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Scenario of Bio- Medical Waste Management in ULBs of Santhal Pargana

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ABSTRACT

Bio-medical waste management is a major challenge before the urban Local Bodies. A survey was conducted in the urban local Bodies of Santhal Pargana regarding the present scenario of bio-medical waste generation and its management. The study reveals that the quantity of hospital waste generated per bed per day is roughly 1200 grams/ bed/day.

Key words: Bio-medical Waste, Management, Hospitals, ULBs.

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INTRODUCTION

Medical care is very important for our life, health and well being. At the same time the medical waste generated can be unsafe, toxic and even fatal because of their high potential of disease transmission. These wastes need to be disposed in a proper and scientific manner. If these are not properly treated and are allowed to get mixed with other municipal waste, they have adverse affect on overall municipal solid waste management system. The rag pickers suffer the most from these contaminated wastes because they use to pick these poisonous items and even collect bio-waste from roadside for the purpose of reuse. They may suffer from the dreaded diseases like Hepatitis, AIDs (HIV), diphtheria Cholera, Plague and Tuberculosis, etc. However, this risk can be reduced many folds by means of a sensible planning and management. The Ministry of Environment and Forest (MoEF), Govt. of India, has implemented a rule for managing these waste known as Bio-Medical waste (Management & Handling) Rules 98, which provides uniform guidelines and code of practice for whole nature.

The rule is implacable to all those who generate, collect, receive, store, transport, treat dispose or handle bio-medical wastes in any form. Since majority of health care establishments are located within the municipal area, their waste management has a close linkage with the municipal system. At the same time, the civic authority is responsible for public health in whole of the municipal area. Therefore, the health care establishment must have a clear cut understanding with the municipality regarding sharing of responsibility associated with the issue.

MATERIALS AND METHODS

The samples were collected from different hospitals of ULB's of Santhal Pargana. Random sampling methods were adopted to cover a sample size of hospitals. The hospitals were classified into government hospitals and private nursing homes. In every ULB one government hospital and one private nursing home were selected for the purpose. The wastes were collected in a large size poly bag and separate poly bags were used for separate bed. Later the weight of the waste were measured and analysed for their composition. Separate weight of each item present in the wastes was also taken.

Several work on solid waste management has been undertaken in different part of the nation, some of them are Alam and Ahmad, 2013; Asnani, 2006; Bundela *et al.,* 2012; Chandrasekar, 2002; Chattopadhyay and Ray, 2009; *CPHEEO*, *2005;* Hazra and Goel, 2009; Husain, 1998; Pandey *et al.*, 2005;

NEERI, 1994; 1995; Pandey and Awasthi, 2012; Swarna Latha *et al.,* 2009)**;** Gnaneshwar, 2012 and Vilas, 2015.

As far as the study of solid waste management in the state of Jharkhand is concerned very less work has been done as compare to the national level. Most important work in the field of solid waste management is the community based solid waste management with the name of clean Jharkhand project implemented by the leading NGO of Jharkhand Nab Bharat Jagriti Kendra, and supported by ICEF (India Canada Environment Facility). The same was implemented in the state capital of Jharkhand Ranchi and replicated in another 15 urban local bodies of Jharkhand. Beside this several other workers contributed in this field are Sakla Anjum Bariar (2007), Darshini and Parasher (2005), Das *et. al*. (2007), Mukherjee *et. al*. (2009), Mukherjee and Kisku (2011), Mukherjee (2015). Regarding quality and composition of the waste generated in the ULBs of Jharkhand there are few works done earlier by the authors themselves which is the pioneer work in thesis direction. As far as the analysis of bio-medical waste is concerned this work is the pioneer work in the state.

RESULTS AND DISCUSSIONS

As far as the biomedical waste management in the ULBs of Santhal Pargana is concerned the condition here is very poor. None of the Nagar Panchayat, Nagar Parishad or even the Deoghar Municipal Corporation is managing the biomedical waste in a proper manner. The biomedical wastes are disposed along with the municipal solid waste without any treatment. There is no any special provision of incinerating the bio-medical waste and even the code for the segregation of biomedical waste in the hospitals are not being followed, which are as under:

Recommended color coding for biomedical wastes:

Color coding	Types of container	Waste category	Treatment Options
Yellow	Plastic bag	Human anatomical waste; Animal waste	Incineration
Red	Disinfected container/ plastic bag	Microbiology and Biotechnology waste, Soiled waste, Solid waste	Treatment Autoclaving / Microwaving / Chemical Treatment
Blue/While Translucent	Plastic bag/ puncture proof container	Waste Sharps, Solid Waste	Autoclaving/ Microwaving Chemical Treatment and destruction/shredding
Black	Plastic bag	Discarded medicines and cytotoxic drugs, incineration ash, Chemical waste	Disposable in secured landfill

The biomedical waste is being mixed with the other waste so called the municipal solid waste. The sharps wastes like hypodermic needles, syringes, scalpels and broken glasses are not being separately managed. The sharps are not separately kept due lack of awareness. Even the toxic wastes like old or discarded medicines and cytotoxic drugs, soiled hospital wastes such as cloth soiled with blood, dressings, bandages, plaster casts, tubes and catheters as well as other body fluids, human anatomical wastes like tissues, organs and other body parts. All these poise serious health problems. Some of the probable health problems caused due to specific biomedical waste are furnished below in the table.

It has been observed that in hospitals the biomedical wastes are mixed with the common waste in the

wards. There are hardly one or two hospitals in Santhal Pargana where the biomedical wastes i.e. sharp, bio-hazards and other hospital wastes are segregated and managed.

The survey of the hospitals revealed that there is about 15-35 percent weight is biomedical waste It is realized by the data that the waste of biomedical in nature are very less, if it is separated properly it can be managed in easier way. Rest 65-85 percent of the waste is common municipal waste which can be sent to the common disposal site along with the municipal solid waste. Survey conducted in the hospitals of Santhal Pargana reveals the following facts :

List of Hospitals and Private nursing homes and availability of the beds :

ULB's	Govt. Hospitals /Bed	Private Nursing Homes/ Bed
Deoghar	2/150	15/150
Pakur	1/50	8/80
Sahibganj	3/150	3/30
Dumka	2/150	10/80
Rajmahal	1/30	4/40
Basukinath	1/25	3/30
Godda	1/50	6/60
Jamtara	1/50	8/80
Madhupur	2/100	6/60
Mihijam	1/50	4/40

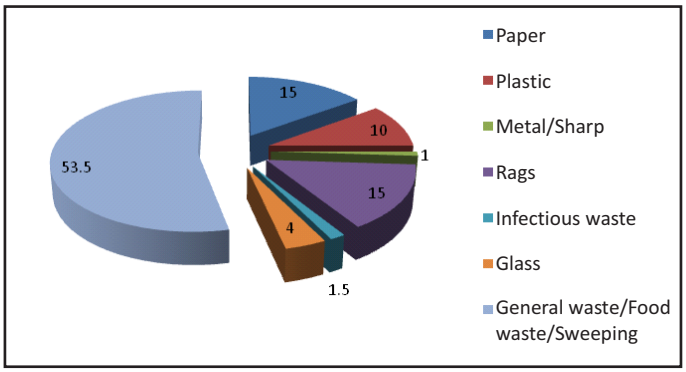
The studies on the quantity of hospital waste in most hospitals, roughly 1200 grams / bed/ day of waste is generated. In the ten ULBs of Santhal Pargana there are 16 govt. hospitals .Each hospitals have average 50 beds that comes to total of around 805 beds. At the same time the private nursing homes are around 67 in numbers, the average beds are around 10 per nursing homes that have comes around an average of 670 beds. Then number of beds in Government and Private Hospitals comes around (805+670= 1475). If the average waste generated per day per bed is considered around 1200 grams. The total waste generated per day from the hospitals of ULBs comes to nearly 1770 kg. i.e. (1.77 ton) and yearly generation of will be 1.77 x 365= (646.05 tons).

Waste generation depends on numerous factors such as established waste management methods, type of health-care establishment, hospital specializations, proportion of reusable items employed in health care, and proportion of patients treated on a day care basis. The average composition of waste includes Paper, Plastic, Metal /Sharp, Rags, Infectious waste, Glass and General waste/Food waste /Sweeping has been given in the pie chart.

AVERAGE COMPOSITION OF HOSPITAL WASTE

Material	Percentage (wet weight basis)
Paper	15
Plastic	10
Rag	15
Metals(Sharps, etc)	1
Infectious Waste	1.5
Glass	4
General waste 53.5 (food waste, sweepings from hospital premises)	53.5

THE COMPOSITION OF HOSPITAL WASTE GIVEN IN PERCNTAGE :



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