Biomedical Waste

Why in news?

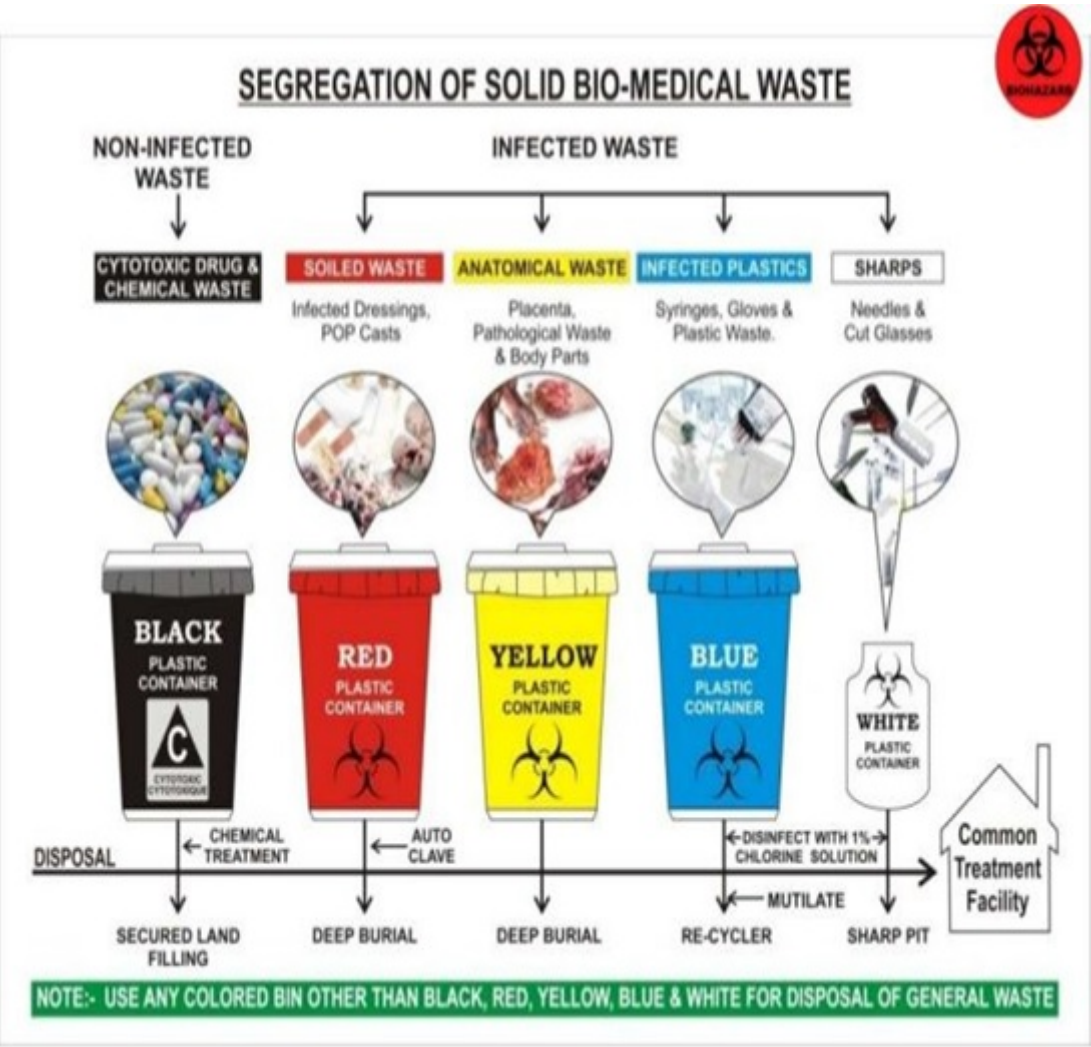
Growing medical waste is causing serious ecological consequences before and after the covid-19 pandemic.

What is a Bio-medical waste?

- **About-** It refers to any solid and/or liquid waste produced during the diagnosis, treatment, or vaccination of human beings or animals.
- **Hazard-** Biomedical waste poses threat primarily due to two reasons such as infectivity and toxicity.
- **Sources-** Government hospitals, private hospitals, nursing homes, dispensaries etc.,

Hazardous waste	Non-hazardous waste
• It contains around 75-90% of the biomedical waste similar to domestic waste and it is non-risky in nature. • It mainly results from the organization and maintenance of hospitals and healthcare centres	• Remaining 10-25% includes infectious and toxic components. • They are classified as infectious waste, pathological waste, pharmaceutical waste, genotoxic waste (drugs used in cancer therapy) and chemical waste

- **Category-** *Biomedical Waste Management Rules 2016* categorizes the bio-medical waste generated from the health care facility into 4 categories based on the segregation pathway and colour code.
- **Color code**- The bio medical waste are further assigned to each one of the categories, as Yellow Category, Red Category, White Category, Blue Category.
- **India**- It generates around 700 Tonnes Per Day (TPD) of biomedical waste approximately and about 640 TPD is treated, despite the combined treatment capacity available being 1,590 TPD.



What are the challenges?

- **Lack of segregation**-The waste from hospitals and residences of COVID-19 patients was treated in the same way as municipal solid waste (MSW) during the pandemic which potentially caused secondary infections in humans.
- **Increase in waste**- India's biomedical waste management market is expected to grow at a compound annual growth rate of 7-8% which will poses challenges if gaps and leakages are not effectively managed.
- **Inadequate treatment facilities-** The country faces a shortage of adequate treatment facilities to handle the volume of biomedical waste generated, especially during health crises like the *COVID-19 pandemic*.
- **Insufficient monitoring and enforcement**- The biomedical waste management regulations are often insufficient, leading to non-compliance and increased risks.
- **Improper disposal methods**-It is sometimes *disposed of inappropriately*, leading to environmental pollution and health hazards.
- **Limited awareness**-There is an *inadequate understanding* of the health risks associated with healthcare waste among the personnel involved in its management.
- **Insufficient training**- Personnel handling biomedical waste often *lack proper training*, contributing to shortcomings in effective waste management practices.
- **Absence of management systems**- *Comprehensive waste management and disposal systems* are often absent, exacerbating the issue of biomedical waste management.

- **Multiple gaps**- It exist in the present system and there have been complaints about illegal transfer of waste, improper incineration and disposal methods.

What should be done?

- **Analysis by SPCBs**-All State Pollution Control Boards (SPCBs) need to conduct the gap analysis to estimate the leakages and use their discretion, so newer Common Biomedical Waste Treatment Facilites can be constructed and their operational radius can be determined.
- **Capacity verification**-Elaborate probing is required to check the actual vs reported capacities and the system's compliance with the mandated rules.
- **Strict monitoring**- Authorization of Healthcare Facilities (HCF) and strict monitoring of Online Continuous Emission Monitoring Systems (OCEMS) needs to be done.
- **Holistic tracking**- All stakeholders from the user to the occupier to the processors need to be tracked so any premeditated leakages can be avoided.
- **Widen barcoding**-The ambit of barcoding should be extended to the recyclers of biomedical waste, so there is a check on the manufacturing, distribution and consumption of those recycled products.
- **District-level monitoring**- Building a waste facility for every district in India is not practically or financially viable, hence SPCBs must determine the correct number of facilities, proprietors, and techniques required to manage waste effectively.
- **Zero waste to dumpsites**- The ultimate goal is to challenge system setbacks and ensure that no form of medical or bio-hazardous waste reaches India’s dumpsites.

Quick facts

Biomedical Waste Management Rules 2016

• **Notified by**- Ministry of Environment, Forest and Climate Change.
• **Expansion of scope-**The rules now cover a broader range of healthcare activities, including vaccination camps, blood donation camps, and surgical camps.
• **Mandate-**To *phase out chlorinated* plastic bags, gloves, and blood bags within two years.
• **Waste pre-treatment**: Laboratory waste, microbiological waste, blood samples, and blood bags must be disinfected or sterilized on-site as prescribed by WHO or National Aids Control Organization.
• **Healthcare workers**- All healthcare workers must receive regular training and immunization.
• **Bar-code system-** A bar-code system for biomedical waste bags or containers is to be established for better tracking and disposal.
• **Reporting accidents**- Facilities must report major accidents involving biomedical waste.
• **Waste classification**- Biomedical waste has been reclassified into 4 categories instead of 10 to improve segregation at the source.
• **Simplified authorization**- The authorization process has been simplified, with automatic authorization for bedded hospitals and one-time authorization for non-bedded HCFs.
• **Stricter standards**- New rules set more stringent standards for incinerators to reduce environmental pollutant emissions.
• **Role of State governments**- They are responsible for providing land for common biomedical waste treatment and disposal facilities.
• **Proximity regulation**- No on-site treatment and disposal facility is to be established if a common biomedical waste treatment facility is available within 75 kilometers.
• **Role of operators-** Operators of common biomedical waste treatment facilities must ensure timely waste collection from HCFs and assist in training conduct.

References

1. Down to Earth - Burgeoning medical waste challenge
2. PIB- Biomedical waste management rules, 2016