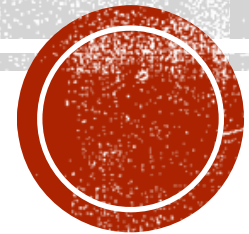


BIOMEDICAL WASTE MANAGEMENT :

AN AIIMS CASE STUDY



-Dr. (Maj) P.Kumar

**Assistant Professor, Department of Hospital Administration &
Nodal Officer, Bio Medical Waste Management, AIIMS**

BIO -MEDICAL WASTE MANAGEMENT- **SEGRAGATION**

Human anatomical
waste,
Chemo drugs
Soiled waste
Expired or Discarded
Medicines, soiled linen



Contaminated Plastic
Waste (Recyclable)



Waste sharps
including Metals



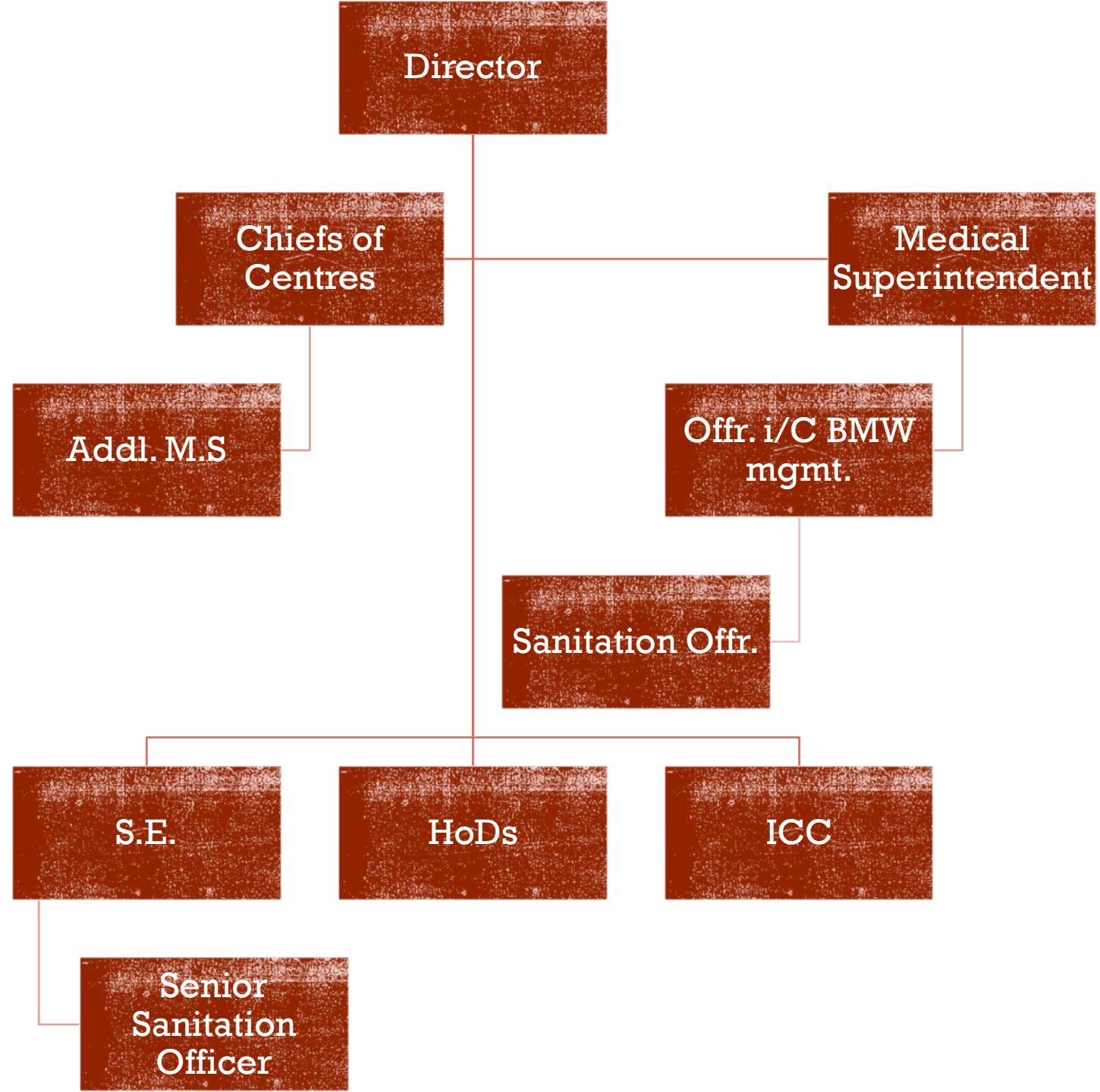
Glassware:
Broken or discarded
and
contaminated glass
including medicine
vials
and ampoules



BMW MGMT AT AIIMS: UNIQUE FEATURES

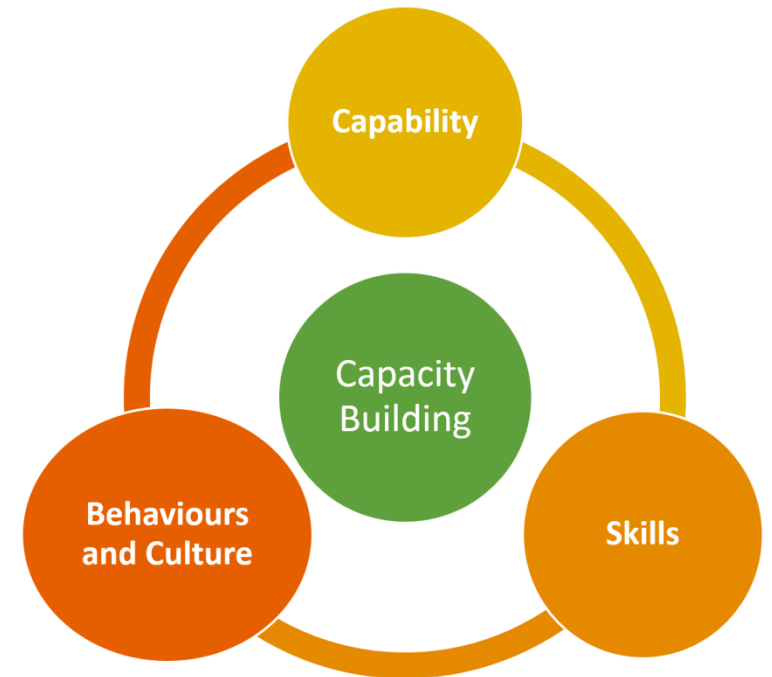
- Organograms: Complex reporting channels
- Large tertiary care hospital: 7 centres, 2352 beds, 12000 staff
- Model of Outsourcing
- Deptt of Hospital Admn. & its Role
- ICN and their role
- The colour shift: Blue is gone, red is on!
- On site treatment of laboratory wastes: nearly 100 labs





CAPACITY BUILDING AT AIIMS

1. Infrastructure
2. Policy/system
3. Financial capacity building
4. Stakeholder involvement
5. procurement
6. Human resource development
 1. Technical capacity
 2. Managerial capacity
7. Behavior & culture



INFRASTRUCTURE



- Sewage Treatment Plant/ Effluent Treatment Plant
- Chemical Liquid waste: *Separate Collection system to ETP: Easier for new hospitals*
- Ward based Sluice rooms
- Waste to Power/ use systems
- Laboratories/ Blood Banks: Centralised or decentralised Autoclaves or Microwaves
- Temporary storage facility for yellow and red wastes.
- Trolley washing area



STP & ETP: THE CRUCIBLES

Aeration tanks being inspected kaya kalp



Sludge cakes



STP



POLICIES & PROCESSES

Bio medical waste Management Cell established with roles, interalia:-

- Online Registration and renewal of BMW reg. and linkages with Consent Under Water (Prevention & Control of Pollution) Act 1974, Air (Prevention & Control of Pollution) Act 1981 and Authorisation under the BMW Rules
- Prepare and implement Bio medical waste management manual
- Co-ord. the roll out of the new Bio medical Waste Management Rules 2016
- Monitoring and coord. of training programs
- Policies regarding cytotoxic, recyclable and lab wastes
- Policy regarding phasing out of plastic bags for bio medical waste collection
- Needle stick injury policy
- Maintenance of website and records



FINANCIAL CAPACITY BUILDING

- Likely to cause a 2- 3 fold increase on expenditure on Bio medical waste mgmt.
- Infrastructural changes
- Open tender/RC: Autoclaves / Microwaves, Bar coded bags/ solutions , Bins of various sizes, Puncture proof containers for sharps, Card board boxes for glassware
- Training programmes
- IEC including special activities and drives
- Immunisation, NSI etc
- Solutions :
 1. Non- plan to plan budget
 2. MoHFW through NHSRC
 3. Kaya Kalp
 4. Swatchta action Plan



STAKEHOLDER INVOLVEMENT

INSTITUTIONAL

- Hosp Admn.
- HICC
- Engineering
- Microbiology Deptt.
- Blood Bank
- Lab services
- Sanitation



GOVT. AGENCIES

- NGT
- CPCB
- DPCC
- Committees constituted



INDUSTRY

- Authorised BMW vendor
- consignments vendors
- Newer tech.
- CBMWTF operators
- Recyclers



PROCUREMENT

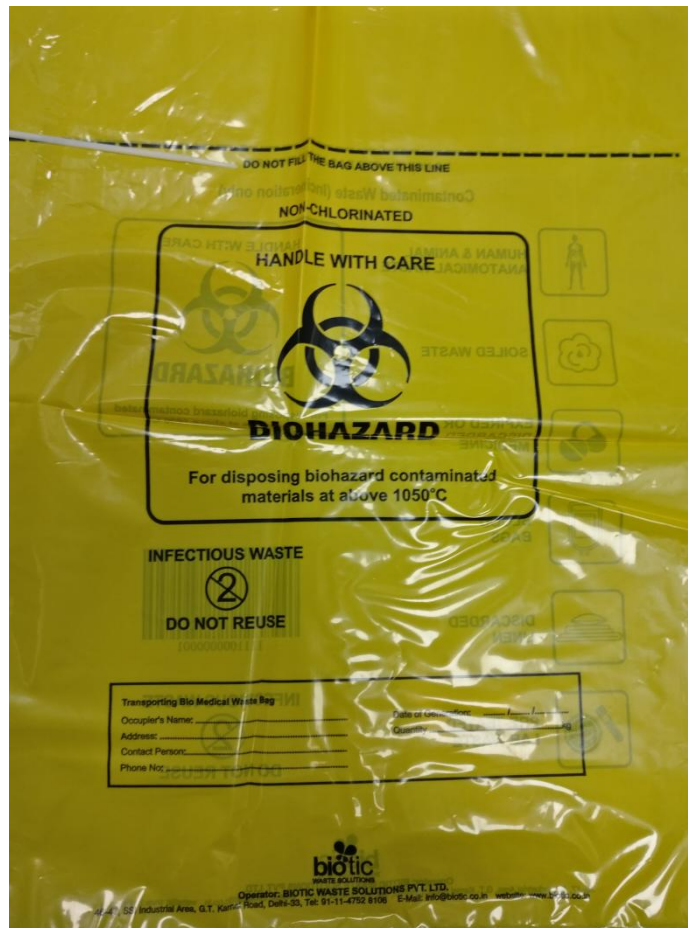


PROCUREMENT

- Open tender: Clear T&C and Penalty clauses
- Appropriate items
- Trolleys
- Hospitals with no access to CBWTF: Self reliance



BAR CODED BAGS



PROCUREMENT (CONTD)

- Timing is essential for single phase roll out
- Autoclaves or Microwaves are important for labs: Space, manpower , post treatment transportation
- Liquid waste disposal
- Condemnation of obsolete equipment



LAB WASTE: A VEXING QUESTION

- A chemical disinfectant approved by NACO or WHO?
- Chemical disinfectant effluents thereof, Safety issues
- Blood bags disinfection
- Autoclaves and infrastructural requirement.
- 6 Centres , 140 labs, centralise or decentralise?
- Microwave: Location and process flow.
- RC through DGS&D an advantage



ANNUAL & MONTHLY REPORTS

From -IV
(See rule 13)
ANNUAL REPORT/MONTHLY REPORT

Sl.No	Particulars		
1.	Particulars of the Occupier	:	
	(i) Name of the authorized person (occupier or operator of facility)	:	Director AIIMS Prof. Randeep Guleria
	(ii) Name of HCF or CBMWTF	:	All India Institute of Medical Sciences (AIIMS)
	(iii) Address for Correspondence	:	AIIMS, Ansari Nagar, New Delhi-110029
	(IV)Address of Facility	:	Same as above
	(v)Tel. No. Fax, No.	:	26594800
	(VI) E-mail ID	:	director.aiims@gmail.com
	(VII)URL of Website	:	aiims.edu
	(VIII)GPS coordinates of HCF of CBMWTF	:	
	(IX)Ownership of HCF of CBMWTF	:	Autonomous Organization
	(X)Status of Authorization under the Bio-Medical Waste (Management and Handling) Rules.	:	Authorization No DPCC/BMW/AUTH/NEW NO/2015/01511 Applied for fresh authorization wide authorization request no. DPCC/BMW/AuthorisationRequest/2017/8955
	(XI)Status of Consents under Water Act and Air Act, Valid up to:	:	Under process wide request no. DPCC/NMW/ORANGE/2017/55983
2.	Type of Health Care Facility	:	
	(i) Bedded Hospital	:	No. of Beds: 2362
	(ii) Non-Bedded Hospital (Clinic or Blood Bank or Clinical Laboratory or Research Institute or Veterinary Hospital or any other)	:	N.A.
	(iii) License number and its date of expiry.	:	N.A.
3.	Details if CBMWTF	:	
	(i) Number healthcare facilities covered by CBMWTF	:	N.A.
	(ii) No. of beds covered by CBMWTF	:	N.A.
	(iii) Installed treatment and disposal capacity of CBMWTF	:	N.A.
	(iv) Quantity of biomedical waste treated or disposal by CBMWTF	:	N.A.
4.	Quantity of waste generated or disposed in Kg per annum (on monthly average basis)	:	Yellow category: 29253kg/month Red Category:21622kg/month White: 1664 kg/month Blue Category:22301 kg/month General Solid waste 210000 kg/month
5.	Details of the Storage , treatment, transportation, processing and Disposal Facility: Handled by CBMWTF	:	
	(i) Details of the on-site storage facility	:	Size : (99X6.5X9)X2 Capacity: 250 KG Provision of on-site storage : (cold storage or any other provision)



RENEWAL LINKED TO CONSENT UNDER AIR & WATER ACT

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 Member Secretary,
Delhi Pollution Control Committee,
4th Floor, I.S.B.T. Building,
Kashmere Gate, Delhi-110006.

1. Particulars of Applicant:

(i) Name of the Applicant: (In block letters & in full)

(ii) Name of the health care facility (HCF) or
All India Institute of Medical Sciences
Ansari Nagar, New Delhi - 110029
Common bio-medical waste treatment facility
(CBWTF):
M/s Biotic Solution 46SSI Industrial Area,
G.T.K. Karnal Road, Delhi-110033

(iii) Address for correspondence: _____

(iv) Mobile No: 9868397701

(v) Tele No., Fax No.: 01126594800, 26589772 Fax-91-1126588663

(vi) Email: director.aiims@gmail.com, director@aiims.ac.in

(vii) Website Address: www.aiims.edu/en.html

2. Activity for which authorisation is sought:

Activity please tick	
Generation, Segregation	Yes
Collection,	Yes, Outsourced
Storage	Yes, within facility
Packaging	Outsourced
Reception	Outsourced
Transportation	Outsourced
Treatment or Processing or Conversion	Outsourced
Recycling	Outsourced
Disposal or Destruction use	} NA
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:



DELHI POLLUTION CONTROL COMMITTEE
4th FLOOR, ISBT BUILDING, KASHMERE GATE, DELHI-06
Visit us at : <http://www.dpcc.delhigovt.nic.in/indexdup.php>

FORM NO.: _____
Received by _____
Date of Issue _____

Common Application for Consent
Under Water (Prevention and Control of Pollution) Act, 1974 and Under
Air (Prevention and Control of Pollution) Act, 1981, as amended



From :

M/s _____

Dated :

To,

The Member Secretary,
Delhi Pollution Control Committee,
4th Floor, I.S.B.T. Building,
Kashmere Gate, Delhi - 110006.

Sir/Madam,

I/we hereby apply for *

- (i) Consent to Establish/Operate/Renewal of Consent under section 25 and 26 of the Water (Prevention and Control of Pollution) Act, 1974, as amended.
(ii) Consent to Establish/Operate/Renewal of Consent under section 21 of the Air (Prevention and Control of Pollution) Act, 1981, as amended.

Part A : General

1. Name, designation office address with Telephone, : fax numbers, e-mail of the applicant/ occupier/institution/local Body

2. (a) Name and address of the industrial unit/Project/premises :
for which the application is made. (with telephone fax numbers and e-mail)

(b) Manufacturing Activity :

(c) Status of the Unit : Owned Premises / On Rent

(d) Name and address of the premises owner :
(with telephone and fax number)

(e) Name & Designation of the person authorized to sign this application form (The original authorization except in case of individual proprietary concern to be enclosed)

(f) Latitude / Longitude :

3. Names, residence address with telephone and fax number of Managing Director/Managing Partner and officer responsible for matters connected with pollution control

4. (a) Are you registered as a small scale Industrial Unit : Yes / No

(b) If yes, give the number and date of registration :

5. Gross capital investment (in Rs.) of the unit without depreciation till date of application (cost of building, land, plant and machinery) (To be supported by an affidavit and : Certificate form a Chartered Accountant. For proposed unit(s), give estimated figure)

(d) Whether a copy of certificate for connection for discharge of total effluent / sewage into : conveyance system is enclosed.

6. (a) Location of the Unit : Industrial Area/ Redevelopment



HEALTHCARE WORKER CENTRIC:

- Tender documentation
- Immunisation
- Health card
- Induction and Annual health check up
- PPEs for healthcare workers



BEHAVIORAL & CULTURAL ADAPTABILITY

- Sufficient and easily accessible bins: Timing
- Clear and simple bi lingual posters
- Streaming videos in vernacular
- Non punitive approach towards patients but accountability of staff
- Not high on priority of clinicians: Top down approach essential
- Change in colour: A behavioral challenge
- Positive incentives such as awards and recognition
- Street plays, skits, Apps etc



HUMAN RESOURCE DEVELOPMENT

1. Technical capacity building:

1. Development of training module: ALT and training schedule
2. IT system: Website and Apps
3. Training of Trainers : Hospital Admn. & Infection Control Nurses
4. Trainees: Residents, Nurses, Technicians, Outsourced sanitation staff, BMW management helpers and supervisors
5. Recruitment of staff including supervisors
6. Focus areas: Operational, BMW mgmt, Occupational safety, NSI

2. Managerial capacity building:

1. Core inspection team: Empowerment
2. MBE: On site treatment of lab wastes, cytotoxic waste, sharps containers and cardboard box usage, CBMWTF inspection
3. Incentivizing good performance



Bio-Medical Waste Management Portal

Home

About Us

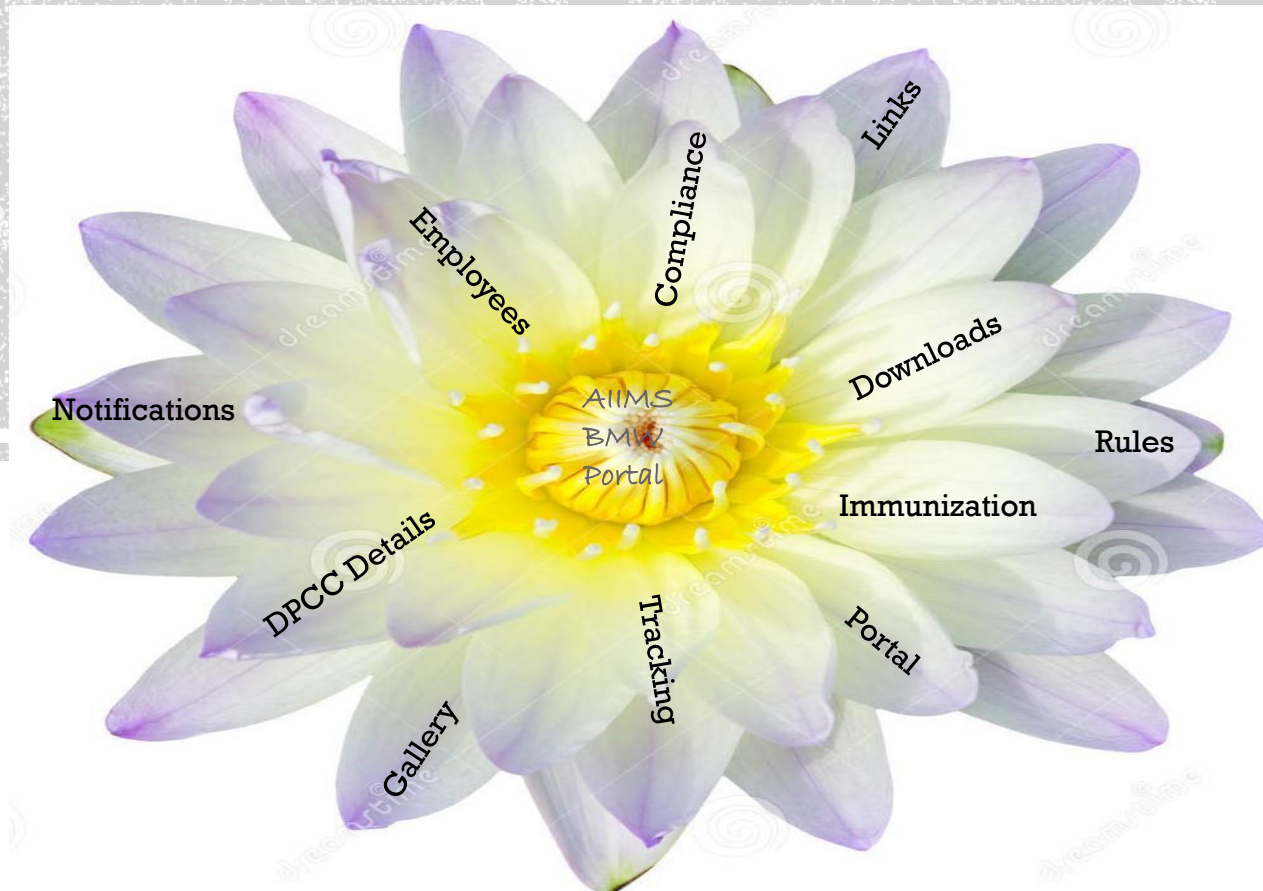
Tenders

Document

Contact Us

Links

Login



1st Prize



SYSTEMS APPROACH FOR SUSTAINABILITY



बायो मेडिकल वेस्ट / BIO MEDICAL WASTE



• मानवीय अंग एवं जीव वेस्ट

(मानवीय टिशू, शारीरिक अंग वेस्ट)

• रक्त से सनी वस्तु

(पट्टी, प्लास्टर, ब्लड बैग)

• अवधि समाप्त दवाइयाँ

(एंटीबायोटिक्स दवाइयाँ)

• कैमिकल वेस्ट

(जैव-विज्ञान में इस्तेमाल कैमिकल)

• रक्त से दूषित लीनेन, बिस्तर

• लेबोरेटोरी वेस्ट

(ब्लड बैग, कल्चर, माइक्रोऑर्गेनिज़्म स्पेसिमेन)

• साइटोटोक्सिक वेस्ट

(साइटोटोक्सिक दवाइयों से दूषित वायल, एम्प्यूल, प्लास्टिक इत्यादि)

पीला थैला / YELLOW BAG



• Human & Animal Anatomical Waste

(Tissues, Organs, Body Parts, Fetus etc.)

• Soiled Waste

(Dressings, Plaster Casts, Cotton Swabs, Residual/Discarded Blood Bags)

• Expired or Discarded Medicine

(Antibiotics etc.)

• Chemical Waste

(Discarded Reagents, Disinfectants)

• Discarded Linen, Mattresses & Beddings

• Pre-Treated Microbiology, Bio-technology & Clinical Lab Waste

(Blood Bags, Cultures, Residual Toxins, Dishes & Devices, Microorganism specimen)

• Cytotoxic Waste

(All items Contaminated with Cytotoxic drugs along with glass or plastic ampoules, vials etc.)

• रीसायकल योग्य इन्फैक्टेड वेस्ट

(ट्यूब, बोटल, इंटरवीनस ट्यूब और सेट, कैथेटर, यूरो बैग, बिना सूई की सिरीज, वैक्यूटेनर एवं दस्ताने)

लाल थैला / RED BAG



• Contaminated Waste (Recyclable)

(Tubings, Plastic Bottles, Intravenous tubes & sets, Catheters, Urine Bags, Syringes without needle, Vacutainers and Gloves)

• नुकीला एवं धातु वाला वेस्ट

(सूई, सूई लगी सिरीज, स्कालपेल्स, ब्लेड एवं अन्य नोकदार वस्तु)

सफेद डिब्बा / WHITE CONTAINER

(पंचर, टैम्पर और लीक प्रूफ) / (PUNCTURE, TAMPER AND LEAK PROOF)



• Waste Sharps Including Metals

(Needles, Syringes with fixed Needles, Needles from needle tip cutter or Burner, Scalpels, Blades, Contaminated Sharp objects)

• कांच का वेस्ट

(टूटा हुआ कांच, दवाई की शीशियां एवं एम्प्यूल)

• धातु वाले इम्प्लांट

गत्ते का डिब्बा / CARDBOARD BOX

(नीले चिन्ह के साथ) / (WITH BLUE MARKING)



• Glassware

(Contaminated Broken/Discarded Glass, Vials, Ampoules)

• Metallic Body Implants



A close-up photograph of a human hand, palm up, holding a glowing, translucent sphere. The sphere is the primary light source, casting a soft glow on the hand and the surrounding background. Inside the sphere, the words "THANK YOU" are written in a bold, black, sans-serif font, centered horizontally and vertically. The background is a dark, textured grey.

**THANK
YOU**