treatment facility" as a person** who owns or controls a Common Bio-medical Waste Treatment Facility (CBMWTF) for the collection, reception, storage, transport, treatment, disposal or any other form of handling of bio-medical waste. The Operator is duty-bound under the Rules to take all necessary steps to ensure that the bio-medical waste collected from the occupier is transported, handled, stored, treated and disposed of, without any adverse effect to the human health and the environment, in accordance with these rules and guidelines issued by the Central Government or, as the case may be, the central pollution control board from time to time.
4. **The Rules define the duties of Prescribed Authorities at the central, state, district an**d sub-district levels in Schedule III of the Rules. The State Pollution Control Board / Pollution Control Committee is the designated prescribed authority for the implementation of the Rules in the States / Union Territories.
5. **The Rules describ**e the procedure for authorisation of healthcare facilities and common bio- medical waste treatment facilities. Applications for authorisation are to be submitted in Form II and authorisation is granted in Form III. The validity of authorisation has been synchronised with the validity of consents.
6. **T**he administrative framework and procedure for monitoring of BMW has been defined in the Rules. It includes the Ministry of Environment, Forest and Climate Change through Central and State Pollution Control Boards and State Health Secretaries. For this states are required to constitute a Advisory Committee at the state-level and District Monitoring Committees at the district-level.
7. **Recor**d keeping and reporting on BMW is mandatory, and is in the form of Annual Report (Form IV), Accident Reports (Form 1), and records related to the generation, collection, reception, storage, transportation, treatment, disposal or any other form of handling of bio- medical waste. The records and annual reports of health care facilities and common bio- medical waste treatment facilities are to

be made available on their website.

8. The **R**ules mandate that vehicles for collection and transportation of BMW are to be fitted with GPS systems and bag/containers containing BMW are to have bar coding system for waste tracking.
9. Biom**e**dical waste is to be segregated, collected, stored, transported, treated and disposed in accordance with Schedule I of the Rules. Standards for treatment and disposal are to be in accordance with Schedule II.
10. BMW **is** not to be mixed with other wastes. The Rules mandate that untreated BMW cannot be stored beyond a period of 48 hours without permission of the appropriate authority. Solid waste other than BMW is to be segregated and disposed-off in accordance with concerned solid waste management rules.
11. Non-ch**lor**inated plastic bags are to be used for handling, storage and transportation of bop- medical waste.
12. Occupier**s an**d operators of HCFs and CBWTFs are required to ensure that health care workers and others involved in handling of BMW are trained, provided necessary personal protective equipment, immunised and made to undergo periodic health check-ups.

In addition to these rules, Central Pollution Control Board that is entrusted with responsibility of development of technical standards and guidelines has developed many guidelines and standards on Air, water and land pollution. Of these, the **"Guidelines for Common Treatment Facilities"** and **"Guidelines for Incinerators"** are directly applicable to biomedical waste management at the healthcare facilities. The guidelines for CBWTF provide detailed information on the various equip ment and facilities standards required to be in place at CBWTF sites. The guidelines on Incinerators specify specifications for new incinerators to be installed at CBWTF.

In addition, under the **National Green Tribunal Act, 2010,** a National Green Tribunal (NGT) consisting of judicial members and technical experts in environment has been constituted with powers to effectively expedite environment related legal issues. Management of biomedical wastes in healthcare facilities has been taken with high priorities under such issues.

Penalties for Non-Compliance of Regulations

Biomedical waste management and handling rules have been framed under the Environment (Protection) Act, 1986. The occupier or an operator of a common bio-medical waste treatment facility shall be liable for all the damages caused to the environment or the public due to improper handling of bio-medical wastes. The occupier or operator of common bio-medical waste treatment facility shall be liable for action under section 5 and section 15 of the Environment Protection Act and Rules, 1986 in case of any violation.

The provisions for non-compliance under the rules are very strict and must be clearly understood by everyone responsible for managing biomedical wastes at the facilities.

Under Environment Protection Act, Clause 15, "whoever fails to comply with or contravenes any of the provisions of this act, or the rules made or the orders or directions issued thereunder shall, in respect of each such failure or contravention be responsible for each such failure or contravention, be punishable with imprisonment for a term which may extend to five years with a fine which may extend to one lakh rupees, or with both, and in case the failure or contravention continues, with additional fine which may extend to five thousands rupees for every day during which such failure or contravention continues after the conviction for the first such failure or contravention."

SECTION 4
KEY ROLES AND RESPONSIBILITIES IN BIOMEDICAL WASTE MANAGEMENT

Management of biomedical wastes is a complex activity that involves many stakeholders within as well as external to healthcare sector. Apart from healthcare sector, other sectors organizations such as State Pollution Control Board and Municipal Bodies are other major stakeholders in biomedical waste management.

1. STATE LEVEL BODIES

1.1 Advisory Committee

The Advisory Committee is to be constituted at the state-level under the chairmanship of the respective health secretary to oversee the implementation of the rules in the respective state and to advice any improvements. The Advisory Committee shall include representatives from the Departments of Health, Environment, Urban Development, Animal Husbandry and Veterinary Sciences of that State Government or Union Territory Administration, State Pollution Control Board or Pollution Control Committee, urban local bodies or local bodies or Municipal Corporation, representatives from Indian Medical Association, common bio-medical waste treatment facility and non-governmental organisation. The Ministry of Health may co- opt representatives from the other Governmental and non-governmental organizations having expertise in the field of bio-medical waste management.
The Advisory Committee shall meet at least once in six months and review all matters related to implementation of the provisions of the BMW Management Rules in the State.

1.2 Nagaland Pollution Control Board (NPCB)

State pollution Control Board is entrusted with monitoring and ensuring compliance to environmental regulations that includes Biomedical Waste Management Rules, 2016. The board has regional offices operating in different cities in the state. The key activities of importance to healthcare facilities under these rules include:

- Grant and renewal, suspension or refusal cancellation or of authorisation to facilities under the Rules
- Grant of authorization to Common Biomedical Waste Treatment Facilities
- Action against health care facilities or common bio-medical waste treatment facilities for violation of these rules
- Monitoring of compliance of CBWTF and Healthcare Facilities to BMW Rules and issue of notices and orders and penalties etc. for non-conformance as per Environment Protection Act, 1986.
- Organizing training programmes to staff of health care facilities and common bio- medical waste treatment facilities and State Pollution Control Boards or Pollution Control Committees Staff on segregation, collection, storage, transportation, treatment and disposal of bio-medical wastes.
- Inventorisation of Occupiers and data on bio-medical waste generation, treatment & disposal.
- Compilation of data and submission of the same in annual report to Central Pollution Control Board within the stipulated time period.
- Publish the list of Registered or Authorised (or give consent) Recyclers.
- Undertake and support third party audits of the common bio-medical waste treatment facilities in their State.

1.3 Directorate of Health and Family Welfare

Directorate of Health and Family Welfare is the apex organization for administration of state health-care delivery system. The roles and responsibilities include following:

- To ensure implementation of the rule in all health care facilities.
- Allocation of adequate funds to Government health care facilities for bio-medical waste management. To ensure procurement of consumables for bio-medical waste management in Government health care facilities.
- Constitute Committees under the District Magistrate or Additional District Magistrate to oversee the bio-medical waste management in the Districts.
- Advise State Pollution Control Committees on implementation of these Rules.
- Implementation of recommendations of the Advisory Committee in all the health care facilities.
- To provide oversight on services which are outsourced to private service providers, including waste treatment and disposal companies. This will be undertaken in coordination with regulatory authorities and municipalities.
- To develop and implement an Information, Education and Communication (IEC) Plan to disseminate information and educational material so as to create awareness on sanitation and hygiene and good environmental practices among healthcare staff and workers, patients and the general community,
- To coordinate capacity building on environmental management practices and develop, implement and monitor training activities among healthcare staff and workers through development and implementation of a Training Plan.
- To serve as focal point for information on Environment Management in Healthcare sector by collection and compilation of information on Environmental Management experiences, best practices, technology innovations and emerging issues.

2. DISTRICT LEVEL BODIES

2.1 District Monitoring Committee (DMC)

The DMC has been constituted in each district to ensure compliance with Biomedical Waste Management Rules, 2016. It is chaired by the concerned District Collector (DC).

The Rules provide that the DMC shall comprise of Chief Medical Officer (CMO), representatives from State Pollution Control Board or Pollution Control Committee, Public Health Engineering Department, local bodies or municipal corporation, Indian Medical Association, common bio- medical waste treatment facility and registered non-governmental organisations working in the field of bio-medical waste management and the Committee may co-opt other members and experts, if necessary. The Chief Medical Officer (CMO) shall be the Member Secretary of this Committee.

The DMC is required to meet every quarter to monitor the compliance of the provisions of these rules in the health care facilities generating bio-medical waste and in the common bio- medical waste treatment and disposal facilities, where the bio-medical waste is treated and disposed off. Its report shall be submitted once in six months to the State Advisory Committee, and a copy forwarded to State Pollution Control for taking further necessary action.

2.2 Municipal Bodies

Municipal bodies in different cities are responsible for safe transportation and disposal of general i.e. municipal waste as per Municipal Waste Rules, 2000. The municipal waste consists of non-hazardous wastes such as commercial wastes, garbage and household wastes. This also includes general

waste such as paper, wrappers, plastic covers, vegetable etc. generated at hospitals and healthcare facilities by patients, visitors and employees. Municipal bodies also have a role in identification and provision of suitable land for establishment of Common Waste Treatment Facilities in their area of jurisdiction.

2.3 Chief Medical Officer

Chief Medical Officer of the district is responsible for the primary healthcare delivery system in the entire district. In relation to biomedical waste management, CMO has following specific roles and responsibilities:

- To enter into contract agreement with the successful bidder for provision of Common Treatment facility operating in the district.
- To provide financial resources to the district health facilities for payment of CBWTF services from allocated funds for the district.
- As Member Secretary of District Monitoring Committee (DMC).
- To monitor operational performance of CBWTF in association with State Pollution Control Board officials from Regional Offices of SPCB before award of contract and subsequently, by periodic inspections of CBWTF.
- To monitor biomedical waste management in District Healthcare facilities by periodic reporting as well as by site inspections of the facilities by officials deputed from CMO office.

3. FACILITY LEVEL BODIES

3.1 Healthcare Facility (HCF)

Role of Head of HCF: The Rules have designated the head of the HCF as “Occupier”. His role and responsibilities have been identified as:

- Assigning responsibility of Nodal officer in charge of biomedical waste management
- Formation of Biomedical waste management committee and team
- Allocation of resources- financial, personnel and equipment etc. for management of wastes.
- Ensuring monitoring of the activities.
- Take all necessary steps to ensure that bio-medical waste is handled without any adverse effect to human health and the environment and in accordance with these rules.
- Make a provision within the premises for a safe, ventilated and secured location for storage of segregated biomedical waste in colored bags or containers in the manner as specified in Schedule I, to ensure that there shall be no secondary handling, pilferage of recyclables or inadvertent scattering or spillage by animals and the bio-medical waste from such place or premises shall be directly transported in the manner as prescribed in these rules to the common bio-medical waste treatment facility or for the appropriate treatment and disposal, as the case may be, in the manner as prescribed in Schedule I.
- Pre-treat the laboratory waste, microbiological waste, blood samples and blood bags through disinfection or sterilisation on-site in the manner as prescribed by the World Health Organisation (WHO) or National AIDs Control Organisation (NACO) guidelines and then sent to the common bio-medical waste treatment facility for final disposal.
- Phase out use of chlorinated plastic bags, gloves and blood bags within two years from the date of notification of these rules i.e. 31st March 2019.
- Dispose off solid waste other than bio-medical waste in accordance with the provisions of respective waste management rules made under the relevant laws and amended from time to time

- Not to give treated bio-medical waste with municipal solid waste
- Provide training to all its health care workers and others, involved in handling of bio medical waste at the time of induction and thereafter at least once every year and the details of training programmes conducted, number of personnel trained and number of personnel not undergone any training shall be provided in the Annual Report
- Immunise all its health care workers and others, involved in handling of bio-medical waste for protection against diseases including Hepatitis B and Tetanus that are likely to be transmitted by handling of bio-medical waste, in the manner as prescribed in the National Immunisation Policy or the guidelines of the Ministry of Health and Family Welfare issued from time to time
- Establish a Bar- Code System for bags or containers containing bio-medical waste to be sent out of the premises or place for any purpose within one year from the date of the notification of these rules
- Ensure segregation of liquid chemical waste at source and ensure pre-treatment or neutralisation prior to mixing with other effluent generated from health care facilities
- Ensure treatment and disposal of liquid waste in accordance with the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974)
- Ensure occupational safety of all its health care workers and others involved in handling of bio-medical waste by providing appropriate and adequate personal protective equipments.
- Conduct health check up at the time of induction and at least once in a year for all its health care workers and others involved in handling of bio- medical waste and maintain the records for the same
- Maintain and update on day to day basis the bio-medical waste management register and display the monthly record on its website according to the bio-medical waste generated in terms of category and colour coding as specified in Schedule I
- Report major accidents including accidents caused by fire hazards, blasts during handling of bio-medical waste and the remedial action taken and the records relevant thereto, (including nil report) in Form I to the prescribed authority and also along with the annual report
- Make available the annual report on its web-site and all the health care facilities shall make own website within two years from the date of notification of these rules
- Inform the prescribed authority immediately in case the operator of a facility does not collect the bio-medical waste within the intended time or as per the agreed time
- Establish a system to review and monitor the activities related to bio-medical waste management, either through an existing committee or by forming a new committee and the Committee shall meet once in every six months and the record of the minutes of the meetings of this committee shall be submitted along with the annual report to the prescribed authority and the healthcare establishments having less than thirty beds shall designate a qualified person to review and monitor the activities relating to bio-medical waste management within that establishment and submit the annual report
- Maintain all record for operation of incineration, hydro or autoclaving etc., for a period of five years
- Existing incinerators to achieve the standards for treatment and disposal of bio-medical waste as specified in Schedule II for retention time in secondary chamber and Dioxin and Furans within two years from the date of this notification.

Role of Biomedical Waste Management Committee/Nodal Officer

- Developing a facility level BMW Management Plan
- Ensuring training of key staff associated with biomedical waste management.
- Ensure availability of waste management materials such as bags, bins, trolleys, personal

protective equipment, chemical disinfectants, cleaning equipment etc.

- Ensure recording of quantity and types of different categories of waste generated for transportation and disposal.
- Ensure proper transportation of wastes to temporary storage area and from facility to common treatment facility on specified durations as per regulations.
- Ensure implementation of incident and mitigation control procedures for needle injuries, waste spills, etc. associated with waste handling.
- Ensure immunisation of all health care personnel in the health care facility.

Role of Departmental Heads

Departmental heads are responsible for the segregation, storage and disposal of wastes generated in their departments.

Role and Responsibilities of Medical Officers

The medical officers are responsible for protecting their own patients from other infected patients and from hospital staff who might be infected and notifying cases of hospital acquired infections to authorities.

They have a special role in ensuring good waste segregation practices.

Role of Nursing in-Charge of Ward

- Ensuring good waste segregation practices.
- Maintaining hygiene and good nursing practices in the ward
- Monitoring septic techniques such as hand washing and isolation practices
- Reporting any case of infection development immediately to the concerned physician
- Limiting patient's exposure to infections from visitors, hospital staff, other patients or equipment used for diagnosis

Role of Housekeeping Department

The housekeeping services are responsible for regular cleaning of all surfaces to maintain a high standard of hygiene at the facility. The department with Biomedical Waste Management Committee must develop practices, usage of specific containers, frequency of cleaning and wastes transfer and storage for disposal.

The staff is responsible for:

- Internal collection of waste containers, replacement of used bags with new bags and containers and their transport to central storage facility of the site on daily basis
- Coordinate with stores and supply department to ensure availability of appropriate quantities of bags and containers, personal protective clothing and waste collection and transportation trolleys at all times
- Prevent unsupervised dumping of waste containers on the hospital grounds.
- Ensure regular transport of general wastes to area dedicated for their storage in the facility.
- Ensure regular transportation of general wastes from the facility to municipal disposal sites by municipal vehicles.

Role of Central Sterilization Services

The department is responsible to clean, decontaminate, test, prepare for use, sterilize and store aseptically all sterile equipment.

Role of food service department

The department must ensure appropriate handling, storage and disposal of food wastes.

Role of laundry service
The department must ensure appropriate flow of linen and separation of 'clean' and 'dirty' areas.

3.2 Common Biomedical Waste Treatment facilities (CBWTF)
Common Biomedical Waste Treatment facilities (CBWTF) are facilities established to collect, treat and dispose biomedical waste from healthcare facilities. The facilities operate incinerator, autoclave and shredders etc. to treat different types of biomedical wastes. These provide safe and economical options for treatment and disposal of wastes.
Their specific roles and responsibilities include:

- Take all necessary steps to ensure that the bio-medical waste collected from the occupier is transported, handled, stored, treated and disposed of, without any adverse effect to the human health and the environment, in accordance with these rules and guidelines issued by the Central Government or, as the case may be, the central pollution control board from time to time. Ensure timely collection of bio-medical waste from the occupier as prescribed under these rules. Establish bar coding and global positioning system for handling of bio-medical waste within one year
- Inform the prescribed authority immediately regarding the occupiers which are not handing over the segregated bio-medical waste in accordance with these rules
- Provide training for all its workers involved in handling of bio-medical waste at the time of induction and at least once a year thereafter
- Assist the occupier in training conducted by them for bio-medical waste management
- Undertake appropriate medical examination at the time of induction and at least once in a year and immunise all its workers involved in handling of bio-medical waste for protection against diseases, including Hepatitis B and Tetanus, that are likely to be transmitted while handling bio-medical waste and maintain the records for the same
- Ensure occupational safety of all its workers involved in handling of bio-medical waste by providing appropriate and adequate personal protective equipment
- Report major accidents including accidents caused by fire hazards, blasts during handling of bio-medical waste and the remedial action taken and the records relevant thereto, (including nil report) in Form I to the prescribed authority and also along with the annual report
- Maintain a log book for each of its treatment equipment according to weight of batch; categories of waste treated; time, date and duration of treatment cycle and total hours of operation
- Allow occupier, who are giving waste for treatment to the operator, to see whether the treatment is carried out as per the rules
- Shall display details of authorisation, treatment, annual report etc. on its web-site
- After ensuring treatment by autoclaving or microwaving followed by mutilation or shredding, whichever is applicable, the recyclables from the treated bio-medical wastes such as plastics and glass, shall be given to recyclers having valid consent or authorisation or registration from the respective State Pollution Control Board or Pollution Control Committee
- Supply non-chlorinated plastic coloured bags to the occupier on chargeable basis, if required
- Common bio-medical waste treatment facility shall ensure collection of biomedical waste on holidays also Maintain all record for operation of incineration, hydro or autoclaving for a period of five years; and Upgrade existing incinerators to achieve the standards for retention time in secondary chamber and Dioxin and Furans within two years from the date of this notification.

Annexure - 4

63, d

GOVERNMENT OF NAGALAND
HEALTH AND FAMILY WELFARE DEPARTMENT
NAGALAND: KOHIMA.

MED/FW(B)20/2005/410 Dated Kohima the th October 2016

NOTIFICATION

In compliance to the provisions of the Bio Medical Waste Management Rules 2016, the Government of Nagaland is pleased to constitute the following Committees:

Advisory Committee under Rule 11:

A. Constituent Members:

1. Commissioner & Secretary, H&FW	Chairman
2. Principal Director, H&FW	Member Secretary
3. PCCF & HOF, EFCC	Member
4. Director, Urban Development	Member
5. Director, Animal Husbandry and Veterinary Sciences	Member
6. Member Secretary, NSPCB	Member
7. Director, Municipal Affairs	Member
8. Representative of Indian Medical Association/ Nagaland Medical Association	Member
9. Representative of common bio-medical waste treatment facility Operators to be nominated by the Government	Member
10. Representative of non-governmental organisation working in the field of bio-medical waste management to be nominated by the Government	Member

B. The Advisory Committee shall meet at least once in six months and review all matters related to implementation of the provisions of these rules in the State (Rule 11.3).

District Level Monitoring Committee under Rule 12.4 & 12.6:

A. Constituent Members:

1. Deputy Commissioner	Chairman
2. Chief Medical Officer	Member Secretary
3. Superintendent Engineer/ Executive Engineer, PHED	Member
4. Chairman/Administrator, Municipal Corporation	Member
5. DV&AHO	Member
6. Representative of NSPCB	Member
7. Representative of Indian Medical Association/ Nagaland Medical Association	Member
8. Representative of common bio-medical waste treatment facility Operators to be nominated by the Chairman	Member
9. Representative of non-governmental organisation working in the field of bio-medical waste management to be nominated by the Chairman	Member

B. The Committee may co-opt other members and experts, if necessary (Rule 12.6).

C. The District Level Monitoring Committee shall monitor the compliance of the provisions of these rules in the health care facilities generating bio-medical waste and in the common bio-medical waste treatment and disposal facilities, where the bio-medical waste is treated and disposed of (Rule 12.4).

D. The District Level Monitoring Committee shall submit its report once in six months to the State Advisory Committee and a copy thereof shall also be forwarded to State Pollution Control Board or Pollution Control Committee concerned for taking further necessary action (Rule 12.5).

Nagaland Pollution Control Board
Receipt No. 6679
Date 11.11.16

(ABHIJIT SINHA) IAS
Commissioner & Secretary to the Govt. of Nagaland

SECTION 5

STEP-WISE IMPLEMENTATION OF BIOMEDICAL WASTE MANAGEMENT PLAN AT HEALTHCARE FACILITY (HCF)

5.1 Constitution of the Biomedical Waste Management Committee and appointment of Nodal Officer.

The facility in-charge shall be responsible for constitution of a BMWM Committee and for designation of a Nodal Officer.

For district-level HCFs, the BMWM Committee should comprise the following:

- Senior staff, preferably senior medical officer (designated as Nodal Officer)
- Matron/sister-in-charge
- Laboratory in-charge
- Pharmacist
- Head of Sanitation Team

The representative of CBWTF providing services to the HCF may also be invited for the BMW Committee meetings.

For block-level HCFs, the facility in-charge, i.e. Medical Superintendent (MS) or Medical Officer-in-charge (MOIC) should be designated as nodal officer for biomedical waste management.

5.2 Contract with CBWTF for collection, transportation, Treatment & Disposal of BMW

The facility in-charge shall be responsible for ensuring that a contract is signed with a CBWTF for collection, transportation, treatment & disposal of BMW from its HCF. The Nodal Officer assists in this.

- In case a contract has been signed with a CBWTF, a copy of rate contract should be obtained from Chief Medical Officer (CMO).
- In case a contract has not been signed, a contract should be signed with a CBWTF at the earliest.
- Should obtain the list of consumables to be provided by the CBWTF.
- Should keep a record of BMW collected by CBWTF in a register. A format for the same is enclosed as Annexure 3.
- Should intervene if not satisfied with Collection/CBWTF services.

5.3 Authorization from NPCB

The facility in-charge shall be responsible for ensuring that authorization for generation of BMW is obtained from NPCB. The Nodal Officer assist in this.
Authorization under BMW Management Rules, 2016 should be obtained. For this the following steps shall be followed:

- Submission of Form 2 (enclosed)
- Submission of Fees as per NPCB notification 17/10/2017 (enclosed)
- A copy of agreement with the CBWTF for collection, transportation, treatment & disposal of BMW.
- A record of BMW (details) collected in the last two months from the HCF by the concerned CBWTF. For this, a copy of log book/register used for maintaining record of BMW handed over to CBWTF may be submitted.

The NPCB contact details given as Annexure 8.

NAGALAND POLLUTION CONTROL BOARD

Signal Point, Dimapur – 797112, Nagaland
Tel.: 03862-245727, TeleFax; 03862-245726
Website: www.npcb.nagaland.gov.in e-mail: npcb2@yahoo.com / ngc.nagaland@yahoo.com

NPCB/CON/AUTH/861 Dated 17/10/2017

NOTIFICATION

AUTHORIZATION FEE UNDER BIOMEDICAL WASTE (MANAGEMENT & HANDLING) RULES

The revised authorization fee was approved during NPCB Board Meeting held on 13/10/2017.

OCCUPIER

Hospitals, nursing homes, clinics, dispensaries, research and pathological laboratories, blood banks, slaughter houses and research laboratories, storing, generating, collecting, receiving, storing, transporting, treating, disposing, and/ or handling biomedical wastes in any other matter.

Private Healthcare Facilities

Sl.No.	Bed capacity	Rate
1	With 500 beds and above	30000 per year
2	With 300 beds and above but less than 500 beds	20000 per year
3	With 200 beds and above but less than 300 beds	15000 per year
4	With 100 beds and above but less than 200 beds	12000 per year
5	With 50 beds and above but less than 100 beds	8000 per year
6	With 25 beds and above but less than 50 beds	5000 per year
7	Less than 25 beds	3000 per year
8	All other institutions generating biomedical wastes not included in the above categories	2000 per year

Government Healthcare Facilities

Sl.No.	Bed capacity	Rate
1	With 500 beds and above	15000 per year
2	With 300 beds and above but less than 500 beds	10000 per year
3	With 200 beds and above but less than 300 beds	7500 per year
4	With 100 beds and above but less than 200 beds	6000 per year
5	With 50 beds and above but less than 100 beds	4000 per year
6	With 25 beds and above but less than 50 beds	2500 per year
7	Less than 25 beds	1500 per year
8	All other institutions generating biomedical wastes not included in the above categories	1000 per year

OPERATOR

Any other institutions such as CBMWTF engaged in the biomedical facility for collection, receiving, storing, transporting, treatment, disposing and / or handling biomedical waste shall apply for authorization accompanied by the fees as prescribed below.

Sl.No.	Capital Investment	Rate
1	Above 10 crore	20000 per year
2	Above 5 crore but less than 10 crore	10000 per year
3	Less than 5 crore	5000 per year

Member Secretary

5.4 Facility Level BMW Management Plan

The facility in-charge and Nodal Officer shall be responsible for ensuring that a BMW Management Plan is developed.

The following steps may be followed for developing the plan:

- Identification of points of BMW generation, i.e. wards, OTs, labour room, labs, OPD etc.
- Identify and designate one responsible person for each point of generation. The person may be head of department/doctor/matron etc.
- Identify location at each point of BMW generation for placement of BMW collection bins and display (IEC) material/posters.
- Identify monthly requirements of waste bags, bins, needle cutters, trolleys etc. and ensure their availability.
- Monitor supply of consumables (waste bags, bins, needle cutters, trolleys etc.) as per Consumables Supply Record (Enclosed as Annexure 4)
- Ensure availability of display (IEC) material/posters.
- Develop a schedule for Bag Replacement and BMW transfer to storage shed.
- Identify location of BMW Interim Storage Shed and ensure its construction and maintenance as per guidelines.
- Develop and implement a facility level Training Plan
- Develop and implement a facility level BMW Monitoring Plan
- Develop a calendar for meetings of BMW Management Committee.
- Identify ways for incentivizing/rewarding good work.

For Sharps Management: Needle cutters / destroyers along with Polycarbonate Containers for storage of sharps must always be available at following minimum locations:

- OPD Injection room
- Immunization room
- Nursing station in each ward
- Operation theatre
- Pathology- sample collection room
- Labor room
- Blood Bank

5.5 Display of Posters/IEC material

The Nodal Officer shall be responsible for ensuring display of posters/IEC material at key locations in the HCF as part of implementation of BMW management plan. He may be assisted by other members of the BMW Management Committee for the same.

- Ensure that posters indicating BMW segregation are displayed above the BMW collection bins
- Ensure that posters indicating hand washing best-practices are displayed above wash- basins
- Ensure that name, designation, photo and contact number of designated responsible person for each BMW generation station is prominently displayed at that station.
- Ensure that posters are replaced in case of damage or defacement.

5.6 Plan for Bag Replacement & BMW Transfer to Collection Shed

The Nodal Officer shall be responsible for ensuring timely and proper transfer of BMW from each generation station at the HCF as part of implementation of BMW management plan. He may be assisted by other members of the BMW Management Committee for the same.

- Ensure that BMW bins are emptied out periodically, as per requirement
- Bag replacement methodology:
  - Bag should be changed after it is full to 2/3rd capacity: this may entail change of bags more than once a day at some stations
  - Sanitation worker should be wearing necessary protective gear while emptying the bin and transporting the bag
  - Bag should be tied at the top while it is still in the bin
  - Bag should then be transferred from the bin into the BMW trolley
  - Contents of blue bin (glass sharps) and white puncture proof container (metallic sharps) should be transferred carefully into big bins of same colour carried in the trolley.
  - A fresh bag should be placed in the bin ensuring that its edges are folded outwards at the rim of the bin
  - Sanitation worker should only load the trolley till the rim. He/she may return to collect other bags after transferring the load in the BMW interim storage shed.
  - Sanitation worker should wheel the trolley along a designated route and avoid diverging from the route. The route should be identified keeping in mind its width so that the trolley may be wheeled without hitting walls or patients/passers-by.
  - Red bags should be placed inside the red collections enclosure, the yellow bags in the yellow collection enclosure, and blue and white containers should be placed in the respective collection enclosure.
  - Bag containing discarded/expired medicines should be collected periodically from the pharmacy/store, and placed in the blue collection enclosure.

5.7 BMW Interim Collection Shed

The facility in-charge and Nodal Officer shall be responsible for ensuring that the BMW Interim Collection Shed is constructed and maintained in accordance with guidelines.

The following guidelines may be followed for construction and maintenance of the BMW interim storage shed:

- The shed shall have separate enclosure for each bag colour, i.e. two enclosures one each for yellow and red bags and blue and white containers.
- The door of each enclosure shall be painted the colour of the bag and should have a prominently displayed biohazard sign.
- The shed shall be covered.
- The shed shall be located near the gate of the facility so that it may be easily accessible by the BMW collection vehicle of the CBWTF.
- The shed shall enough sufficient open, un-encroached space in front of it to allow for parking and free movement of CBWTF vehicle and staff.
- The shed should have a water supply in its vicinity that may be used for washing of the floor and walls of the shed.
- A record of cleaning the shed shall be maintained. Format for the same is enclosed as Annexure 5.
- The floor and walls of the shed shall be lined with tiles to enable easy cleaning, have proper sloping and have a drain through which wash water/drained liquids may be drained into the HCF ETP.

- The door of each enclosure shall be kept locked at all times. It shall be opened only to allow for storage of BMW bags, for handing over waste to CBWTF, for cleaning and inspection. Keys of locks shall be kept with a member of the BMW Committee.

5.8 Facility Level Training Plan

The Nodal Officer shall be responsible for training of healthcare personnel for BMW segregation. He may be assisted by other members of the BMW Management Committee for the same.

Continuous training and awareness programs are must for ensuring success of waste management activities. The key groups of personnel at facilities in need of continuous awareness and training include medical officers, nurses, technicians and waste handlers.

The following considerations may be incorporated in the training plan:

- Training shall cover an overview of WHY, WHERE, WHAT, WHO, WHEN and HOW of BMW (given at the start of the handbook).
- Identify batch size and composition: training may be conducted ward-wise and each batch may cover doctors, nursing staff, ward boys etc. of that ward in one batch.
- Identify time for imparting training: it may be conducted after hospital hours.
- Training duration may be decided by the trainers. However, it should be ensured that it is sufficient for sensitization, imparting required information and testing trainees.
- Flip Chart: flip charts or any audio-visual tool shall be used for imparting training.
- Demonstration during training: the trainer is advised to use demonstration techniques to impart training, for which a set of colored bins, real waste samples and other material may be used.
- Training shall be repeated every six months.
- Trainer may use a method of appreciation to trainees who answer questions correctly.
- A record of trainings on BMW conducted by the BMW Management Committee shall be maintained (Annexure 6)

Training material available with the nodal officer covers the following:

- What is and isn't Biomedical waste
- When, where and who should segregate biomedical waste
- Biomedical waste segregation (Yellow bin, Red bin, Blue container, Translucent Puncture proof container)
- Sharps management
- Needle stick injury prevention and management
- Liquid spill management
- Personnel protective equipment
- WHO recommended hand washing steps

5.9 Facility level BMW Monitoring Plan

The facility in-charge and Nodal Officer shall be responsible for ensuring that the BMW Implementation Plan is monitored periodically. They shall be assisted by other members of the BMW Management Committee and departmental heads in the same.

In order to ensure successful implementation of biomedical waste management plan at HCF level, regular (daily/weekly/monthly) monitoring is highly essential. Monitoring shall be done:

- Daily - during daily rounds by facility in-charge, nodal officer, members of BMW Management Committee and designated responsible persons/departmental heads of BMW generation stations.
  Key points for daily monitoring:
  - Availability of biomedical waste collection and transportation materials
  - Availability and use of needle cutters at different work stations.
  - Segregation of waste into appropriate bags and bins.
  - Availability and use of personal protective gears by waste handlers.
  - Regular transport of biomedical wastes from generation stations interim BMW storage shed
  - Regular collection of BMW by Collection Agency/CBWTF.
  - Regular cleaning of walls, surfaces and equipment etc. by housekeeping staff.

- Monthly with the help of the Healthcare Facility BMW Monitoring Form (enclosed in Annexure 1)
- Monthly during monthly meeting of BMW Management Committee
  Key discussion points for monthly meetings:
  - Maintenance of records/log books/registers
  - Feedback from healthcare persons
  - Redressal of complaints
  - Availability of bags/bins/equipment etc.
  - Regular collection of BMW by CBWTF (The BMW Collection Record format is enclosed as Annexure 3).
  - Reporting of incidents of needle stick injuries and mercury spills and their follow up.
  - Regular cleaning of walls, surfaces and equipment etc. by housekeeping staff.

- Six-monthly - during training sessions
  - Feedback from healthcare persons
  - Redressal of complaints
  - Availability of bags/bins/equipment etc.
  - Reporting of incidents of needle stick injuries and mercury spills and their follow up.

- Six-monthly - during meeting with designated responsible persons/departmental heads of BMW generation stations
  - Feedback from healthcare persons
  - Redressal of complaints
  - Availability of bags/bins/equipment etc.
  - Reporting of incidents of needle stick injuries and mercury spills and their follow up.
  - Regular cleaning of walls, surfaces and equipment etc.by housekeeping staff.

5.10 Record Keeping

It shall be the responsibility of the nodal officer to ensure that required records are maintained. The following records shall be maintained:

- Biomedical waste collection records (Annexure 3)
- Consumables supply records (Annexure 4)

- Biomedical waste storage shed cleaning record (Annexure 5)
- Health Care Facility Biomedical Waste (BMW) Internal Monitoring Form (Annexure 1)
- Biomedical waste (BMW) Generation Station Monthly Scoring Records (Annexure 2)
- Healthcare Facility Level Training Record (Annexure 6)
- Reporting of Major Accidents and Remedial Action Taken (Form 1 of BMW Management Rules, 2016 enclosed as Annexure 10)
- Submit an Annual Report (Form IV of BMW Management Rules, 2016 enclosed as training status of healthcare personnel, major accidents and remedial action taken, minutes of BMW Committee meetings and compiled report on Waste generated (category-wise) annually (month-wise) by 30th June every year.

5.11 Bio-Medical Waste Management Information System (BMWMIS)
It shall be the responsibility of the nodal officer to ensure that required records are maintained.

The objective of the system is to capture the disposal of Bio-medical waste by Health Care Facility (HCF). This includes capturing data related to handing over of the waste to Common Bio-medical Waste Treatment Facility (CBWTF).

5.12 Rewards for Good Work
It has been repeatedly found that outcomes are better where there is a system that acknowledges good work by way of public recognition or rewards. Hence it is suggested that this be built into the BMW management plan in each HCF.

Good performers (individuals and departments as a whole) can be identified during the periodic monitoring activities like filling of Monitoring Form (Annexure 1), during rounds and trainings and from feedback.

Recognition can be done through display of names and photos of good performers on bulletin boards, and award of green badges to good performers, which can be worn on apron/uniform.

5.13 Immunisation, Periodic Health Check-ups and Personal Protective Equipment for Healthcare Personnel

The following activities shall be ensured for the safety of healthcare personnel that are exposed to BMW:

- Immunisation of all health care workers and others, involved in handling of bio- medical waste for protection against diseases including Hepatitis B and Tetanus that are likely to be transmitted by handling of bio-medical waste, in the manner as prescribed in the National Immunisation Policy or the guidelines of the Ministry of Health and Family Welfare issued from time to time;
- Health check-ups at the time of induction and at least once in a year for all its health care workers and others involved in handling of bio- medical waste and maintain the records for the same;
- Ensure occupational safety of all its health care workers and others involved in handling of bio-medical waste by providing appropriate and adequate personal protective equipment (PPE).

ANNEXURE 1

Health Care Facility Biomedical Waste (BMW) Internal Monitoring Form

(This format should be filled for each BMW generation station/ward separately)

Name of the District:
Name of the HCF:
Name BMW Generation Station/Ward/Lab/OT:
Inspection Month: **Date:**
Time:
Name of Monitoring Officer: **Designation:**

Scoring Process: Response to the questions can be either yes, partial or no. Score of 'yes' is to be taken as 2, of partial to be taken as 1, no to be taken as 0. No response is to be given in cells coloured black.

Sl. No.	Question	Response (code 2 for Yes, 1 for partial & 0 for No)			Score
		Yes	Partial	No	
1	Are color coded bins & bags placed as per BMW management plan				
2	Do BMW bins have the right color bags as per the guidelines (i.e. red bin has red bag etc.)				
3	On opening the BMW bins, did you find only properly segregated waste in it				
4	Are color bags replaced on regular basis				
5	Are BMW bins being filled in a proper way, i.e. no over-flowing was observed				
6	Does sweeper follow proper procedure in removing and changing BMW bags				
7	Are the BMW bins and wall behind them clean				
8	Are posters on BMW segregation displayed above BMW bins and hand washing displayed above washbasins				
9	Is disinfectant solution available in the ward				
10	Is the needle cutter in the ward functional				
11	Do Nurses/Lab technicians use the needle cutter on a regular basis				
12	Was staff able to answer the questions related to BMW segregation				
13	Have patients been told to discard general waste in black color bins bags				
14	Does the head of department monitor BMW segregation during rounds				
15	Does staffs use the personal protective equipment during duty (like mask, gloves, cap etc.)				
	TOTAL SCORE (MAX 30)				

Any Other Comments:

ANNEXURE 2

Biomedical Waste (BMW) Generation Station Monthly Scoring Record

District :
Hospital :
Month :

BMW Generation Station/Ward/Lab/OT	Score	Monitoring Officer	Date

ANNEXURE 3
BIOMEDICAL WASTE COLLECTION RECORD

Name of the District:
Name of the HCF:
Name of the NO/Staff/Nurse in-charge:

Bio Medical Waste Management
Register for Daily Collection of Bio-Medical Waste at the source
Number of beds:

Date & Time of Collection	Segregated Bio Medical Waste						Total No. of colour bags used for the day	Total Bio Medical Waste Collected in Kgs.	Signature of the NO/Staff/ Nurse in-charge	Signa-ture of the Sweeper	Signature of the CTF Ve-hicle driver	CBWTF Vehicle No.
	Red Bags		Yellow Bags		Blue Container	White Container						
	No.	Wt.	No.	Wt.	Wt.	Wt.						
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(b+d)	(c+e+f+g)				

Remark (if any):

ANNEXURE 4

CONSUMABLES SUPPLY RECORD

	PERSON RECEIVING THE SUPPLY			
	DATE OF RECEIPT OF SUPPLY			
SL. NO.	NAME OF ITEM	UNIT	QUANTITY RECEIVED	QUANTITY RECEIVED
1	RED BINS OF 15 LT	NOS		
2	YELLOW COLOR BINS OF 15 LT	NOS		
3	Blue COLOR Container OF 10 LT	NOS		
4	WHITE TRANSLUCENT CONTAINER OF 5 LT	NOS		
5	BLUE COLOR BIN 15 LT	NOS		
6	GREEN COLOR BIN 15 LT	NOS		
7	RED COLOR BAGS	NOS		
8	YELLOW COLOR BAGS	NOS		
9	Blue COLOR BAGS	NOS		
10	Green COLOR BAGS	NOS		
11	NEEDLE CUTTERS	NOS		
12	MANUAL HUB CUTTER	NOS		
13	TROLLEYS	NOS		
14	WHEEL BARROWS	NOS		
15	GUM BOOT	NOS		
16	FACE MASK	NOS		
17	GLOVES	NOS		
18	APRON	NOS		
19	GOGGLES	NOS		
20	HELMET NON-METAL	NOS		
21	WEIGHING MACHINE	NOS		
22	CHEMICAL DISINFECTANTS	ML		
23	DAILY WASTE COLLECTION REGISTERS	NOS		
24	CONSUMABLES REGISTER	NOS		
25	AUTOCLAVE	NOS		

ANNEXURE 5

BIOMEDICAL WASTE STORAGE SHED CLEANING RECORD

Date of Cleaning	Name of Cleaner	Date of Inspection	Person In-specting the Shed	Designation & Department	Remark			Signature
					Good	Average	Poor	

ANNEXURE 6

HEALTH CARE FACILITY LEVEL TRAINING RECORD				
Date	**Name of Trainer**	**Duration of Training (hours)**	**Training Venue**	**Persons Trained**

ANNEXURE 7

CONTACT DETAILS OF CONCERNED OFFICIALS AND RESOURCE PERSONS

Sl. No.	Name	Designation	Phone No.	Email
1	Dr. Atoshe Sema	Additional Project Director, Nagaland Health Project, Kohima	9436005786	atoshesumi@gmail.com
2	Dr. Puse Liegise	Deputy Director, DoH&FW, Kohima	9436011327	puse.liegise@gmail.com
3	Mr. Akumsashi Ao	Consultant, WATSAN, Nagaland Health Project, Kohima	9863320895	akum_leo@yahoo.com

ANNEXURE 8

Nagaland Pollution Control Board

Signal Point, Dimapur - 797112, Nagaland
Telephone: 03862-245727, Tele Fax: 03862-245726
Website: www.npcb.nagaland.gov.in,
e-mail: npcb2@yahoo.com / ngc.nagaland@yahoo.com

ANNEXURE 9

DETAILED SPECIFICATIONS FOR CONSUMABLES

Section -A. Specification Biodegradable Biohazard waste collection bags

Plastic bag (HDPE) made from virgin non-chlorinated polymer material and should be biodegradable. Certificate of degradable material must be obtained from one of the following laboratories

i. National chemical laboratory, Pune.
ii. National institute of plastic engineering technologies, Chennai.
iii. Shriram Institute of Industrial Research, Delhi

- Shelf life of the plastic degradable back shall be of twelve months.
- The bag should be leak proof.
- Date of manufacturing to be printed on each bag.
- Date of supply should not be more than one month from the date of manufacturing.
- "Biohazard" word and sign should be printed on each of the bag.
- Color of the bag should confirm to the requirement of "Bio-medical waste management and handling rules, 2016.
- Bidder must produce duly signed and stamped copy of test report from any of the laboratories for each batch of the supply.
- The thickness must be of 40 Microns, variation beyond 5%, + or – shall not be acceptable.

SL. NO.	SPECIFICATION	DESCRIPTION
1	MATERIAL USED	HIGH DENSITY POLYETHYLENE (HDPE)
2	QUALITY REQUIREMENTS	UNIFORM IN SHAPE, HOMOGENEOUS AND FREE FROM DEFECTS SUCH AS PIN HOLES, CUTS ETC.
3	PERFORMANCE TESTS	LEAK PROOF WATER LEAK TEST, STEAM PERMISSIBLE AND WITHSTAND 135° C, ACID ALKALI RESISTANT.
4	PRINTING ON BAGS	BIODEGRADABLE BAGS FOR "BIO-HAZARDOUS SYMBOL". AS PER BMW RULES, 2016

Section-B. Specifications for colored Bins

Material:

HDPE Virgin for container and lid.

a) Mild steel power coated for side handles to lift the handle.
b) Size shall be as per standard plastic bucket available in the market.
c) Thickness of Bin shall be 1.8 mm ± 0.2 mm.
d) The waste Bin must have paddle lifter.

Printing on the Container: "Bio hazardous Symbol", Waste bags should fit into the plastic bin

Section-C- Specifications for White Puncture Proof Containers

a. The container should be made of plastic.

b. The container should be shape which helps the container remain upright and stable in all situations. c. It should be white and translucent.

d. The capacity of the container - 3 to 5 liters.

e. The thickness of the plastic used for making the container should not be less than 4 mms.

f. The thickness used should be such that the container is made puncture proof (does not allow needles and other sharps to pierce through the plastic during handling, collection, storage, transport of disposal even when filled to the suggested capacity).

g. The container should be leak proof and Autoclavable.

h. The container should have a screw capped lid whose fitting is such that it does not allow leakage of contents when closed.

i. The lid should have an opening of 4cm to facilitate disposal of different sharps such as needles, scalpels, slides and broken glassware.

j. The container should be autoclavable (permeable to steam).

k. The container should have a marking at 3 / 4 level on all four slides to indicate the maximum fill capacity.

l. The distance between this mark (maximum fill) and the lid should be at least 5 cms.

m. The container should have imprinted biohazard symbol text mentioning ‘sharp waste’.

n. The container should have imprinted labeling which satisfies schedule iv of BMW Management and Handling Rules, 2016.

o. The unit when completely filled should not open up or break.

p. The container may be provided with a sturdy handle that can withstand the stress while lifting and transporting even when completely filled.

Section-D- Specification POLY CARBONATE TRANSLUCENT CONTAINERS

Cut needles and other sharps (scalpels, blade, etc.) have to be put in a polycarbonate blue/translucent container.

a. The container will be in form of a sturdy jar and should be approximately 15 cm. diameter and 20 cm. height.

b. It should have a polycarbonate cap that is perforated at the top, to allow passage of steam into the container during autoclaving.

c. The container after autoclaving has to be sent to the sent to the secured landfill or landfill option, along with its content.

Section-E: Specification NEEDLE DESTRUCTION UNIT:

Sl. NO.	SALIENT FEATURES	REQUIRED SPECIFICATIONS
1.	a. UNIT SIZE b. MATERIAL c. PAINTING d. MOUNTING e. COOLING	-APPROX 290MM(L)X 210MM(W)X 130MM(H) -M.S. CRCA SHEET OF 1MM THICK -POLYCOAT, SPRAY PAINTING -MOUNTED ON PLASTIC PADS -NATURAL AIR COOLED
2.	WEIGHT	APPROX 3.5 KG
3.	POWER SUPPLY	SINGLE PHASE, 230V AC + 10% ,FREQUENCY: 50 + 3%
4.	CUTTER ARRANGEMENT	MATERIAL- EN8, CHROME PLATED (OPTIONAL : SS410) HARDNESS- 35 RC
5.	ON/OFF SWITCH	ROCKERS SWITCH WITH LED, 2 POLE ON/OFF, 15 AMPS
6.	GAUGE SELECTION SWITCH	16 TO 20 GAUGE NEEDLES (1.625 TO 0.914MM) \22 TO 26 GAUGE NEEDLES (0.711 TO 0.457MM)
7.	SUPPLY CORD	3 PIN TOP, SINGLE PHASE, 230V AC POWER SUPPLY, CORD LENGTH 5M
8.	BELLOW	NITRILE RUBBER
9.	TRANSFORMER PRIMARY SECONDARY DUTY CYCLE H. V. TEST INSULATION RESISTANCE	230V AC, 5V 7 SECONDS ON (TRANSFORMER IN CIRCUIT) & 14 SECONDS OFF (TRANSFORMER IS OPEN) IT SHOULD WITH STAND APPLICATION OF 2KV FOR ONE MINUTE MORE THAN 100 MEGA-OHM BETWEEN BODY EARTH AND PRIMARY IN MEGGAR TEST.
10.	NEEDLE DESTRUCTION TIME	APPROX. 2 TO 7 SECONDS
11.	EQUIPMENT SAFETY	BASED ON THERMOSTAT (80°C) TO CUT OFF MAINS SUPPLY TO TRANSFORMER IN CASE OF OVERHEATING OF TRANSFORMER

Section –F: Specifications for Manual Hub Cutter

- The sharp container should be made of Polypropylene (PP) 4mm thick and is to be white / translucent.
- The material should be autoclavable plastics, puncture resistant, high drop impact strength, material should be non-toxic and pyrogen free, the material should not wear out with normal usage.
- Should be able to cut hub and needle of syringe in one shot.
- Cuts needle at the hub in such a way that no needle sharps should remain on the syringe after the cut.
- Cuts and holds 400-600 needles, depending on needle size.
- Shape: the shape of the container should be such that the lid is tightened with the body with a twist and cannot be opened by pulling the lid and the body in the opposite direction. The container containing the cut hub along with needle of various size should be ¾ full when filled with 500 cut hub with needles.
- The cutting blade of the cutter should be made of stainless steel. The thickness of the blade

not to be less than 0.5 mm.

- Capacity Range: Able to destroy from hub of AD syringe with needles from 18-28 gauge diameter and from 10-25mm length and fitted with all types of needle fittings.
- Handling: Able to be carried in one hand and portable.

Section-G: Specification TROLLEYS:

Trolleys shall be made up of Stainless Steel having dimensions as shown in the drawing.
The other specification are:

- The four legs and the handle of the trolley shall be made of 1" nominal size stainless steel pipes.
- These legs shall be connected by ½" nominal size stainless steel pipes at two levels – one at the top and the other at 250mm above the bottom ends of the legs.
- An arrangement for the supporting Two plastic Bins shall be made on one of the longer sides of the trolley by extending the two ½" nominal size stainless steel upper pipes by 200mm and connecting the extended ends with 750mm long ½" nominal size stainless steel pipe.
- This arrangement shall be reinforced by providing a 300mm long slopping ½" nominal size stainless steel pipe connecting the extended end to the leg of the trolley on both sides.
- Three circular rings having 200mm diameter shall be welded on the arrangement for supporting three plastic bins. These rings shall be placed in a manner that the centre to centre distance between the rings are 235mm while the centre to the edge distance is 140mm as shown in the drawing.
- Two numbers 1.5mm thick stainless steel sheet shall be welded over the 750mmX-500mm structure thus created and at two levels – one at the top and the other at 250mm above the bottom ends of the legs.
- For preventing bottles etc. from falling from the shelves, an arrangement shall be provided as shown in the drawing.
- Four wheels/ castors shall be provided on the legs for the movement of the trolley

Section-H- Specifications Wheelbarrow:

The Wheelbarrows shall be made up of Mild Steel having dimensions as shown in the drawing.
The other specifications are:

- The structure of wheelbarrows shall be made of 25x25x3mm angle of mild steel.
- The shape of the wheelbarrows shall be like a trapezoidal box having a top surface of 120cm x 90cm (LxB) and base of 70cm x 90cm (LxB), as shown in the drawing. The Heights of the Box (H) shall be 50cm.
- The base of the wheelbarrows shall have 2.5mm thick MS sheet and sides shall be 1.5mm thick MS sheet.
- Two number 1 m long handles of 1" nominal size mild steel pipe with HDPE coating shall extend from the base of the wheelbarrow in horizontal direction.
- Two number stands of 2.5 x 2.5 x 3 mm angle of mild steel shall extend from the base of the wheelbarrow in vertical horizontal direction.
- Two number wheels of 600 mm diameter with HDPE coated MS rim / MS rim with rubber tyres shall be provided along with two bearing and an axle for the movement of the wheelbarrow. The centre axle of the wheelbarrow shall be 20cm below the base so that the wheelbarrow can rest on the two wheels and the two stands which would act as the legs.
- All interior faces of the wheelbarrow should be painted by a corrosion resistant epoxy painting.

ANNEXURE 10

THE BIO-MEDICAL WASTE MANAGEMENT RULES, 2016

[Published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (i)]

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 28th March, 2016

G.S.R. 343(E).-Whereas the Bio-Medical Waste (Management and Handling) Rules, 1998 was published vide notification number S.O. 630 (E) dated the 20th July, 1998, by the Government of India in the erstwhile Ministry of Environment and Forests, provided a regulatory frame work for management of bio-medical waste generated in the country;

And whereas, to implement these rules more effectively and to improve the collection, segregation, processing, treatment and disposal of these bio-medical wastes in an environmentally sound management thereby, reducing the bio- medical waste generation and its impact on the environment, the Central Government reviewed the existing rules;

And whereas, in exercise of the powers conferred by sections 6, 8 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government published the draft rules in the Gazette vide number G.S.R. 450 (E), dated the 3rd June, 2015 inviting objections or suggestions from the public within sixty days from the date on which copies of the Gazette containing the said notification were made available to the public;

And whereas, the copies of the Gazette containing the said draft rules were made available to the public on the 3rd June, 2015;

And whereas, the objections or comments received within the specified period from the public in respect of the said draft rules have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by section 6, 8 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), and in supersession of the Bio-Medical Waste (Management and Handling) Rules, 1998, except as respects things done or omitted to be done before such suppression, the Central Government hereby makes the following rules, namely:-

1. Short title and commencement.- (1) these rules may be called the Bio-Medical Waste Management Rules, 2016.

(2) They shall come into force on the date of their publication in the Official Gazette. 2.

Application.-

(1). These rules shall apply to all persons who generate, collect, receive, store, transport, treat, dispose, or handle bio medical waste in any form including 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.

(2). These rules shall not apply to,-

(a) Radioactive wastes as covered under the provisions of the Atomic Energy Act, 1962(33 of 1962) and the rules made there under;

(b) Hazardous chemicals covered under the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 made under the Act;

(c) Solid wastes covered under the Municipal Solid Waste (Management and Handling) Rules, 2000 made under the Act;

(d) The lead acid batteries covered under the Batteries (Management and Handling) Rules, 2001 made under the Act;

(e) Hazardous wastes covered under the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 made under the Act;

(f) Waste covered under the e-Waste (Management and Handling) Rules, 2011 made under the Act; and

(g) Hazardous micro-organisms, genetically engineered micro-organisms and cells covered under the Manufacture, Use, Import, Export and Storage of Hazardous Microorganisms, Genetically Engineered Micro-organisms or Cells Rules, 1989 made under the Act.

3. Definitions - In these rules, unless the context otherwise requires, - (a) "Act" means the Environment (Protection) Act, 1986 (29 of 1986);

(b) "Animal house" means a place where animals are reared or kept for the purpose of experiments or testing;

(c) "Authorisation" means permission granted by the prescribed authority for the generation, collection, reception, storage, transportation, treatment, processing, disposal or any other form of handling of bio- medical waste in accordance with these rules and guidelines issued by the Central Government or Central Pollution Control Board as the case may be;

(d) "Authorised person" means an occupier or operator authorised by the prescribed authority to generate, collect, receive, store, transport, treat, process, dispose or handle bio-medical waste in accordance with these rules and the guidelines issued by the Central Government or the Central Pollution Control Board, as the case may be;

(e) "Biological" means any preparation made from organisms or micro-organisms or product of metabolism and biochemical reactions intended for use in the diagnosis, immunisation or the treatment of human beings or animals or in research activities pertaining thereto;

(f) "Bio-medical waste" means any waste, which is generated during the diagnosis, treatment or immunisation of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps, including the categories mentioned in Schedule I appended to these rules;

(g) "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;

(h) "Form" means the Form appended to these rules;

(i) "Handling" in relation to bio-medical waste includes the generation, sorting, segregation, collection, use, storage, packaging, loading, transportation, unloading, processing, treatment, destruction, conversion, or offering for sale, transfer, disposal of such waste;

(j) "Health care facility" means a place where diagnosis, treatment or immunisation of human beings or animals is provided irrespective of type and size of health treatment system, and research activity pertaining thereto;

(k) "Major accident" means accident occurring while handling of bio-medical waste having potential to affect large masses of public and includes toppling of the truck carrying bio-medical waste, accidental release of bio-medical waste in any water body but exclude accidents like needle prick injuries, mercury spills;

(l) "Management" includes all steps required to ensure that bio- medical waste is managed in such a manner as to protect health and environment against any adverse effects due to handling of such waste;

(m) "Occupier" means a person having administrative control over the institution and the premises generating bio-medical waste, which includes a hospital, nursing home, clinic, dispensary, veterinary institution, animal house, pathological laboratory, blood bank, health care facility and clinical establishment, irrespective of their system of medicine and by whatever name they are called;

(n) "Operator of a common bio-medical waste treatment facility" means a person who owns or controls a Common Bio-medical Waste Treatment Facility (CBMWTF) for the collection, reception, storage, transport, treatment, disposal or any other form of handling of bio-medical waste;

(o) "Prescribed authority" means the State Pollution Control Board in respect of a State and Pollution Control Committees in respect of an Union territory;

(p) "Schedule" means the Schedule appended to these rules.

4. Duties of the Occupier - It shall be the duty of every occupier to-

(a) Take all necessary steps to ensure that bio-medical waste is handled without any adverse effect to human health and the environment and in accordance with these rules;

(b) Make a provision within the premises for a safe, ventilated and secured location for storage of segregated biomedical waste in colored bags or containers in the manner as specified in Schedule I, to ensure that there shall be no secondary handling, pilferage of recyclables or inadvertent scattering or spillage by animals and the bio-medical waste from such place or premises shall be directly transported in the manner as prescribed in these rules to the common bio-medical waste treatment facility or for the appropriate treatment and disposal, as the case may be, in the manner as prescribed in Schedule I;

(c) Pre-treat the laboratory waste, microbiological waste, blood samples and blood bags through disinfection or sterilisation on-site in the manner as prescribed by the World Health Organisation (WHO) or National AIDs Control Organisation (NACO) guidelines and then sent to the common bio- medical waste treatment facility for final disposal;

(d) Phase out use of chlorinated plastic bags, gloves and blood bags within two years from the date of notification of these rules;

(e) Dispose of solid waste other than bio-medical waste in accordance with the provisions of respective waste management rules made under the relevant laws and amended from time to time;

(f) Not to give treated bio-medical waste with municipal solid waste;

(g) Provide training to all its health care workers and others, involved in handling of bio medical waste at the time of induction and thereafter at least once every year and the details of training programmes conducted, number of personnel trained and number of personnel not undergone any training shall be provided in the Annual Report;

(h) Immunise all its healthcare workers and others, involved in handling of bio-medical waste for protection against diseases including Hepatitis B and Tetanus that are likely to be transmitted by handling of bio-medical waste, in the manner as prescribed in the National Immunisation Policy or the guidelines of the Ministry of Health and Family Welfare issued from time to time;

(i) Establish a Bar- Code System for bags or containers containing bio-medical waste to be sent out of the premises or place for any purpose within one year from the date of the notification of these rules;

(j) Ensure segregation of liquid chemical waste at source and ensure pre-treatment or neutralisation prior to mixing with other effluent generated from health care facilities;

(k) Ensure treatment and disposal of liquid waste in accordance with the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974);

(l) Ensure occupational safety of all its health care workers and others involved in handling of bio-medical waste by providing appropriate and adequate personal protective equipment;

(m) Conduct health check up at the time of induction and at least once in a year for all its health care workers and others involved in handling of bio- medical waste and maintain the records for the same;

(n) Maintain and update on day to day basis the bio-medical waste management register and display the monthly record on its website according to the bio-medical waste generated in terms of category and colour coding as specified in Schedule I;

(o) Report major accidents including accidents caused by fire hazards, blasts during handling of bio- medical waste and the remedial action taken and the records relevant thereto, (including nil report) in Form I to the prescribed authority and also along with the annual report;

(p) Make available the annual report on its web-site and all the health care facilities shall make own website within two years from the date of notification of these rules;

(q) Inform the prescribed authority immediately in case the operator of a facility does not collect the bio- medical waste within the intended time or as per the agreed time;

(r) Establish a system to review and monitor the activities related to bio-medical waste management, either through an existing committee or by forming a new committee and the Committee shall meet once in every six months and the record of the minutes of the meetings of this committee shall be submitted along with the annual report to the prescribed authority and the healthcare establishments having less than thirty beds shall designate a qualified person to review and monitor the activities relating to bio-medical waste management within

that establishment and submit the annual report;

(s) Maintain all record for operation of incineration, hydro or autoclaving etc., for a period of five years;

(t) Existing incinerators to achieve the standards for treatment and disposal of bio-medical waste as specified in Schedule II for retention time in secondary chamber and Dioxin and Furans within two years from the date of this notification.

5. Duties of the operator of a common bio-medical waste treatment and disposal facility - It shall be the duty of every operator to -

(a) Take all necessary steps to ensure that the bio-medical waste collected from the occupier is transported, handled, stored, treated and disposed of, without any adverse effect to the human health and the environment, in accordance with these rules and guidelines issued by the Central Government or, as the case may be, the central pollution control board from time to time;

(b) Ensure timely collection of bio-medical waste from the occupier as prescribed under these rules;

(c) Establish bar coding and global positioning system for handling of bio- medical waste within one year;

(d) Inform the prescribed authority immediately regarding the occupiers which are not handing over the segregated bio-medical waste in accordance with these rules;

(e) Provide training for all its workers involved in handling of bio-medical waste at the time of induction and at least once a year thereafter;

(f) Assist the occupier in training conducted by them for bio-medical waste management;

(g) Undertake appropriate medical examination at the time of induction and at least once in a year and immunise all its workers involved in handling of bio-medical waste for protection against diseases, including Hepatitis B and Tetanus, that are likely to be transmitted while handling bio-medical waste and maintain the records for the same;

(h) Ensure occupational safety of all its workers involved in handling of bio-medical waste by providing appropriate and adequate personal protective equipment;

(i) Report major accidents including accidents caused by fire hazards, blasts during handling of bio- medical waste and the remedial action taken and the records relevant thereto, (including nil report) in Form I to the prescribed authority and also along with the annual report;

(i) Maintain a log book for each of its treatment equipment according to weight of batch; categories of waste treated; time, date and duration of treatment cycle and total hours of operation;

(k) Allow occupier, who are giving waste for treatment to the operator, to see whether the treatment is carried out as per the rules;

(l) Shall display details of authorisation, treatment, annual report etc. on its web-site;

(m) After ensuring treatment by autoclaving or microwaving followed by mutilation or shredding, whichever is applicable, the recyclables from the treated bio-medical wastes such as plastics and glass, shall be given to recyclers having valid consent or authorisation or registration from the respective State Pollution Control Board or Pollution Control Committee;

(n) Supply non-chlorinated plastic coloured bags to the occupier on chargeable basis, if required;

(o) Common bio-medical waste treatment facility shall ensure collection of biomedical waste on holidays also;

(p) Maintain all record for operation of incineration, hydro or autoclaving for a period of five years; and

(q) Upgrade existing incinerators to achieve the standards for retention time in secondary chamber and Dioxin and Furans within two years from the date of this notification.

6. Duties of authorities.-The Authority specified in column (2) of Schedule-III shall perform the duties as specified in column (3) thereof in accordance with the provisions of these rules.

7. Treatment and disposal -

(a) Bio-medical waste shall be treated and disposed of in accordance withSchedule I, and in compliance with the standards provided in Schedule-II by the health care facilities and common bio-medical waste treatment facility.

(b) Occupier shall hand over segregated waste as per the Schedule-I to common bio-medical waste treatment facility for treatment, processing and final disposal: Provided that the lab and highly infectious bio-medical waste generated shall be pre-treated by equipment like autoclave or microwave.

(c) No occupier shall establish on-site treatment and disposal facility, if a service of common bio- medical waste treatment facility is available at a distance of seventy-five kilometer.

(d) In cases where service of the common bio-medical waste treatment facility is not available, the Occupiers shall set up requisite biomedical waste treatment equipment like incinerator, autoclave or microwave, shredder prior to commencement of its operation, as per the authorisation given by the prescribed authority.

(e) Any person including an occupier or operator of a common bio medical waste treatment facility, intending to use new technologies for treatment of bio medical waste other than those listed in Schedule shall request the Central Government for laying down the standards or operating parameters.

(f) On receipt of a request referred to in sub-rule (5), the Central Government may determine the standards and operating parameters for new technology which may be published in Gazette by the Central Government.

(g) Every operator of common bio-medical waste treatment facility shall set up requisite bio-medical waste treatment equipment like incinerator, autoclave or microwave, shredder and effluent treatment plant as a part of treatment, prior to commencement of its operation.

(h) Every occupier shall phase out use of non-chlorinated plastic bags within two years from the date of publication of these rules and after two years from such publication of these rules, the chlorinated plastic bags shall not be used for storing and transporting of bio-medical waste and the occupier or operator of a common bio-medical waste treatment facility shall not dispose of such plastics by incineration and the bags used for storing and transporting biomedical waste shall be in compliance with the Bureau of Indian Standards. Till the Standards are published, the carry bags shall be as per the Plastic Waste Management Rules, 2011.

(i) After ensuring treatment by autoclaving or microwaving followed by mutilation or shredding, whichever is applicable, the recyclables from the treated bio-medical wastes such as plastics and glass shall be given to such recyclers having valid authorisation or registration

from the respective prescribed authority.

(j) The Occupier or Operator of a common bio-medical waste treatment facility shall maintain a record of recyclable wastes referred to in sub-rule (9) which are auctioned or sold and the same shall be submitted to the prescribed authority as part of its annual report. The record shall be open for inspection by the prescribed authorities.

(k) The handling and disposal of all the mercury waste and lead waste shall be in accordance with the respective rules and regulations.

8. Segregation, packaging, transportation and storage –

(a) No untreated bio-medical waste shall be mixed with other wastes.

(b) The bio-medical waste shall be segregated into containers or bags at the point of generation in accordance with Schedule I prior to its storage, transportation, treatment and disposal.

(c) The containers or bags referred to in sub-rule (2) shall be labeled as specified in Schedule IV.

(d) Bar code and global positioning system shall be added by the Occupier and common bio-medical waste treatment facility in one-year time.

(e) The operator of common bio-medical waste treatment facility shall transport the bio-medical waste from the premises of an occupier to any off-site bio-medical waste treatment facility only in the vehicles having label as provided in part „A" of the Schedule IV along with necessary information as specified in part "B" of the Schedule IV.

(f) The vehicles used for transportation of bio-medical waste shall comply with the conditions if any stipulated by the State Pollution Control Board or Pollution Control Committee in addition to the requirement contained in the Motor Vehicles Act, 1988 (59 of 1988), if any or the rules made there under for transportation of such infectious waste.

(g) Untreated human anatomical waste, animal anatomical waste, soiled waste and, biotechnology waste shall not be stored beyond a period of forty-eight hours:
Provided that in case for any reason it becomes necessary to store such waste beyond such a period, the occupier shall take appropriate measures to ensure that the waste does not adversely affect human health and the environment and inform the prescribed authority along with the reasons for doing so.

(h) Microbiology waste and all other clinical laboratory waste shall be pre-treated by sterilisation to Log 6 or disinfection to Log 4, as per the World Health Organisation guidelines before packing and sending to the common bio-medical waste treatment facility.

9. Prescribed Authority -

(a) The prescribed authority for implementation of the provisions of these rules shall be the State Pollution Control Boards in respect of States and Pollution Control Committees in respect of Union territories.

(b) The prescribed authority for enforcement of the provisions of these rules in respect of all health care establishments including hospitals, nursing homes, clinics, dispensaries, veterinary institutions, animal houses, pathological laboratories and blood banks of the Armed Forces under the Ministry of Defence shall be the Director General, Armed Forces Medical Services, who shall function under the supervision and control of the Ministry of Defence.

(c) The prescribed authorities shall comply with the responsibilities as stipulated in Schedule

III of these rules.

10. Procedure for authorisation - Every occupier or operator handling bio-medical waste, irrespective of the quantity shall make an application in Form II to the prescribed authority i.e. State Pollution Control Board and Pollution Control Committee, as the case may be, for grant of authorisation and the prescribed authority shall grant the provisional authorisation in Form III and the validity of such authorisation for bedded healthcare facility and operator of a common facility shall be synchronised with the validity of the consents.

(a) The authorisation shall be one time for non-bedded occupiers and the authorisation in such cases shall be deemed to have been granted, if not objected by the prescribed authority within a period of ninety days from the date of receipt of duly completed application along with such necessary documents.

(b) In case of refusal of renewal, cancellation or suspension of the authorisation by the prescribed authority, the reasons shall be recorded in writing:
Provided that the prescribed authority shall give an opportunity of being heard to the applicant before such refusal of the authorisation.

(c) Every application for authorisation shall be disposed of by the prescribed authority within a period of ninety days from the date of receipt of duly completed application along with such necessary documents, failing which it shall be deemed that the authorisation is granted under these rules.

(d) In case of any change in the bio-medical waste generation, handling, treatment and disposal for which authorisation was earlier granted, the occupier or operator shall intimate to the prescribed authority about the change or variation in the activity and shall submit a fresh application in Form II for modification of the conditions of authorisation.

11. Advisory Committee -

(a) Every State Government or Union territory Administration shall constitute an Advisory Committee for the respective State or Union territory under the chairmanship of the respective health secretary to oversee the implementation of the rules in the respective state and to advice any improvements and the Advisory Committee shall include representatives from the Departments of Health, Environment, Urban Development, Animal Husbandry and Veterinary Sciences of that State Government or Union territory Administration, State Pollution Control Board or Pollution Control Committee, urban local bodies or local bodies or Municipal Corporation, representatives from Indian Medical Association, common bio-medical waste treatment facility and non-governmental organisation.

(b) Notwithstanding anything contained in sub-rule (1), the Ministry of Defence shall constitute the Advisory Committee (Defence) under the chairmanship of Director General of Health Services of Armed Forces consisting of representatives from the Ministry of Defence, Ministry of Environment, Forest and Climate Change, Central Pollution Control Board, Ministry of Health and Family Welfare, Armed Forces Medical College or Command Hospital

(c) The Advisory Committee constituted under sub-rule (1) and (2) shall meet at least once in six months and review all matters related to implementation of the provisions of these rules in the State and Armed Forces Health Care Facilities, as the case may be.

(d) The Ministry of Health and Defence may co-opt representatives from the other Governmental and non-governmental organisations having expertise in the field of bio-medical waste management.

12. Monitoring of implementation of the rules in health care facilities.-

(a) The Ministry of Environment, Forest and Climate Change shall review the implementation of the rules in the country once in a year through the State Health Secretaries and Chairmen or Member Secretary of State Pollution Control Boards and Central Pollution Control Board and the Ministry may also invite experts in the field of bio-medical waste management, if required.

(b) The Central Pollution Control Board shall monitor the implementation of these rules in respect of all the Armed Forces health care establishments under the Ministry of Defence.

(c) The Central Pollution Control Board along with one or more representatives of the Advisory Committee constituted under sub-rule (2) of rule 11, may inspect any Armed Forces health care establishments after prior intimation to the Director General Armed Forces Medical Services.

(d) Every State Government or Union territory Administration shall constitute District Level Monitoring Committee in the districts under the chairmanship of District Collector or District Magistrate or Deputy Commissioner or Additional District Magistrate to monitor the compliance of the provisions of these rules in the health care facilities generating bio-medical waste and in the common bio-medical waste treatment and disposal facilities, where the bio-medical waste is treated and disposed of.

(e) The District Level Monitoring Committee constituted under sub-rule (4) shall submit its report once in six months to the State Advisory Committee and a copy thereof shall also be forwarded to State Pollution Control Board or Pollution Control Committee concerned for taking further necessary action.

(f) The District Level Monitoring Committee shall comprise of District Medical Officer or District Health Officer, representatives from State Pollution Control Board or Pollution Control Committee, Public Health Engineering Department, local bodies or municipal corporation, Indian Medical Association, common bio-medical waste treatment facility and registered non-governmental organisations working in the field of bio-medical waste management and the Committee may co-opt other members and experts, if necessary and the District Medical Officer shall be the Member Secretary of this Committee.

13. Annual report.-

(a) Every occupier or operator of common bio-medical waste treatment facility shall submit an annual report to the prescribed authority in Form-IV, on or before the 30th June of every year.

(b) The prescribed authority shall compile, review and analyse the information received and send this information to the Central Pollution Control Board on or before the 31st July of every year.

(c) The Central Pollution Control Board shall compile, review and analyse the information received and send this information, along with its comments or suggestions or observations to the Ministry of Environment, Forest and Climate Change on or before 31st August every year.

(d) The Annual Reports shall also be available online on the websites of Occupiers, State Pollution Control Boards and Central Pollution Control Board.

14. Maintenance of records -

(a) Every authorised person shall maintain records related to the generation, collection, recep-

tion, storage, transportation, treatment, disposal or any other form of handling of bio-medical waste, for a period of five years, in accordance with these rules and guidelines issued by the Central Government or the Central Pollution Control Board or the prescribed authority as the case may be.

(b) All records shall be subject to inspection and verification by the prescribed authority or the Ministry of Environment, Forest and Climate Change at any time.

15. Accident reporting.-

(a) In case of any major accident at any institution or facility or any other site while handling bio-medical waste, the authorised person shall intimate immediately to the prescribed authority about such accident and forward a report within twenty-four hours in writing regarding the remedial steps taken in Form I.

(b) Information regarding all other accidents and remedial steps taken shall be provided in the annual report in accordance with rule 13 by the occupier.

16. Appeal.-

(a) Any person aggrieved by an order made by the prescribed authority under these rules may, within a period of thirty days from the date on which the order is communicated to him, prefer an appeal in Form V to the Secretary (Environment) of the State Government or Union territory administration .

(b) Any person aggrieved by an order of the Director General Armed Forces Medical Services under these rules may, within thirty days from the date on which the order is communicated to him, prefer an appeal in Form V to the Secretary, Ministry of Environment, Forest and Climate Change.

(c) The authority referred to in sub-para (1) and (2) as the case may be, may entertain the appeal after the expiry of the said period of thirty days, if it is satisfied that the appellant was prevented by sufficient cause from filing the appeal in time.

(d) The appeal shall be disposed of within a period of ninety days from the date of its filing.

17. Site for common bio-medical waste treatment and disposal facility.-

(a) Without prejudice to rule 5 of these rules, the department in the business allocation of land assignment shall be responsible for providing suitable site for setting up of common biomedical waste treatment and disposal facility in the State Government or Union territory Administration.

(b) The selection of site for setting up of such facility shall be made in consultation with the prescribed authority, other stakeholders and in accordance with guidelines published by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board.

18. Liability of the occupier, operator of a facility.-

(a) The occupier or an operator of a common bio- medical waste treatment facility shall be liable for all the damages caused to the environment or the public due to improper handling of bio- medical wastes.

(b) The occupier or operator of common bio-medical waste treatment facility shall be liable for action under section 5 and section 15 of the Act, in case of any violation.

SCHEDULE I

[See rules 3 (e), 4(b), 7(1), 7(2), 7(5), 7 (6) and 8(2)] Part-1

Biomedical wastes categories and their segregation, collection, treatment, processing and disposal options

Category	Type of Waste	Type of Bag or Container to be used	Treatment and Disposal options
(1)	(2)	(3)	(4)
Yellow	(a) Human Anatomical Waste: Human tissues, organs, body parts and fetus below the viability period (as per the Medical Termination of Pregnancy Act 1971, amended from time to time).	Yellow coloured non-chlorinated plastic bags	Incineration or Plasma Pyrolysis or deep burial*
	(b) Animal Anatomical Waste: Experimental animal carcasses, body parts, organs, tissues, including the waste generated from animals used in experiments or testing in veterinary hospitals or colleges or animal houses.		
	(c) Soiled Waste: Items contaminated with blood, body fluids like dressings, plaster casts, cotton swabs and bags containing residual or discarded blood and blood components.		Incineration or Plasma Pyrolysis or deep burial* In absence of above facilities, autoclaving or micro-waving / hydroclaving following by shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent for energy recovery.
	(d) Expired or Discarded Medicines: Pharmaceutical waste like antibiotics, cytotoxic drugs including all items contaminated with cytotoxic drugs along with glass or plastic ampoules, vials etc.	Yellow coloured non-chlorinated plastic bags or containers	Expired cytotoxic drugs and items contaminated with cytotoxic drugs to be returned back to the manufacturer or supplier for incineration at temperature > 1200oC or to common bio-medical waste treatment facility or hazardous waste treatment, storage and disposal facility for incineration at >1200 oC Or Encapsulation or Plasms Pyrolysis at > 1200oC. All other discarded medicines shall be either sent back to manufacturer or disposed by incineration.

	(e) Chemical Waste: Chemicals used in production of biological and used or discarded disinfectants.	Yellow coloured containers or non- chlorinated plastic bags	Disposed of by incineration or Plasma Pyrolysis or Encapsulation in hazardous waste treatment, storage and disposal facility.
	(f) Chemical Liquid Waste: Liquid waste generated due to use of chemicals in production of biological and used or discarded disinfectants. Silver X-ray film developing liquid, discarded formalin, infected secretions, aspirated body fluids, liquid from laboratories and floor washings, cleaning, house- keeping and disinfecting activities etc.	Separate collection system leading to effluent treatment system	After resource recovery, the chemical liquid waste shall be pre-treated before mixing with the other waste water. The combined discharge shall conform to the discharge norms given in Scheudle-III
	g) Discarded linen, mattresses, beddings contaminated with blood or body fluid.	Non-chlorinated yellow plastic bags or suitable packing material	Non-chlorinated chemical disinfection followed by incineration or Plazma Pyrolysis or for energy recovery. In absence of above facilities, shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent for energy recovery or incineration or Plazma Pyrolysis.
	(h) Microbiology, Biotechnology and other clinical laboratory waste: Blood bags, Laboratory cultures, stocks or specimens of micro-organisms, live or attenuated vaccines, human and animal cell cultures used in research, industrial laboratories, production of biological, residual toxins, dishes and devices used for cultures.	Autoclave safe plastic bags or containers	Pre-treat to sterilize with non-chlorinated chemicals on-site as per National AIDS Control Organization or World Health Organization guidelines thereafter for Incineration.
Red	Contaminated Waste (Recyclable) Wastes generated from disposable items such as tubing, bottles, intravenous tubes and sets, catheters, urine bags, syringes (without needles and fixed needle syringes) and vaccutainers with their needles cut and gloves	Red coloured non-chlorinated plastic bags or containers	Autoclaving or micro-waving / hydroclaving followed by shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent to registered or authorized recyclers or for energy recovery or plastics to diesel or fuel oil or for road making, whichever is possible. Plastic waste should not be sent to landfill sites.

White (Translu-cent)	Waste Sharps including Metals: Needles, syringes with fixed needles, needles from needle tip cutter or burner, scalpels, blades, or any other contaminated sharp object that may cause puncture and cuts. This includes both used, discarded and contaminated metal sharps	Puncture proof, Leak proof, tamper proof containers	Autoclaving or Dry Heat Sterilization followed by shred-ding or mutilation or encapsula-tion in metal container or cement concrete; combination of shred-ding cum autoclaving; and sent for final disposal to iron found-ries (having consent to operate from the State Pollution Control Boards or Pollution Control Committees) or sanitary landfill or designated concrete waste sharp pit.
Blue	(a) Glassware: Broken or discarded and contaminat-ed glass including medicine vials and ampoules except those contaminated with cytotoxic wastes.	Cardboard boxes with blue colored marking	Disinfection (by soaking the washed glass waste after clean-ing with detergent and Sodi-um Hypochlorite treatment) or through autoclaving or microwaving or hydroclaving and then sent for recycling.
	(b) Metallic Body Implants	Cardboard boxes with blue colored marking	

Disposal by deep burial is permitted only in rural or remote areas where there is no access to common bio-medical waste treatment facility. This will be carried out with prior approval from the prescribed authority and as per the Standards specified in Schedule-III. The deep burial facility shall be located as per the provisions and guidelines issued by Central Pollution Control Board from time to time.

Part -2

(1) All plastic bags shall be as per BIS standards as and when published, till then the prevailing Plastic Waste Management Rules shall be applicable.

(2) Chemical treatment using at least 10% Sodium Hypochlorite having 30% residual chlorine for twenty minutesor any other equivalent chemical reagent that should demonstrate Log104 reduction efficiency for microorganisms as given in Schedule- III.

(3) Mutilation or shredding must be to an extent to prevent unauthorized reuse.

(4) There will be no chemical pretreatment before incineration, except for microbiological, lab and highly infectious waste.

(5) Incineration ash (ash from incineration of any bio-medical waste) shall be disposed through

hazardous waste treatment, storage and disposal facility, if toxic or hazardous constituents are present beyond the prescribed limits as given in the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008 or as revised from time to time.

(6) Dead Fetus below the viability period (as per the Medical Termination of Pregnancy Act 1971, amended from time to time) can be considered as human anatomical waste. Such waste should be handed over to the operator of common bio-medical waste treatment and disposal facility in yellow bag with a copy of the official Medical Termination of Pregnancy certificate from the Obstetrician or the Medical Superintendent of hospital or healthcare establishment.

(7) Cytotoxic drug vials shall not be handed over to unauthorised person under any circumstances. These shall be sent back to the manufactures for necessary disposal at a single point. As a second option, these may be sent for incineration at common bio-medical waste treatment and disposal facility or TSDFs or plasma pyrolys is at temperature >1200 0C.

(8) Residual or discarded chemical wastes, used or discarded disinfectants and chemical sludge can be disposed at hazardous waste treatment, storage and disposal facility. In such case, the waste should be sent to hazardous waste treatment, storage and disposal facility through operator of common bio- medical waste treatment and disposal facility only.

(9) On-site pre-treatment of laboratory waste, microbiological waste, blood samples, blood bags should be disinfected or sterilized as per the Guidelines of World Health Organisation or National AIDS Control Organisation and then given to the common bio-medical waste treatment and disposal facility.

(10) Installation of in-house incinerator is not allowed. However in case there is no common bio-medical facility nearby, the same may be installed by the occupier after taking authorisation from the State Pollution Control Board.

(11) Syringes should be either mutilated or needles should be cut and or stored in tamper proof, leak proof and puncture proof containers for sharps storage. Wherever the occupier is not linked to a disposal facility it shall be the responsibility of the occupier to sterilize and dispose in the manner prescribed.

(12) Bio-medical waste generated in households during healthcare activities shall be segregated as per these rules and handed over in separate bags or containers to municipal waste collectors. Urban Local Bodies shall have tie up with the common bio-medical waste treatment and disposal facility to pickup this waste from the Material Recovery Facility (MRF) or from the house hold directly, for final disposal in the manner as prescribed in this Schedule.

SCHEDULE II

[See rule 4(t), 7(1) and 7(6)]

STANDARDS FOR TREATMENT AND DISPOSAL OF BIO-MEDICALWASTES

1. STANDARDS FOR INCINERATION.-

All incinerators shall meet the following operating and emission standards-

A. Operating Standards

1). Combustion efficiency (CE) shall be at least 99.00%.

2). The Combustion efficiency is computed as follows:

$$C.E. = \frac{\%C02}{\%C02 + \%\ CO} \times 100$$

3). The temperature of the primary chamber shall be a minimum of 800 0C and the secondary chamber shall be minimum of 10500C + or - 500C.

4). The secondary chamber gas residence time shall be at least two seconds.

B. Emission Standards

Sl. No.	Parameter	Standards	
(1)	(2)	(3)	(4)
		Limiting concentration in mg Nm3 unless stated	**Sampling Duration in minutes, unless stated**
1.	Particulate matter	50	30 or 1NM3 of sample volume, whichever is more
2	Nitrogen Oxides NO and NO2 expressed as NO2	400	30 for online sampling or grab Sample
3	HCl	50	30 for online sampling or grab Sample
4	Total Dioxins and Furans	0.1ngTEQ/Nm3 (at 11% O2)	8 hours or 5NM3 of sample volume, whichever is more
5	Hg and its compounds	0.05	2 hours or 1NM3 of sample volume, whichever is more

C. Stack Height: Minimum stack height shall be 30 meters above the ground and shall be attached with the necessary monitoring facilities as per requirement of monitoring of „general parameters" as notified under the Environment (Protection) Act, 1986 and in accordance with the Central Pollution Control Board Guidelines of Emission Regulation Part-III.

Note:

(a) The existing incinerators shall comply with the above within a period of two years from the date of the notification.

(b) The existing incinerators shall comply with the standards for Dioxins and Furans of 0.1ngTEQ/Nm3, as given below within two years from the date of commencement of these rules.

(c) All upcoming common bio-medical waste treatment facilities having incineration facility or captive incinerator shall comply with standards for Dioxins and Furans.

(d) The existing secondary combustion chambers of the incinerator and the pollution control devices shall be suitably retrofitted, if necessary, to achieve the emission limits.

(e) Wastes to be incinerated shall not be chemically treated with any chlorinated disinfectants.

(f) Ash from incineration of biomedical waste shall be disposed of at common hazardous waste treatment and disposal facility. However, it may be disposed of in municipal landfill, if the toxic metals in incineration ash are within the regulatory quantities as defined under the Hazardous Waste (Management and Handling and Transboundary Movement) Rules, 2008 as amended from time to time.

(g) Only low Sulphur fuel like Light Diesel Oil or Low Sulphur Heavy Stock or Diesel, Compressed Natural Gas, Liquefied Natural Gas or Liquefied Petroleum Gas shall be used as fuel in the incinerator.

(h) The occupier or operator of a common bio-medical waste treatment facility shall monitor the stack gaseous emissions (under optimum capacity of the incinerator) once in three months through a laboratory approved under the Environment (Protection) Act, 1986 and record of such analysis results shall be maintained and submitted to the prescribed authority. In case of dioxins and furans, monitoring should be done once in a year.

(i) The occupier or operator of the common bio-medical waste treatment facility shall install continuous emission monitoring system for the parameters as stipulated by State Pollution Control Board or Pollution Control Committees in authorisation and transmit the data real time to the servers at State Pollution Control Board or Pollution Control Committees and Central Pollution Control Board.

(j) All monitored values shall be corrected to 11% Oxygen on dry basis.

(k) Incinerators (combustion chambers) shall be operated with such temperature, retention time and turbulence, as to achieve Total Organic Carbon content in the slag and bottom ashes less than 3% or their loss on ignition shall be less than 5% of the dry weight.

(l) The occupier or operator of a common bio-medical waste incinerator shall use combustion gas analyzer to measure CO2, CO and O2.

2. Operating and Emission Standards for Disposal by Plasma Pyrolysis or Gasification:

A. Operating Standards:
All the operators of the Plasma Pyrolysis or Gasification shall meet the following operating and emission standards:

1) Combustion Efficiency (CE) shall be at least 99.99%.
2) The Combustion Efficiency is computed as follows.

$$C.E = \frac{\%\ CO_2}{(\%\ CO_2 + \%\ CO)} \times 100$$

3) The temperature of the combustion chamber after plasma gasification shall be 1050 ± 50 o C with gas residence time of at least 2(two) second, with minimum 3 % Oxygen in the stack gas.
4) The Stack height should be minimum of 30 m above ground level and shall be attached with the necessary monitoring facilities as per requirement of monitoring of „general parameters" as notified under the Environment (Protection) Act, 1986 and in accordance with the CPCB Guidelines of Emission Regulation Part-III.

B. Air Emission Standards and Air Pollution Control Measures

(i) Emission standards for incinerator, notified at Sl. No.1 above in this Schedule, and revised from time to time, shall be applicable for the Plasma Pyrolysis or Gasification also.

(ii) Suitably designed air pollution control devices shall be installed or retrofitted with the, Plasma Pyrolysis or Gasification to achieve the above emission limits, if necessary.

(iii) Wastes to be treated using Plasma Pyrolysis or Gasification shall not be chemically treated with any chlorinated disinfectants and chlorinated plastics shall not be treated in the system.

C. Disposal of Ash Vitrified Material: The ash or vitrified material generated from the, Plasma Pyrolysis or Gasification shall be disposed off in accordance with the Hazardous Waste (Management, Handling and Transboundary Movement) Rules 2008 and revisions made thereafter in case the constituents exceed the limits prescribed under Schedule II of the said Rules or else in accordance with the provisions of the Environment (Protection) Act, 1986, whichever is applicable.

3. STANDARDS FOR AUTOCLAVING OF BIO-MEDICAL WASTE -
The autoclave should be dedicated for the purposes of disinfecting and treating bio-medical Waste.

(1) When operating a gravity flow autoclave, medical waste shall be subjected to:

(i) A temperature of not less than 121° C and pressure of 15 pounds per square inch (psi) for an autoclave residence time of not less than 60 minutes; or

(ii) A temperature of not less than 135° C and a pressure of 31 psi for an autoclave residence time of not less than 45 minutes; or

(iii) A temperature of not less than 149° C and a pressure of 52 psi for an autoclave residence time of not less than 30 minutes.

(2) When operating a vacuum autoclave, medical waste shall be subjected to a minimum of three pre- vacuum pulse to purge the autoclave of all air. The air removed during the pre-vacuum, cycle should be decontaminated by means of HEPA and activated carbon filtration, steam treatment, or any other method to prevent release of pathogen. The waste shall be subjected to the following:

(i) A temperature of not less than 121°C and pressure of 15 psi per an autoclave residence time of not less than 45 minutes; or

(ii) A temperature of not less than 135°C and a pressure of 31 psi for an autoclave residence time of not less than 30 minutes;

(3) Medical waste shall not be considered as properly treated unless the time, temperature and pressure indicators indicate that the required time, temperature and pressure were reached during the autoclave process. If for any reasons, time temperature or pressure indicator indicates that the required temperature, pressure or residence time was not reached, the entire load of medical waste must be autoclaved again until the proper temperature, pressure and residence time were achieved.

(4) Recording of operational parameters: Each autoclave shall have graphic or computer recording devices which will automatically and continuously monitor and record dates, time of day, load identification number and operating parameters throughout the entire length of the autoclave cycle.

(5) Validation test for autoclave: The validation test shall use four biological indicator strips, one shall be used as a control and left at room temperature, and three shall be placed in the approximate center of three containers with the waste. Personal protective equipment (gloves, face mask and coveralls) shall be used when opening containers for the purpose of placing the biological indicators. At least one of the containers with a biological indicator should be placed in the most difficult location for steam to penetrate, generally the bottom center of the waste pile. The occupier or operator shall conduct this test three consecutive times to define the minimum operating conditions. The temperature, pressure and residence time at which all biological indicator vials or strips for three consecutive tests show complete inactivation of the spores shall define the minimum operating conditions for the autoclave. After determining the minimum temperature, pressure and residence time, the occupier or operator of a common biomedical waste treatment facility shall conduct this test once in three months and records in this regard shall be maintained.

(6) Routine Test: A chemical indicator strip or tape that changes colour when a certain temperature is reached can be used to verify that a specific temperature has been achieved. It may be necessary to use more than one strip over the waste package at different locations to ensure that the inner content of the package has been adequately autoclaved. The occupier or operator of a common bio medical waste treatment facility shall conduct this test during autoclaving of each batch and records in this regard shall be maintained.

(7) Spore testing: The autoclave should completely and consistently kill the approved biological indicator at the maximum design capacity of each autoclave unit. Biological indicator for autoclave shall be Geobacillusstearothermophilus spores using vials or spore Strips; with at least 1X106 spores. Under no circumstances will an autoclave have minimum operating parameters less than a residence time of 30 minutes, a temperature less than 121o C or a pressure less than 15 psi. The occupier or operator of a common bio medical waste treatment and disposal facility shall conduct this test at least once in every week and records in this regard shall be maintained.

4. STANDARDS OF MICROWAVING -

(1) Microwave treatment shall not be used for cytotoxic, hazardous or radioactive wastes, contaminated animal carcasses, body parts and large metal items.

(2) The microwave system shall comply with the efficacy test or routine tests and a performance guarantee may be provided by the supplier before operation of the limit.

(3) The microwave should completely and consistently kill the bacteria and other pathogenic organisms that are ensured by approved biological indicator at the maximum design capacity of each microwave unit. Biological indicators for microwave shall be Bacillus atrophaeusspores using vials or spore strips with at least 1 x 104sporesper detachable strip. The biological indicator shall be placed with waste and exposed to same conditions as the waste during a normal treatment cycle.

5. STANDARDS FOR DEEP BURIAL -

(1) A pit or trench should be dug about two meters deep. It should be half filled with waste, then covered with lime within 50 cm of the surface, before filling the rest of the pit with soil.

(2) It must be ensured that animals do not have any access to burial sites. Covers of galvanised iron or wire meshes may be used.

(3) On each occasion, when wastes are added to the pit, a layer of 10 cm of soil shall be added to cover the wastes.

(4) Burial must be performed under close and dedicated supervision.

(5) The deep burial site should be relatively impermeable and no shallow well should be close to the site.

(6) The pits should be distant from habitation, and located so as to ensure that no contamination occurs to surface water or ground water. The area should not be prone to flooding or erosion.

(7) The location of the deep burial site shall be authorised by the prescribed authority. (8) The institution shall maintain a record of all pits used for deep burial.

(9) The ground water table level should be a minimum of six meters below the lower level of deep burial pit.

6. STANDARDS FOR EFFICACY OF CHEMICAL DISINFECTION

Microbial inactivation efficacy is equated to “Log10 kill” which is defined as the difference between the logarithms of number of test microorganisms before and after chemical treatment. Chemical disinfection methods shall demonstrate a 4 Log10 reduction or greater for Bacillus Subtilis (ATCC 19659) in chemical treatment systems.

7. STANDARDS FOR DRY HEAT STERILIZATION

Waste sharps can be treated by dry heat sterilization at a temperature not less than 1850C, at least for a residence period of 150 minutes in each cycle, which sterilization period of 90 minutes. There should be automatic recording system to monitor operating parameters.

(i) Validation test for Sharps sterilization unit Waste sharps sterilization unit should completely and consistently kill the biological indicator GeobacillusStearothermophillus or Bacillus Atropheausspoers using vials with at least log10 6 spores per ml. The test shall be carried out once in three months

(ii) Routine test

A chemical indicator strip or tape that changes colour when a certain temperature is reached can be used to verify that a specific temperature has been achieved. It may be necessary to use more than one strip over the waste to ensure that the inner content of the sharps has been adequately disinfected. This test shall be performed once in week and records in this regard shall be maintained.

8. STANDARDS FOR LIQUID WASTE.-

(1) The effluent generated or treated from the premises of occupier or operator of a common bio medical waste treatment and disposal facility, before discharge into the sewer should conform to the following limits-

PARAMETERS	PERMISSIBLE LIMITS
pH	6.5-9.0
Suspended solids	100 mg/l
Oil and grease	10 mg/l
BOD	30 mg/l
COD	250 mg/l
Bio-assay test	90% survival of fish after 96 hours in 100% effluent.

(2) Sludge from Effluent Treatment Plant shall be given to common bio-medical waste treatment facility for incineration or to hazardous waste treatment, storage and disposal facility for disposal.

Schedule III

[See rule 6 and 9(3)]

List of Prescribed Authorities and the Corresponding Duties

Sl. No.	Authority	Corresponding Duties
(1)	(2)	(3)
2	Central or State Ministry of Health and Family Welfare, Central Ministry for Animal Husbandry and Veterinary or State Department of Animal Husbandry and Veterinary.	(i) Grant of license to health care facilities or nursing homes or veterinary establishments with a condition to obtain authorization from the prescribed authority for bio-medical waste management. (ii) Monitoring, Refusal or Cancellation of license for health care facilities or nursing homes or veterinary establishments for violations of conditions of authorization or provisions under these Rules. (iii) Publication of list of registered health care facilities with regard to bio-medical waste generation, treatment and disposal. (iv) Undertake or support operational research and assessment with reference to risks to environment and health due to bio-medical waste and previously unknown disposables and wastes from new types of equipment. (v) Coordinate with State Pollution Control Boards for organizing training programmes to staff of health care facilities and municipal workers on bio-medical waste. (vi) Constitution of Expert Committees at National or State level for overall review and promotion of clean or new technologies for bio-medical waste management. (vii) Organizing or Sponsoring of trainings for the regulatory authorities and health care facilities on bio- medical waste management related activities. (viii) Sponsoring of mass awareness campaigns in electronic media.

3	Ministry of Defence	(i)	Grant and renewal of authorization to Armed Forces health care facilities or common bio-medical waste treatment facilities (Rule 9).
		(ii)	Conduct training courses for authorities dealing with management of bio-medical wastes in Armed Forces health care facilities or treatment facilities in association with State Pollution Control Boards or Pollution Control Committees or Central Pollution Control Board or Ministry of Environment, Forest and Climate Change.
		(iii)	Publication of inventory of occupiers and bio-medical waste generation from Armed Forces health care facilities or occupiers.
		(iv)	Constitution of Advisory Committee for implementation of the rules.
		(v)	Review of management of bio-medical waste generation in the Armed Forces health care facilities through its Advisory Committee (Rule 11).
		(vi)	Submission of annual report to Central Pollution Control Board within the stipulated time period (Rule 13).
4	Central Pollution Control Board	(i)	Prepare Guidelines on bio-medical waste Management and submit to the Ministry of Environment, Forest and Climate Change.
		(ii)	Co-ordination of activities of State Pollution Control Boards or Pollution Control Committees on bio- medical waste.
		(iii)	Conduct training courses for authorities dealing with management of bio-medical waste.
		(iv)	Lay down standards for new technologies for treatment and disposal of bio-medical waste (Rule 7) and prescribe specifications for treatment and disposal of bio-medical wastes (Rule 7).
		(v)	Lay down Criteria for establishing common bio- medical waste treatment facilities in the Country.
		(vi)	Random inspection or monitoring of health care facilities and common bio-medical waste treatment facilities.
		(vii)	Review and analysis of data submitted by the State Pollution Control Boards on bio-medical waste and submission of compiled information in the form of annual report along with its observations to Ministry of Environment, Forest and Climate Change.
		(viii)	Inspection and monitoring of health care facilities operated by the Director General, Armed Forces Medical Services (Rule 9).
		(ix)	Undertake or support research or operational research regarding bio-medical waste.
5	State Government of Health or Union Territory Government or Administration	(i)	To ensure implementation of the rule in all health care facilities or occupiers.
		(ii)	Allocation of adequate funds to Government health care facilities for bio-medical waste management.
		(iii)	Procurement and allocation of treatment equipments and make provision for consumables for bio-medical waste management in Government health care facilities.
		(iv)	Constitute State or District Level Advisory Committees under the District Magistrate or Additional District Magistrate to oversee the bio- medical waste management in the Districts.
		(v)	Advise State Pollution Control Boards or Pollution Control Committees on implementation of these Rules.
		(vi)	Implementation of recommendations of the Advisory Committee in all the health care facilities.

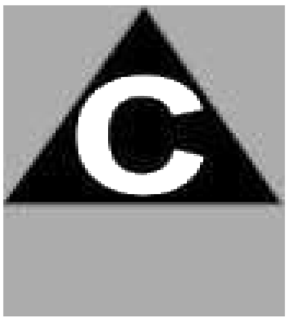
6	State Pollution Control Boards or Pollution Control Committees	(i) Inventorisation of Occupiers and data on bio-medical waste generation, treatment & disposal. (ii) Compilation of data and submission of the same in annual report to Central Pollution Control Board within the stipulated time period. (iii) Grant and renewal, suspension or refusal cancellation or of authorization under these rules (Rule 7, 8 and 10). (iv) Monitoring of compliance of various provisions and conditions of authorization. (v) Action against health care facilities or common bio- medical waste treatment facilities for violation of these rules (Rule 18). (vi) Organizing training programmes to staff of health care facilities and common bio-medical waste treatment facilities and State Pollution Control Boards or Pollution Control Committees Staff on Segregation, collection, storage, transportation, treatment and disposal of bio-medical wastes. (vii) Undertake or support research or operational research regarding bio-medical waste management. (viii) Any other function under these rules assigned by Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time. (ix) Implementation of recommendations of the Advisory Committee. (x) Publish the list of Registered or Authorised (or give consent) Recyclers. (xi) Undertake and support third party audits of the common bio-medical waste treatment facilities in their State.
7	Municipalities or Corporations, Urban Local Bodies and Gram Panchayats	(i) Provide or allocate suitable land for development of common bio-medical waste treatment facilities in their respective jurisdictions as per the guidelines of Central Pollution Control Board. (ii) Collect other solid waste (other than the bio-medical waste) from the health care facilities as per the Municipal Solid Waste (Management and handling) Rules, 2000 or as amended time to time. (iii) Any other function stipulated under these Rules

SCHEDULE IV

[See rule 8(3) and (5)] Part A

LABEL FOR BIO-MEDICAL WASTE CONTAINERS or BAGS

HANDLE WITH CARE



CYTOTOXIC HAZARD SYMBOL
HANDLE WITH CARE

Part B

LABEL FOR TRANSPORTING BIO-MEDICAL WASTE BAGS OR CONTAINERS

Day ..... Month .....
Year .....
Date of generation .....

Waste category Number .....
Waste quantity…….....

Sender's Name and Address:
Phone Number .....
Fax Number.....
Contact Person .....

Receiver's Name and Address:
Phone Number .....
Fax Number .....
Contact Person .....

In case of emergency please contact :
Name and Address :
Phone No.

Note :Label shall be non-washable and prominently visible.

FORM – I

[(See rule 4(o), 5(i) and 15 (2)]

ACCIDENT REPORTING

1. Date and time of accident :
2. Type of Accident :
3. Sequence of events leading to accident :
4. Has the Authority been informed immediately :
5. The type of waste involved in accident :
6. Assessment of the effects of the accidents on human health and the environment:
7. Emergency measures taken :
8. Steps taken to alleviate the effects of accidents :
9. Steps taken to prevent the recurrence of such an accident :
10. Does you facility has an Emergency Control policy? If yes give details:

Date : …… Signature …….

Place: …… Designation ……..

FORM - II

(See rule10)

APPLICATION FOR AUTHORISATION OR RENEWAL OF AUTHORISATION

(To be submitted by occupier of health care facility or common bio-medical waste treatment facility)

To

The Prescribed Authority
(Name of the State or UT Administration) Address.

1. Particulars of Applicant:
   (i) Name of the Applicant: (In block letters & in full)
   (ii) Name of the health care facility (HCF) or common bio-medical waste treatment facility (CBWTF) :
   (iii) Address for correspondence:
   (iv) Tele No., Fax No.:
   (v) Email:
   (vi) Website Address:

2. Activity for which authorisation is sought:

Activity	Please tick
Generation, segregation	
Collection,	
Storage	
Packaging	
Reception	
Transportation	
Treatment or processing or conversion	
Recycling	
Disposal or destruction use	
Offering for sale, transfer	
Any other form of handling	

3. Application for □ fresh or □ renewal of authorisation (please tick whatever is applicable):

(i) Applied for CTO/CTE Yes/No

(ii) In case of renewal previous authorisation number and date: .....

(iii) Status of Consents:

(a) under the Water (Prevention and Control of Pollution) Act, 1974: .....

(b) under the Air (Prevention and Control of Pollution) Act, 1981: .....

4. (i) Address of the health care facility (HCF) or common bio-medical waste treatment facility (CBWTF):

(ii) GPS coordinates of health care facility (HCF) or common bio-medical waste treatment facility (CBWTF):

5. Details of health care facility (HCF) or common bio-medical waste treatment facility (CBWTF):

(i) Number of beds of HCF:

(ii) Number of patients treated per month by HCF:

(iii) Number healthcare facilities covered by CBMWTF:

(iv) No of beds covered by CBMWTF:

(v) Installed treatment and disposal capacity of CBMWTF: Kg per day

(vi) Quantity of biomedical waste treated or disposed by CBMWTF: Kg/ day

(vii) Area or distance covered by CBMWTF:

(pl. attach map a map with GPS locations of CBMWTF and area of coverage)

(viii) Quantity of Biomedical waste handled, treated or disposed:

Category	Type of Waste	Quantity Generated or Collected, kg/day	Method of Treatment and Disposal (Refer Schedule- I)
(1)	(2)	(3)	(4)
Yellow	(a) Human Anatomical Waste:		
	(b)Animal Anatomical Waste :		
	(c) Soiled Waste:		
	(d) Expired or Discarded Medicines:		
	(e) Chemical Solid Waste:		
	(f) Chemical Liquid Waste :		
	(g) Discarded linen, mattresses, beddings contaminated with blood or body fluid.		
	(h) Microbiology, Biotechnology and other clinical laboratory waste:		
Red	Contaminated Waste (Recyclable)		
White (Translucent)	Waste sharps including Metals:		
Blue	Glassware:		
	Metallic Body Implants		

6. Brief description of arrangements for handling of biomedical waste (attach details):
   (i) Mode of transportation (if any) of bio-medical waste:
   (ii) Details of treatment equipment (please give details such as the number, type & capacity of each unit)

	No of units	Capacity of each unit
Incinerators :		
Plasma Pyrolysis:		
Autoclaves:		
Microwave:		
Hydroclave:		
Shredder:		
Needle tip cutter or destroyer		
Sharps encapsulation or concrete pit:		
Deep burial pits:		
Chemical disinfection:		
Any other treatment equipment:		

7. Contingency plan of common bio-medical waste treatment facility (CBWTF)(attach documents):
8. Details of directions or notices or legal actions if any during the period of earlier authorisation
9. Declaration

I do hereby declare that the statements made and information given above are true to the best of my knowledge and belief and that I have not concealed any information.

I do also hereby undertake to provide any further information sought by the prescribed authority in relation to these rules and to fulfill any conditions stipulated by the prescribed authority.

Date : Signature of the Applicant

Place : Designation of the Applicant

FORM –III

(See rule 10)

AUTHORISATION

(Authorisation for operating a facility for generation, collection, reception, treatment, storage, transport and disposal of biomedical wastes)

1. File number of authorisation and date of issue …….....…….

2. M/s _____ an occupier or operator of the facility located at _____ is hereby granted an authorisation for;

Activity	Please tick
Generation, segregation	
Collection	
Storage	
Packaging	
Reception	
Transportation	
Treatment or processing or conversion	
Recycling	
Disposal or destruction use	
offering for sale, transfer	
Any other form of handling	

3. M/s _____ is hereby authorized for handling of biomedical waste as per the capacity given below;

(i) Number of beds of HCF:

(ii) Number healthcare facilities covered by CBMWTF:

(iii) Installed treatment and disposal capacity: Kg per day

(iv) Area or distance covered by CBMWTF:

(v) Quantity of Biomedical waste handled, treated or disposed:

Type of Waste Category	Quantity permitted for Handling
Yellow	
Red	
White (Translucent)	
Blue	

3. This authorisation shall be in force for a period of ……. Years from the date of issue.

4. This authorisation is subject to the conditions stated below and to such other conditions as may be specified in the rules for the time being in force under the Environment (Protection) Act, 1986.

Date ……..…… Signature……..

Place: …… Designation ……..

Terms and conditions of authorisation:

1. The authorisation shall comply with the provisions of the Environment (Protection) Act, 1986 and the rules made there under.
2. The authorisation or its renewal shall be produced for inspection at the request of an officer authorised by the prescribed authority.
3. The person authorized shall not rent, lend, sell, transfer or otherwise transport the bio-medical wastes without obtaining prior permission of the prescribed authority.
4. Any unauthorised change in personnel, equipment or working conditions as mentioned in the application by the person authorised shall constitute a breach of his authorisation.
5. It is the duty of the authorised person to take prior permission of the prescribed authority to close down the facility and such other terms and conditions may be stipulated by the prescribed authority.

Form - IV

(See rule 13)

ANNUAL REPORT

[To be submitted to the prescribed authority on or before 30th June every year for the period from January to December of the preceding year, by the occupier of health care facility (HCF) or common bio-medical waste treatment facility (CBWTF)]

Sl. No.	Particulars		
1.	Particulars of the Occupier	:	
	(i) Name of the authorized person (occupier or operator of facility	:	
	(ii) Name of HCF or CBMWTF	:	
	(iii) Address for Correspondence	:	
	(iv) Address of Facility	:	
	(v) Tel. No./ Fax. No.	:	
	(vi) E-mail ID	:	
	(vii) URL of Website	:	
	(viii) GPS coordinates of HCF or CBMWTF	:	
	(ix) Ownership of HCF or CBMWTF	:	(State Government or Private or Semi Govt. or any other)
	(x) Status of Authorisation under the Bio-medical Waste (Management and Handling) Rules	:	Authorisation No.: ---------- valid up to ----------
	(xi) Status of Consents under Water Act and Air Act	:	Valid up to:
2.	Type of Health Care Facility	:	
	(i) Bedded Hospital	:	No. of Beds ……
	(ii) Non-bedded hospital (Clinic or Blood Bank or Clinical Laboratory or Research Institute or Veterinary Hospital or any other)	:	
	(iii) License number and its date of expiry	:	
3.	Details of CBMWTF	:	
	(i) Number healthcare facilities covered by CBMWTF	:	
	(ii) No. of beds covered by CBMWTF	:	
	(iii) Installed treatment and disposal capacity of CBMWTF	:	_____ Kg per day
	(iv) Quantity of biomedical waste treated or disposed by CBMWTF	:	_____ Kg per day

4.	Quantity of waste generated or disposed in Kg per annum (on monthly, average basis)	:	Yellow Category: Red Category: White: Blue Category: General Solid Waste:			
5.	Details of the Storage, treatment, transportation, processing and Disposal Facility					
	(i) Details of the on-site storage facility	:	Size: Capacity: Provision of on-site storage: (cold storage or any other provision)			
	(ii) Disposal facilities	:	Type of treatment equipment	No of units	Capacity Kg/ day	Quantity treated or disposed in Kg per annum
			Incinerators			
			Plasma Pyrolysis			
			Autoclaves			
			Microwave			
			Hydroclave			
			Shredder			
			Needle tip cutter or destroyer			
			Sharps encapsulation or concrete pit			
			Deep burial pits:			
			Chemical disinfection:			
			Any other treatment equipment:			

	(iii) Quantity of recyclable wastes sold to authorized recyclers after treatment in kg per annum.	:	Red Category (like plastic, glass etc.)		
	((iv) No of vehicles used for collection and transportation of biomedical waste	:			
	(v) Details of incineration ash and ETP sludge generated and disposed during the treatment of wastes in Kg per annum	:	Incineration Ash ETP Sludge	Quantity generated	Where disposed
	(vi) Name of the Common Bio-Medical Waste Treatment Facility Operator through which wastes are disposed of	:			
	(vii) List of member HCF not handed over bio-medical waste.	:			
6.	Do you have bio-medical waste management committee? If yes, attach minutes of the meetings held during the reporting period	:			
7.	Details trainings conducted on BMW	:			
	(i) Number of trainings conducted on BMW Management.	:			
	(iii) number of personnel trained at the time of induction.	:			
	(iv) number of personnel not undergone any training so far.	:			
	(v) whether standard manual for training is available?	:			
8.	Details of the accident occurred during the year	:			
	(i) Number of Accidents occurred	:			
	(ii) Number of the persons affected	:			
	(iii) Remedial Action taken (Please attach details if any)	:			
	(iv) Any Fatality occurred, details.	:			
9.	Are you meeting the standards of air pollution from the incinerator? How many times in last year could not met the standards? Details of Continuous online emission monitoring systems installed	:			
10.	Liquid waste generated and treatment methods in place. How many times you have not met the standards in a year?	:			
11.	Is the disinfection method or sterilization meeting the log 4 standards? How many times you have not met the standards in a year?	:			
12.	Any other relevant information	:	(Air Pollution Control Devices attached with the Incinerator)		

Certified that the above report is for the period from …….....

.....

Date: Place: Name and Signature of the Head of the Institution

FORM –V

(See rule 16)

Application for filing appeal against order passed by the prescribed authority

1. Name and address of the person applying for appeal:

2. Number, date of order and address of the authority which passed the order, against which appeal is being made (certified copy of order to be attached):

3. Ground on which the appeal is being made:

4. List of enclosures other than the order referred in para 2 against which appeal is being filed:

Signature …….....……..

Date :

Name and Address……..

[F. No. 3-1/2000-HSMD]

(Bishwanath Sinha)
Joint Secretary to the Government of India

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE NOTIFICATION

New Delhi, the 16th March, 2018

G.S.R. 234 (E).– In exercise of the powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (4) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby makes the following rules to amend the Bio-Medical Waste Management Rules, 2016, published in the Gazette of India, Extraordinary, vide G.S.R. 343(E), dated the 28th March, 2016, after having dispensed with the requirement of notice under clause (a) of sub-rule (3) of rule 5 of the said rules in public interest, namely:-

1. (1) These rules may be called the Bio-Medical Waste Management (Amendment) Rules, 2018.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Bio-Medical Waste Management Rules, 2016 (hereinafter referred to as the principal rules), in rule 2, in sub-rule (2),–

(i) In clause (c), for the words, brackets and figures “Municipal Solid Waste (Management and Handling) Rules, 2000”, the words and figures “Solid Waste Management Rules, 2016” shall be substituted;

(ii) In clause (e), for the words, brackets and figures “Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008”, the words, brackets and figures “Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016”, shall be substituted; and

(iii) In clause (f), for the words, brackets and figures “E-Waste (Management and Handling) Rules, 2011”, the words, brackets and figures “E-Waste (Management) Rules, 2016”, shall be substituted.

3. In the principal rules, in rule 4,–

(i) In clause (c), for the portion beginning with “or National and ending with final disposal”, the following shall be substituted, namely:–
“(c), guidelines on Safe management of wastes from health care activities and WHO Blue Book, 2014 and then sent to the Common bio-medical waste treatment facility for final disposal;”.

(ii) For clause (d), the following clause shall be substituted, namely:–
“(d) phase out use of chlorinated plastic bags (excluding blood bags) and gloves by the 27th March, 2019;”.

(iii) In clause (i), for the words “place for any purpose within one year from the date of the notification of these rules”, the words and figures “for the further treatment and disposal in accordance with the guidelines issued by the Central Pollution Control Board by 27th March, 2019” shall be substituted;

(iv) For clause (p), the following clause shall be substituted, namely:–
“(p) ,all the health care facilities (any number of beds) shall make available the annual report on its web-site within a period of two years from the date of publication of Bio-Medical Waste Management (Amendment) Rules, 2018;”.

4. In the principal rules, in rule (5), in clause (c), for the words “within one year”, the words, letters and figures “in accordance with the guidelines issued by the Central Pollution Control Board by 27th March, 2019” shall be substituted.

5. In the principal rules, in rule 7, in clause (8),–

(a) For the words “phase out use of non-chlorinated plastic bags”, the words “phase out use of chlorinated plastic bags” shall be substituted;

(b) For the words and figures “the Plastic Waste Management Rules, 2011”, the words and figures “the Plastic Waste Management Rules, 2016” shall be substituted.

6. In the principal rules, in rule 13, in sub-rule (2), for the words “Central Pollution Control Board on or before”, the words, figures, brackets and letter “Central Pollution Control Board in Form IVA before” shall be substituted.

7. In the Schedule I to the principal rules,–

(a) In the Table under part 1–

(i) against the category yellow,–

(A) In item (g) under column (2), after the words “body fluid”, the words “, routine mask and gown” shall be inserted;

(B) Against item (h), for the entry under column (3), the following entry shall be substituted, namely:- “Autoclave or Microwave or Hydroclave safe plastic bags or containers”;

(C) Against item (h), in the entry under column (4), for the portion beginning with “as per National AIDS Control Organisation”, and ending with “for incineration”, the following shall be substituted, namely:–
“as per World Health Organisation guidelines on Safe management of wastes from health care activities and WHO Blue Book, 2014 and thereafter sent for incineration”;

(ii) Against the category blue–

(A) Against item (a), for the entry under column (3), the following item shall be substituted, namely:– “(a) Puncture proof and leak proof boxes or containers with blue colored marking”;

(B) Against item (b) for the entry under column (3), the following item shall be substituted, namely:– “(b) Puncture proof and leak proof boxes or containers with blue colored marking”;

(iii) In the Note, for the word and figures “Schedule - III”, the word and figures “Schedule – II” shall be substituted;

(b) In Part – 2, in item (2), for the figures “10 %”, the figures “1% to 2%” shall be substituted;

8. In Schedule II to the principal rules,–

(i) In serial number 1, in the Table under Part B relating to “Emission Standards”, in column heading under (3), for the letters and figure “mgNm3” the letters and figure “mg/Nm3” shall be substituted;

(ii) in serial number 8, in item (1), the following Note shall be inserted, namely:– "Note–

1. Above limits are applicable to the occupiers of Health Care Facilities (bedded) which are either connected with sewerage network without terminal sewage treatment plant or not connected to public sewers.
2. For discharge into public sewers with terminal facilities, the general standards as notified under the Environment (Protection) Act, 1986 (29 of 1986) shall be applicable.
3 Health Care Facilities having less than ten beds shall have to install Sewage Treatment Plant by the 31st December, 2019.
4 Non-bedded occupiers shall dispose infectious liquid wastes only after treatment by disinfection as per Schedule – II (6) of the principal rules.".

9. In Schedule - III to the principal rules,–

(i) Against serial number 3, in item (i) under column (3), for the brackets, word and figure "(Rule 9)", the brackets, word and figure "(Rule 10)" shall be substituted;

(ii) Against serial number 4, in item (viii) under column (3), for the brackets, word and figure "(Rule 9)", the brackets, word and figure "(Rule 12)" shall be substituted.

10. In the principal rules, after Form IV, the following Form shall be inserted, namely:–

"Form IVA

[See rule 13(2)]

Format for Submission of the Annual Report Information on Bio-medical Waste Management (to be submitted by the State Pollution Control Boards or Pollution Control Committees and Director General Armed Forces Medical Services to Central Pollution Control Board on or before 31st July of every year for the period from January to December of the preceding calendar year)

Part-1 (Summary of Information)

(1) Name of the Organisation:

(2) Name of the Nodal Officer with contact telephone number and e-mail:

(3) Total no. of Health Care Facilities / Occupiers:

(i)	Bedded Hospitals and Nursing Homes (bedded)	:
(ii)	Clinics, dispensaries	:
(iii)	Veterinary institutions	:
(iv)	Animal houses	:
(v)	Pathological laboratories	:
(vi)	Blood banks	:
(vii)	Clinical establishment	:

(viii) Research Institutions :

(ix) AYUSH :

(4) Total no. of beds:

(5) Status of authorisation:

(i) Total number of Occupiers applied for authorisation :

(ii) Total number of Occupiers granted authorisation :

(iii) Total number of application under consideration :

(iv) Total number of applications rejected :

(v) Total number of Occupiers in operation without applying for authorisation :

(6) Quantity of Bio-medical Waste Generation (in kg/day): (please enclose District Wise Bio-medical Waste Generation as per Part-2)

(i) Bio-medical waste generation by bedded hospitals (in kg/day) :

(ii) Bio-medical waste generation by non-bedded hospitals (in kg/day) :

(iii) Any other :

Total : _____ Kg/day

(7) Bio-medical waste treatment and disposal:

(a) By Captive bio-medical waste treatment and disposal by Health Care Facilities (please enclose details as per Part-3)

(i) Number of Health Care Facilities having captive treatment and Disposal facilities:

(ii) Total bio-medical waste treated and disposed by captive treatment facilities in kg/day:

(b) Bio-medical waste treatment and disposal by Common Bio Medical Waste Treatment Facilities (please enclose details as per Part 4)

(i) Number of Common Bio Medical Waste Treatment Facilities in Operation:

(ii) Number of Common Bio Medical Waste Treatment Facilities under construction:

(iii) Total bio-medical waste treated in kg/day:

(iv) Total treated bio-medical waste disposed through authorised recyclers (in Kg/day) :

(8) Total no. of violation by :

(i) Health Care Facilities (bedded and non-bedded) :

(ii) Common Bio Medical Waste Treatment Facilities :

(iii) Others (please specify) :

(9) Show cause notices/directions issued to defaulters :

(i) Health Care Facilities (bedded and non-bedded) :

(ii) Common Bio Medical Waste Treatment Facilities :

(iii) Others :

(10) Any other relevant information:

(i) Number of workshops / trainings conducted during the year:

(ii) Number of occupiers installed liquid waste treatment facility:

(iii) Number of captive incinerators complying to the norms:

(iv) Number of occupiers organised trainings:

(v) Number of occupiers constituted Bio-medical Waste Management Committees:

(vi) Number of occupiers submitted Annual Report for the previous calendar year:

(vii) Number of occupiers practising pre-treatment of lab microbiology and Bio-technology waste:

(viii) Number of Common Bio Medical Waste Treatment Facilities that have installed Continuous Online Emission Monitoring Systems:

Part 2: District-wise Bio-medical Waste Generation (for the previous calendar year .....)

Sl. No.	Name of the State / Union Territory	Name of the District	Bio-medical Waste Generation (in Kg/day	Existing Total bio-medical waste treatment capacity (both captive and CBMWTF) in kg/day	
				Equipment	Total
				Incinerator:	
				Autoclave:	
				Deep	
				Burial:	
				Any other:	

Part 3: Information on Health Care Facilities having captive treatment facilities (for the previous calendar Year .....)

Sl. No.	Name and address of the Health Care Facility	Quantity of Bio-medical Waste Generation (in					Total Installed Treatment Capacity in kg/day				Total bio- medical waste treated and disposed by Health Care Facilities in kg/day	
		Yellow	Red	Blue	White	Total bio-medical waste generated (in kg/day)	Incinerator	Autoclave	Deep Burial	Any other		
											Incinerator: Autoclave: Deep Burial: Any other:	
											Total:	

Part 4: Information on Common Bio-Medical Waste Treatment and Disposal Facilities (for the previous calendar Year .....)

Sl. No.	Name and Address of the Common Bio Medical Waste Treat-ment Facilities with contact person name and telephone number	GPS Coordi-nates	Cover-age Area in KMS	Name of the cities/ areas covered by Common Bio-Medical Waste Treatment Facilities	Total number of Health Care Facilities being covered	Total number of beds covered	Total Quantity Of Bio-Medical Waste collected from member Health Care Facilities (in Kg/day)	Capacity of Treatmentequipment installed by CommonBio-Medical Waste Treatment Facilities Equipment			Total Bio-Medical waste treated in kg/day	Method of Disposal of treated wastes (Incineration Ash/Sharps/ Plastics)
								Equipment	Numbers	Total installed capacity (kg/day)		
								Incinerator Plasma Pyrolysis Autoclave Hydroclave Microwave Shredder Sharps en-capsulation or con-crete pit Deep burial pits Any other equipment Effluent Treatment Plant Sub-total				Incineration Ash: Quantity: Dis-posed by: Sharps: Quantity: Dis-posed by: Plastics: Quantity: Dis-posed by: ETP Sludge: Quantity: Dis-posed by:

(a) Total Number of transportation vehicles used for collection of Bio-medical Waste on daily

(b) basis by the Common Bio-Medical Waste Treatment Facilities:

(c) List of Health Care Facilities not having membership with the Common Bio-Medical Waste Treatment Facilities and neither having captive treatment facilities:

(d) Number of trainings organised by the Common Bio-Medical Waste Treatment Facility operators:

(e) Number of Accidents reported by the Common Bio Medical Waste Treatment Facilities:".

[F. No. 3-1/2000-HSMD]
RITESH KUMAR SINGH, Jt. Secy.

Note: The principal rules were published in the Gazette of India, Extraordinary, PART II–Section 3–Sub-section (i), vide G.S.R. 343(E), dated the 28th March, 2016.

NOTE

The Nagaland Health Project is a World Bank aided project under the Department of Health & Family Welfare, Nagaland.

For more information contact us at:

The Nagaland Health Project
Directorate of Health & Family Welfare,
Rüziezou,
Kohima - 797 001
Nagaland, India.

email: nmhp.wb@gmail.com
phone # 0370-2270044