Revised National Tuberculosis Control Programme

ENVIRONMENT ASSESSMENT and Biomedical Waste Management (BMWM) Plan

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ENVIRONMENTAL ASSESSMENT REPORT

Introduction

Biomedical Waste Management (BMWM) is a priority for all federal and state health programs within the Indian health system infrastructure. Bio-medical waste refers to all wastes generated from healthcare and health research facilities and associated laboratories. While most of this is communal waste, a small percentage can be deemed infectious and/or hazardous. These include infected sharps and wastes with infectious, hazardous, radioactive, or genotoxic characteristics, which if inadequately treated and managed can have adverse impact on the environment and on public health through air, land and water pollution. Therefore institutionalizing effective waste management systems in all healthcare facilities is a key prerequisite to improving efficiency and effectiveness of healthcare.

The regulatory framework for environmental management in the health sector in India is provided by the Bio-Medical Rules (prepared in 1998; amended in 2000 and 2003), which apply to all persons/ institutions generating and/or handling healthcare waste in any form. The Rules define bio-medical waste as "any waste which is generated during diagnosis, treatment or immunization of human beings or animals, or in research activities or in the production or testing of biological and including categories mentioned in schedule-I of the rules". The Rules, besides identifying the various waste categories, also recommend treatment and disposal methods and the standards to be laid down for the same.

In 2007 National Rural Health Mission (NRHM) under MOHFW developed an Infection Management and Environment Plan (IMEP) which defines a framework for implementation of infection control and waste management in healthcare facilities. The IMEP contains a Policy Framework as well as the operational guidelines for Sub Centre (SC), Primary Health Centre (PHC) and Community Health centre (CHC) to manage infectious waste in a hygienic, safe and environmentally sound manner.

Health Care Waste Management (HCWM) under RNTCP

The first phase of The Revised National Tuberculosis Control Program (RNTCP), aimed at ensuring the expansion of quality DOTS services across the country. Currently, the program in its second phase and with the World Bank support is targeting universal access to quality diagnostics and treatment by consolidating RNTCP services and reaching special groups with quality service provision. The National Strategic plan of RNTCP for 2012-17 aims to 'Universal access to quality diagnosis and treatment of all form of Tuberculosis'. The RNTCP, as an integral part of the NRHM and a part of India's general health system is committed to the implementation of the Biomedical Waste Management Rules and the IMEP. Since RNTCP is a program that operates within the general health system alongside other programs, waste management too, is an integrated effort that extends throughout the health system and must therefore be viewed as a concerted effort across a variety of programs, and not simply in isolation. .

The main types of waste generated through RNTCP include human/biological waste (sputum), sharps (needles, glass slides etc.), blister packs and packaging material, plastic

residual (disposable syringes, cups, glasses etc), laboratory and general waste and, construction waste.

The Central TB Division (CTD) had developed an Environmental and Bio- medical Waste Management (BMWM) Plan for RNTCP II in May 2005. These were in line with the IMEP operational guidelines and policy framework but more specific to RNTCP. The BMWM Plan included specific activities and time lines. Since 2005, the following progress has been made in the area of Environment Management:

1) Training modules for Medical Officers and Laboratory Technicians have been revised with the support of WHO.

2) Training of all cadres of health staff using a Training of Trainers approach has been implemented. This remains an ongoing activity with qualified State professionals who train district level health cadres, who in turn train health staff at the health facility levels.

3) Procurement of supplies and consumables for labs, (sputum cups and plastic bags) has been initiated and is an ongoing process, with appropriate revisions being undertaken as required.

4) Construction of labs and sputum collection centres has been in full compliance with the RNTCP guidelines. For any new centres being established, a team headed by the State Tuberculosis Officer reviews compliance with requisite RNTCP guidelines and provides approvals.

5) CTD has prioritized Hepatitis B vaccination for all health staff and regularly encourages states to comply with this requirement.

6) Standard precautions for RNTCP workers implementing the program are routinely disseminated.

7) A system for recording and monitoring of waste disposal was initiated in October 2006, and has been continued since.

8) Review visits by officials from the program also prioritize health care waste management practices.

Monitoring under RNTCP

Bio-medical Waste Management (BMWM) practices are reviewed and monitored during various Common Review Missions (CRM) of NRHM. RNTCP also monitors this through its Joint Monitoring Missions (JMM), Central Internal Evaluations (CIE) as well as during routine field visit. Additionally evaluations undertaken by state health systems projects have also documented the practices of IMEP under RNTCP. A separate document on the finding of these evaluations has been prepared and submitted along with this assessment report.

Environment Assessment 2012

CTD has sought extension of current World Bank Project (additional financing) for another two years .As per the World Bank's Safeguard Policies an assessment has been undertaken to assess and review implementation of the environmental management aspects of the RNTCP. The assessment was done on a sample survey of 40 centers where the RNTCP is implemented in 10 districts, one of which was a tribal one.

Major Findings:

- Average inflow of patients in RNTCP centres were 40-45 /day. The biomedical waste generated in RNTCP centres was approx. 32-35 kg /day.

- **Institutional Set Up:** 59% of the assessed institutions have Bio-Medical Waste Management Monitoring Committee (BMWMC) in place which has an average of 3-5 members. In 70% of the places where BMWMC is in place, meetings are conducted in every month. In rest of the places meetings are not conducted because of lack of guidance. Jharkhand was the only state found during the assessment having no BMWMC in any of the centres.

- More than 50 % of the assessed institutions have signed agreements with Common treatment facilities (CTF). Jharkhand was the only state where no agreement has been made with CTF because institution was never informed about that. This means that state has not issued any guidance to facilities regarding this. 85% of the facilities have either approval from State Pollution Control Board (SPCB) or they have applied from SPCC.

- **Knowledge Attitude & Practice (KAP) and Training of RNTCP staff:** A total of 2327 staffs were working in these centres of these 1335 were trained on Bio Medical Waste Management (BMWM). In Jharkhand none of the staff was found trained. Over 90 % of the centres informed reported that knowledge attitude and practice of RNTCP staffs on BMWM are good. Couple of centres in Delhi and Andhra Pradesh, KAP of all the cadres of staff was found average. The cadres of staffs that were trained on were Doctors, Staff Nurses, Pharmacist, Lab Technician and Institution Worker and Sanitary worker.

- **Supply of Materials**: In more than 50% of the places supply of same colour of bins and bags are adequate. Andhra Pradesh and Jharkhand have reported inadequate supply of these. All the surveyed centres have positioned these bags and bins in strategic locations. At 65% place needle destroyers were in place. In over 70% of centres, Bags, Aprons, Masks and Gloves were found in adequate numbers. Shortages of these were found in some centres of Jharkhand, Andhra Pradesh and one centre of Delhi. Only 40 % of centres have been supplied with trolley of BMWM. Similarly less than 40 % of institutions have a store room for the storage of material.

- **Planning and Recording:** Under RNTCP facilities need to maintain three types of Registers - and nodal person has to maintain triplicate copy of the form given by CTF. Apart from that stick Injury registers are also needs to be facility. Register 1

and Register 2 are maintained at 50% of the centres surveyed; while Register 4 is being maintained at only 37.5% centres. Triplicate copy of the form submitted by CTF is only maintained at 15% of centres. Around 65-79% of the facilities have sanitation plan and Bin Plans. Work plan for the lifting of waste is prepared at only 50% of the facilities. PEP facilities were available only at only 16% . But 100% of facilities reported that they have contingency plan for PEP. This is generally tied up with the nearest ART centres.

- **Training** has been undertaken and BMW training materials and reports are available at hospitals and facilities.

- **Collection of Wastes**: Only 40% of facilities reported that wastes are collected on daily basis while the rest reported that wastes are collected on alternate day basis. Centres from Delhi reported that they have outsourced the collection of waste to CTF which collects waste on alternate day from facility.

- **Financial Management**: Very few facilities-about 29% - reported that the facility in charge receives cheques regularly. This is the reason the payment to CTF is very low. Some facilities reported CTF also does not submit bills regularly. This is due to delay fund received by District Health Society.

- **Information Education and Communication**: 65% of the facilities reported that they have been supplied with IEC materials related to IMEP and 100% of these have displayed these at different places.

Conclusions:

- All RNTCP centres are currently practicing Bio-medical waste management.
- Facilities are aware about practices among other programs such as HIV, RCH, NRHM and general health services.
- It seems that there is lack of guidance from state to districts regarding the institutions to be set up for BMWM.
- Although colour bins and bags are in most of the places but they are not of accurate colour.
- States need to be encouraged to undertake proper placement for labs, sputum collection centres and disposal areas as per CTD guidelines for civil works under RNTCP.
- Fund release and payments related to BMWM from facility to CTF are very weak across all centres.

The revised BMWM Plan under RNTCP as proposed below, is based on the observations made by the consultants during site visits, discussion with healthcare professionals and stakeholders, review of documents , findings from Joint Inspection Review missions of RNTCP II . The achievements and challenges that have emerged in that process and areas that require attention were identified were taken into consideration while developing the revised BMWM plan. To have a long-lasting impact on environment and safety, waste management has to evolve as a sustainable programme and hence cannot exist as an independent activity under RNTCP. The following revised action Plan for BMWM incorporates the recommendations made from the findings of the assessment study

S. No.	**Action Points**	**Time Frame**
1.	Revision of the Biomedical waste management (BMWM) plan in line with the latest BioMed Rules. Air borne Infection Control guideline developed by CTD to be included in revised BMWM Plan	As and when MoEF promulgates these Rules December 2012
2.	Training implementation - Updating training modules of existing trained staff as per new Rules - First modular training for new staff at CTD, District, TU and Laboratory levels	 as and when April – June 2013
3.	Set up a core committee for BMWM at CTD - Designate a Senior level official at CTD to review the BMWM reports received from various States through reports and give feedback - CTD to develop and disseminate TORs for BMWMCs - Request states to activate (BMWMC where dysfunctional; - Request states to establish new BMWMC in states where not existing; - CTD to request State TB Officer – State TB Cell (STO-STC) to designate 2 persons for BMW planning and implementation	December 2012
4.	CTD to share updated specifications for consumables(e.g. sputum cups) with program units - Plastic bags to be added to the list. Specification of the poly-bags as per the study report. State will used the NRHM core budget line from annual PIP to procure materials as per need.	On-going October 2012 Annual budget to be included state PIP
5.	Monitor implementation and adoption of standard precautions by RNTCP workers during monthly Central Internal Evaluation and routine monitoring visits	On-going
6.	CTD to ensure implementation of BMWM Plans are integrated with General Health Systems	On-going
7.	CTD to revise existing reporting format to include reporting on HCWM CTD to share the recording format with all states and districts for use CTD to review data from reporting formats and develop performance reports	end July 2012 August 2012 Six monthly basis
8.	All healthcare workers shall be encouraged to get immunized for Hepatitis B.	On-going
9.	CTD to encourage states to follow guideline for civil works under RNTCP with regard to placements for labs, sputum collection centres and disposal areas, and integrated with the existing health facility.	Reminders to states will be sent by CTD on quarterly basis and verified during

	• CTD will provide no objection certificate to facility for setting up the Laboratories.	field visits
10.	Strengthen implementation BMWM implementation in tribal areas through dissemination of the BMWM Plan and RNTCP and IMEP guidelines and followed by exhaustive monitoring and supervision	August 2012 onwards and on going
11.	CTD will liase with NRHM and inform health care facilities about contractual arrangements with CTFs and pending payments for BMWM activities.	October 2012
12.	Final Report of the End line assessment of HCWM under RNTCP will be submitted to Bank	One month before the closure of project

Key stakeholders for the implementation and management of BMWM

Levels	Key Stakeholders
National	NRHM and all other programs under it, National Reference Laboratory, National Tuberculosis Institute, Technical Support Group (TSG)
State	NRHM, Hospitals, Intermediate Reference Laboratories, State AIDS Control Society, Public Private Interface Agency (PPIA)
District	Common treatment facilities (CTF), NGO, District Health Societies, District AIDS Prevention and Control Society (DAPCUs)

Monitoring Mechanism

Monitoring of BMWM will be done by CRM, JMM, and JRM. Apart from that routine monitoring will be done through CIE and through regular field visits. Besides that institutions set at central and state level will monitor this on regular basis.

Financial Implications:

Since RNTCTP is a part of general health system so the implementation of the BMWM Plan is the responsibility of each health facility under the public health system. Untied funds available under the NRHM program are expected to be utilized for implementation and procurement of consumables and supplies. For the purpose of Monitoring and evaluation of all activities by CTD including BMWM, appropriate budget has been allocated under the project.

Annex I

Objectives of the Environment Assessment Study

a. To understand the basic infection control and Biomedical waste management practices at different levels in RNTCP and assess the current situation.

b. To understand the Knowledge, Attitude and Practice of the RNTCP on infection control and waste management.

c. Develop Infection Control and Biomedical W aste Management plan for the Revised National Tuberculosis Control Program (TB II), broadly across states, districts and sub districts including health and safety measures for health personnel

d. Identify the constraints and bottlenecks in the implementation of HCWM including receiving authorization from the RPCB, as are required under the Bio Medical Rules.

Approach

In order to accomplish the said objectives and following the scope of work envisaged in the TOR, a process flow was adopted as follows:

- Preparatory work--Selection of States and districts
- Communication to and with District Project Coordinators(DPC) / CMHO/ Field officers
- Desk review
- Protocol development
- Data Collection
- Data entry
- Data analysis & interpretation
- Report writing

Methodology:

Under this assessment 5 states were selected. One each from East West, North and South. In each state 2 districts were selected for this assessment. And from each districts 4 RNTCP health facility were surveyed. These facilities range from Designated microscopy centre (DMC), Tuberculosis Unit (TU), District TB Centre DTC), PMDT centres and Intermediate Reference Laboratory. Under this a total of 40 centres were covered to measure the practices of Infection Control and Waste Management. The List of states and districts covered under this assessment are following:

#	State	Districts/ Facility	Total no. of facilities to be covered
1	Delhi	Lok Nayak Chest Clinic	4
		Gulabi Bagh Chest Clinic	4

2	Jammu & Kashmir	Jammu	4
		Srinagar	4
3	Rajasthan	Bikaner	4
		Tonk	4
4	Jharkhand	Ranchi	4
		Dhanbad	4
5	Andhra Pradesh	Hyderabad	4
		Vishakhapatnam	4
	Total	10	40

Survey methods: Survey was carried out by the investigators through personal interviews and interaction with staff present at the centre. A Pre tested questionnaire was used as survey tool. The questionnaire is placed at Annex 2. The participants in the study were asked to fill this questionnaire. The contents of the questionnaire were told to the participants (healthcare worker in RNTCP) in the local language if needed with the help of the officers working in the respective places accordingly.

The team also assessed the infection control measures and biomedical waste management with the help of observational checklist.

Desk Review:

The investigators and the report writer reviewed the following manuals as a part desk review of assessment:

1. Environment and Bio Medical Waste Management Plan for RNTCP II.
2. Guideline for the Air Borne Infection Control Infection Control in Health Care and other settings- April 2010.
3. Manual for Laboratory Technicians (September 1997) prepared by CTD, GOI.
4. The biomedical waste (management and handling) rules 1998, amended 2011.
6. Infection Management and Environment Plan (IMEP) Policy Framework,
7. IMEP guidelines for PHC, CHC and Sub centres.

ANNEX II

Central TB Division
Revised National Tuberculosis Control Program
Bio Medical Waste Management
Inspection format

1. Name and Designation of the Inspection Officer:

2. Date of Inspection:

3. Name of the Health Care Institution Inspected:

DMC/TU/DTC/MDR-TB ward/IRL

4. Name of the Head of the Institution or Institution:

5. Name of the Institution Infection Control Officer

General

6.	Who is in-charge of Bio Medical Waste Management in this facility?	
7.	Whether the Bio Medical Waste Management Monitoring	
	a. If yes, List the members	
	b. If not, Reasons	
8.	Whether authorization to State Pollution Control Board	
	if yes, when ? (date)	
	if no, why?	
9.	Whether authorization from State Pollution Control Board (SPCB) has been obtained?	
	if yes, when ? (date) (Copy to be enclosed)	
10.	Whether MoU with the Common Treatment Facilities (CTF) has been signed?	
	a. if yes, name of the CTF and address	
	b. If not, Reasons	
11.	Whether the training has been completed to all Institution staff?	
	a. Total no of Institution staff at present	

	b. Total no of staff trained in Bio Medical Waste Management (BMWM)	
	c. Total no staff untrained	
12.	Whether the Bio Medical Waste Management Monitoring Committee is being convened every month?	
	If yes, the dates in which it was convened.	
	If not, Reasons	
13.	Whether the Bio Medical Waste Management issues have been included as a part of agenda in the Quality Circle meetings convened?	
	If yes, the issues of the recent meeting	
	If not, Reasons	
14.	Data about the Institution / Institution	
	a. Total no of inpatient registered during the **Previous Month** (from the date of inspection)	
	b. Total no of outpatient registered during **the Previous Month** (from the date of inspection)	

Segregation and Collection

15.	Whether the supply of Color Bins and Color bags are adequate?	
16.	Whether the color bins placed in all strategic locations in the Institutions?	
17.	Whether the color bins lined with same color bags?	
	If not Reasons	
18.	Are the Needle destroyers in use?	
	If not, Reasons	
19.	Do the staff nurses records the weight of Bio Medical Waste lifted by sanitary worker / Institution Worker each day, in her register – 1.	
20.	Are all the consumables such as	
	a. color bags adequate	
	b. apron adequate	
	c. gloves adequate	
	d. masks adequate	
21.	Does the Institution have the bin plan **?	
22.	Does the Institution have the sanitation plan***?	

** Bin plan– schematic representation of the placement of color bins in wards andop.
*** Sanitation plan– a plan to show the work schedule and frequency for cleaning activities within and outside the Institution

Transportation

23.	Is there a trolley supplied for Bio Medical Waste Management?	
24.	Does the Institution have an identified Bio Medical Waste Management storage room / place?	
	If not, reasons	
25.	Does each sanitary worker / Institution worker have a work plan for lifting the Bio Medical Waste from all the facility?	

Records and Maintenance

26.	Do the staff record the weight of lifted Bio Medical Waste in a register-1 maintained in a facility?	
	If not, Reasons	
27.	Do the sanitary workers record the weight of lifted Bio Medical Waste in a register – 2 maintained with them?	
	If not, reasons	
28.	Do the nodal person in charge of Bio Medical Waste Management storage room / place records the total weight of Bio Medical Waste handed over to the Common treatment facility (CTF) in register 4?	
29.	Does the nodal person in charge of Bio Medical Waste Management storage room / place documents the triplicate copy of receipt given by CTF?	
30.	What is the total weight bio medical waste handed over to the CTF as per Form 1 BMWM from for last 3 months till date of inspection?	

Occupation Safety

31.	Are Needle stick injury registers maintained in the facility?	
32.	Is the Post Exposure Prophylaxis (PEP) available in this Institution?	
33.	What is the contingency plan for PEP drugs if not available in this Institution?	

Common Treatment Facility

34.	Whether the CTF is collecting the waste daily from the Institution?	
	If not, the frequency of collection	
35.	Does the Facility in charge receive the cheque for CTF payment? If not then who receives the cheque?	
36.	Has the facility in charge cleared the bills submitted by the CTF as per the protocol issued by State Government?	
	a. amount allotted for 1st quarter b. amount allotted for 2nd quarter c. amount allotted for 3rd quarter d. amount allotted for 4th quarter e. expenditure incurred till the date of inspection f. balance amount unspent	

Information, Education and Communication

37.	Whether the IEC materials have been supplied to the individual facilities?	
38.	Whether the IEC materials displayed at the strategic locations?	

Knowledge, Attitude and Practice

Category	**Knowledge**			**Attitude**			**Practice**		
	good	average	below average	good	average	below average	good	Average	below average
1.Doctors									
2.Staff Nurses									
3.Lab Technician									
4.Pharmacist									
5.Institution Worker									
6.Sanitary Worker									