CHAPTER-1
INTRODUCTION

In pursuing the aims of reducing health problems and eradicating potential risks to health of people, health care centres inevitably produced waste that may itself be hazardous in nature to the health. The waste generated in the course of health care activities increases a higher potential to infections and injuries than any other type of waste produced. So wherever it is generated, there is a need of safe and reliable technologies for its handling. Inadequate and inappropriate handling of biomedical waste may pose serious threats to public health consequences and significant impact on our environment. Therefore sound management of biomedical waste is thus a crucial requirement of protection of environmental health. So the actions involved in implementing effective biomedical waste management programs, both short and long term requires disposal facilities (Pruss et al. 1999).

Health care centres produced lots of waste in course of their daily activities. Some portion of the hospital waste is discharged to the sanitary sewer systems and some of it is released out in the form of gases also included anesthetic gases through laboratory hood vent pipes. However,
most of it is in the form of solid waste. Solid wastes comprises the largest percentage of healthcare generated waste that includes waste in general office trash, waste from food services and also have the recyclable waste. They all are incorporated 85% of solid waste (non-infectious) but in 15 % potentially hazardous biomedical waste is present which required proper treatment facilities.

1.1. **Rationale of Bio medical waste management:**
Medical waste management is a part of maintenance of hospital hygiene and its activities. We know that only 15% of hospital waste i.e. "Biomedical waste" is hazardous in nature, not the complete. But when this hazardous waste is not properly segregated at the source of generation and mixed along with nonhazardous waste then 100% waste becomes hazardous. Now the question then arises that what is the need for spending so much funds, man power and machines for management of hospital waste? The reasons are:

- There can be injuries from sharps leading to infection to all categories of hospital personnel and waste handlers.
- Nosocomial infections in patients from poor infection control practices and poor waste management.
- Risk of infection outside the hospitals from waste handlers and scavengers and at that time when general public living in the vicinity of health care centres.
- Risk may be associated with hazardous chemicals and drugs to those persons who are handling these types of wastes.
- Risk to those working in operating theaters without adequate removal of trace concentrations of waste anesthetic gases reported experiencing more decreased reaction time, memory impairment, tiredness headaches, and nausea, than healthcare workers working outside the operating theater.
- Disposable items are being repacked and sold by unscrupulous elements of the society without even being washed.
- Drugs which have been disposed of are being repacked and sold off to unsuspecting buyers in the market.
- Risk of air, water and soil pollution directly due to illegal dumping of waste or due to defective incineration emissions and ash.

Hospital waste treatment facilities are the facilities that alter the biological composition of medical waste to substantially eliminate its potential for causing diseases. Destruction of hospital waste is also a part of waste management in which medical waste are destroyed by mutilating it, or tearing it apart to change it less infection form and unrecognizable as medical waste. These treatment and destruction facilities include incinerators, steam sterilize, or treat the waste with heat, disinfectants, or radiation (USEPA, 2001a). The main goal of biomedical waste management is to develop a sustainable waste management by reducing volume of non-avoidable and non-recyclable medical waste to be disposed, and reduce its post depositional reactivity due to its organic matter inventory.
1.2 Objectives of the study:

To combat or reduce disease burden among human beings and animals the above topic is taken with the following objectives:

- To collect information on the collection, treatment, handling, hauling, and disposal of medical wastes.
- To determine the level of knowledge and awareness of individuals involved in the medical waste in Lucknow’s hospitals.
- To determine the physico-Chemical properties of hospital waste water and soil collected nearby the selected hospitals of Lucknow city.
- To examine the water quality of hospital waste water.
- To collect the data of infectious and non-infectious and recyclable waste in the selected hospitals of Lucknow.
- To assess the heavy metals contents in waste water in the studied hospitals.