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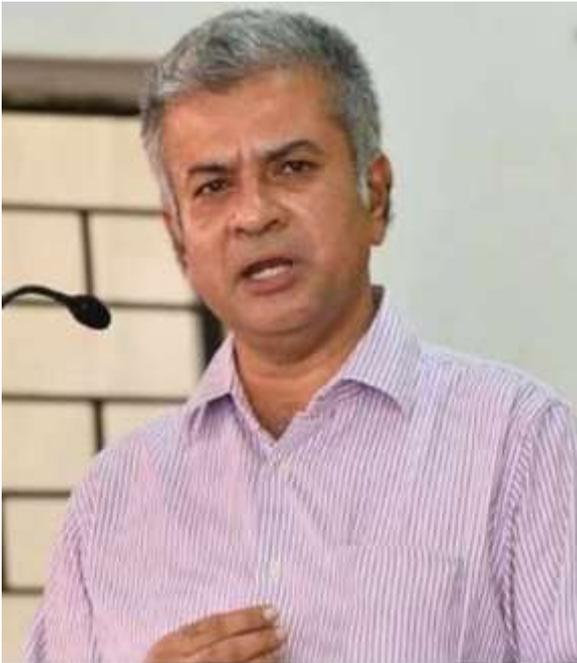
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E.MBA, LL.M, Ph.D, PGDSAPM

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More than 25 Publications in renowned National and International Journals and has authored a Text book on Cr.P.C and Juvenile Delinquency law.



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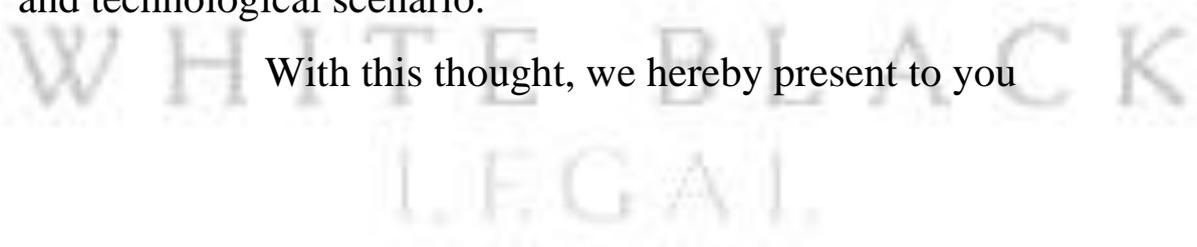
BBA. LL.B. (Hons.) (Amity University, Rajasthan); LL. M. (UPES, Dehradun) (Nottingham Trent University, UK); Ph.D. Candidate (G.D. Goenka University)

Subhrajit did his LL.M. in Sports Law, from Nottingham Trent University of United Kingdoms, with international scholarship provided by university; he has also completed another LL.M. in Energy Law from University of Petroleum and Energy Studies, India. He did his B.B.A.LL.B. (Hons.) focussing on International Trade Law.

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With this thought, we hereby present to you



# **OCCUPATIONAL HEALTH OF MUNICIPAL SOLID WASTE WORKERS IN INDIA**

AUTHORED BY – SNEKA E

## **ABSTRACT:**

Domestic waste collectors are crucial to maintaining community sanitation. Yet, only inadequate efforts are made to determine their health requirements. This paper aims at identifying the problems faced by the Municipal solid waste workers in India and providing solutions for the same. The problems discussed will be mostly health and hygiene based as the waste workers are generally threatened with morbidity. The handling of solid waste manually could cause serious concern to humans' health thus should be handled with care. It is not just about the safety and hygiene but this job however comes with menace of diseases. The Municipal solid waste workers are exposed to various physical, chemical and biological wastes every day which are harmful. It is the responsibility of the government to ensure the health and safety of them as the Municipal solid waste workers are employed under the government. This paper also gives a wide range of ideas on the provisions involved in the occupational health of these workers.

**Keywords:** Solid waste management, municipal solid waste workers, health hazards, occupational health.

## **INTRODUCTION:**

Municipal solid waste management is essential in keeping the country clean and green. In urban areas of a developing nation like India with limited resources, the majority of cleaning is still carried out manually. Solid waste collection which includes lots of lifting, pulling and physical handling of hefty containers is labour intensive work. The majority of people or groups who perform this manual waste processing are economically and socially deprived. Municipal solid waste removal is a job that comes with a number of different physical, chemical, and biological risks. People who work in the collection and management of solid waste are more likely to develop various illnesses, including ophthalmic, respiratory, gastrointestinal, and dermatological symptoms. Substantial volumes of solid waste are generated in urban areas as a result of population increase and economic development. Risks can arise at any point during

the process, including during transportation, at the locations where waste is collected from households and during recycling or disposal. The products they handled, the emissions from those compounds, and the equipment being used all create occupational health and accident risks to them. The risks faced by waste collectors are numerous in areas where contagious medical wastes and toxic industrial wastes are not separated from home waste. It is the duty of the government and society at large to solve these people's health issues, reduce morbidity, and enhance their quality of life.

### **SOLID WASTE MANAGEMENT:**

The foundational idea of sustainable development forms the basis of waste management regulations. This will prevent your home from suffering from the harmful effects brought on by solid waste. Municipalities and other relevant authorities are required to take precautions to ensure that any actions they adopt do not interfere with the sustainability element. However, as more and more areas are urbanised and developed, the nation is confronted with a significant waste management crisis. Solid waste management is a fundamental service that municipalities ought to offer. Since this affects not only the current generation but also generations to come. Segregating waste at the source allows it to be treated appropriately, i.e. recycled, reused, and recovered, which is the key to effective solid waste management. The more opportunities for waste management are created, the better it will be for the area and its residents. Management of solid waste is no longer just a socially responsible or a low-priority function. An environmental and public health disaster, as well as financial loss, operational inefficiencies, and a lack of political and public awareness, are all results of improper waste management. Integrated solid waste management could help establish a stronger country with healthier and wealthier communities. As a result, finding solutions to such a wide range of issues necessitates a global perspective.

### **MUNICIPAL SOLID WASTE MANAGEMENT IN INDIA:**

The management of municipal solid waste in India has become or has remained a serious issue due to the vast amounts produced daily as well as environmental and aesthetic concerns.<sup>1</sup> Municipal solid waste, which includes waste from homes, businesses, institutions, markets, and industries, is a result of economic output and consumption. The amount of waste produced has significantly increased over time, and it is only anticipated to do so in the upcoming years.

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<sup>1</sup> MISSION, S. B. Municipal Solid Waste.

According to government estimates, India currently produces 65 million tonnes of waste per year, of which over 62 million tonnes are MSW (organic waste, recyclables like paper, plastic, wood, glass, etc.). Only around 75 to 80 percent of municipal waste is collected, and only 22 to 28 percent of this is handled and disposed of. At dump yards, the leftover MSW is disposed of. The amount of MSW generated is anticipated to rise to 165 million tonnes by 2031 and up to 436 million tonnes by 2050.<sup>2</sup> The amount of waste produced in India is growing, and the efficiency of waste collection must keep up. The treatment and disposal of this waste is a rising environmental and public health concern. An ineffective system for managing municipal solid waste may have detrimental effects on the ecosystem, including the spread of infectious diseases, contamination of the land and water, clogging of drains, and loss of biodiversity.

### **SOLID WASTE WORKERS:**

Solid waste workers play an important role in keeping the environment clean. In developing nations, waste workers manually handle the solid waste and empty communal trash cans into moving trucks. These workers run the risk of developing health issues while collecting waste on the job, transporting it for recycling, and dumping it in a landfill. Municipal solid waste workers are exposed to a variety of pathogens, including bacteria, fungi, viruses, parasites, and cysts. They are also exposed to toxic substances, such as endotoxins and beta-glucans, chemicals from the waste itself and from its decomposition, as well as noise, extreme temperatures, and ultraviolet radiation. Due to their frequent exposure to risk factors, Municipal solid waste workers experience a significant incidence of occupational health issues. Municipal solid waste workers were shown to have a significant prevalence of respiratory, dermatological, ocular, and musculoskeletal issues.<sup>3</sup>

### **OCCUPATIONAL HEALTH HAZARDS:**

Throughout the waste management process, Municipal Solid Waste (MSW) employees encounter occupational stressors that have a negative impact on their health and lead to high incidence of occupational health issues. To maintain the safety and wellbeing of MSW workers, it is crucial to comprehend their work habits and occupational morbidities. The difficulties

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<sup>2</sup> Agnihotri, D. A. K. (2022, September 14). *MSW management: The pitiable situation of Municipal Solid Waste Management*. TERI. Retrieved December 10, 2022, from <https://www.teriin.org/article/msw-management-pitiable-situation-municipal-solid-waste-management>

<sup>3</sup> Jayakrishnan T, Jeeja MC, Bhaskar R. Occupational health problems of municipal solid waste management workers in India. *Int J Env Health Eng* 2013;2:42

MSW workers have on the job are numerous and include accidents, respiratory illnesses, skin infections, cuts and infections from sharp objects, and dangerous smoke from burning waste.

**(1) Respiratory problems:**

According to studies, working at open dumps is associated with an increase in respiratory illnesses and abnormal pulmonary function tests. Exposure to organic dusts with high levels of bacteria and fungi, biologically active agents, gases, and bioaerosols is linked to an increased risk of respiratory disease. Waste collection is done in areas with a lot of traffic, and car emissions are not regulated in developing nations. This extremely demanding job necessitates high pulmonary ventilation and forces employees to breathe through their mouths rather than their noses. According to studies, relative energy loads for waste collectors are much greater than advised limits as measured by oxygen consumption. There is a considerably higher prevalence of upper and lower respiratory complaints among landfill workers.<sup>4</sup> Street sweepers are shown to have a higher rate of respiratory illnesses than waste collectors. The exposure of dust particles and air pollution on public roads may be one of the possible causes. The prevalence of asthma, shortness of breath, chronic coughing, and persistent runny nose is high among the workforce.<sup>5</sup>

**(2) Skin problems:**

People are more likely to develop skin issues when they are exposed to dangerous materials. Many workers in the waste industry have skin lesions that can be allergic (dermatitis, eczema), infectious (bacterial, fungal), or directly attributed to organic or chemical wastes and injuries. They run the risk of getting leptospirosis from skin wounds, domestic animals on the property, and waste from slaughterhouses.<sup>6</sup> Other skin problems faced by the waste workers can be like skin itching, dermatitis, hyperpigmentation, hypopigmentation, xerosis, scabies, melasma, tinea and so on.

**(3) Eye problems:**

The most common eye issues were burning, redness, watering, and itching of the eyes. Studies have identified a temporal association (6.18%) and a strong association (relative risk 1.7) between this occupation and eye illness.<sup>7</sup>

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<sup>4</sup> Patil, T., & Raje, S. S. (2020). Occupational and social hazards among domestic solid waste collectors: a cross sectional study.

<sup>5</sup> Salve, P. S. (2020). A comparative study of prevalence of morbidities among municipal solid waste workers in Mumbai. *SN Comprehensive Clinical Medicine*, 2(9), 1534-1542.

<sup>6</sup> Jayakrishnan T, Jeeja MC, Bhaskar R. Occupational health problems of municipal solid waste management workers in India. *Int J Env Health Eng* 2013;2:42

<sup>7</sup> Jayakrishnan T, Jeeja MC, Bhaskar R. Occupational health problems of municipal solid waste management

**(4) Infections:**

People involved in solid waste working have a high risk of getting nail infection also. The majority of fungal infections (Paronychia) and lesions with subsequent bacterial infections, which were made worse by frequent wetting brought on by direct contact with waste, caused the infection of the nails on the fingers or toes. Poor facilities to wash themselves and other things around them like containers, vehicles and equipment could be an added disadvantage. Also in developing countries like India, the workers do not wear proper gloves or protect themselves from the solid waste. This will lead them to be in continuous contact with the waste that is exposed to various bacterias, viruses, parasites, fungi and endotoxins. They carry risks of causing infections and deadly diseases to the workers.

**(5) Injuries:**

There is high risk for solid waste workers to get injured while working. It is because they are surrounded by various sharp objects, tools or hazardous waste in their job. They might also have a high risk of accidents while working. It can happen anytime and could be any kind of accident like a road accident or one caused by any chemical waste.

**(6) Musculoskeletal problems:**

Municipal solid waste collectors are at high risk of Musculoskeletal disorders. The longer period of employment, the lack of job control, and the nature of their work, which is physically demanding and includes frequent bending and twisting activities, lifting, pulling, and pushing heavy loads, as well as frequent walking for long distances, could all be blamed for the higher percentage of musculoskeletal symptoms among the solid waste workers. Additionally, it appears that collectors who are less educated—either illiterate or with only a primary education—are less aware of the potential risks and health effects associated with the methods of collecting.<sup>8</sup>

**(7) Illness and fever:**

It is common for solid waste workers to fall ill often due to their unhygienic working surroundings. They suffer from fever, cough, body aches and diarrhoea due to bacterias and viruses they are exposed to. They are also at high risk of water-borne and vector-borne diseases like malaria, dengue, jaundice, typhoid etc.

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workers in India. *Int J Env Health Eng* 2013;2:42

<sup>8</sup> Reddy, E. M., & Yasobant, S. (2015). Musculoskeletal disorders among municipal solid waste workers in India: A cross-sectional risk assessment. *Journal of Family medicine and Primary care*, 4(4), 519.

**(8) Other diseases:**

The solid waste workers are also endangered by various other diseases like gastrointestinal disorders, neurological disorders, permanent disability, cancer, nausea & vomiting, congenital malfunctions etc.<sup>9</sup>

**OCCUPATIONAL HEALTH IN INDIA:**

The Factories Act (1948) and the Mines Act (1952) are the two main statutes that provide the key provisions for legal safeguards for employee health and safety. Periodic medical exams and pre-employment testing are required as a pre-placement step for jobs in hazardous regions, according to a 1987 amendment to the Factories Act. In India, the ministries of labour and health and family welfare are both responsible for occupational health. For the most part, worker health and safety is the responsibility of the Ministry of Labor and the labour departments of the states and union territories. The provision of health and medical treatment to employees through its facilities is the responsibility of the Ministry of Health and Family Welfare.<sup>10</sup>

For ensuring the health and safety of workers, there are three articles. The employment of children under the age of 14 which is prohibited under Article 24. Under Article 39 (e and f), children should have the opportunity and resources necessary for a healthy development as well as be safeguarded from exploitation. Men, women, and children's health should be protected. Humane working conditions and maternity leave should be offered under Article 42.

**PROTECTION OF MUNICIPAL SOLID WASTE WORKERS IN INDIA:**

Urban local governments are responsible for waste management. The legislation governing waste management in urban areas is handled by the State Governments and the Union Ministry of Urban Development and Poverty Alleviation. In several States, local civic bodies are in charge of waste collection and disposal. These laws, though, are by no means exhaustive. The Ministry of Environment and Forests recently announced the Municipal Solid Waste (Management & Handling and Trans border) Rules 2008, a new set of regulations. These regulations apply to the country's urban local governments and have established the duties of the State Governments, the Central Pollution Control Board, the State Pollution Control

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<sup>9</sup> Alam, P., & Ahmade, K. (2013). Impact of solid waste on health and the environment. *International Journal of Sustainable Development and Green Economics (IJS DGE)*, 2(1), 165-168.

<sup>10</sup> Saha, R. K. (2018). Occupational health in India. *Annals of global health*, 84(3), 330.

Boards, and municipal government.<sup>11</sup>

All Municipal Solid Waste Workers handling solid waste must wear Personal Protective Equipment (PPE), including uniforms, fluorescent jackets, gloves, boots, and masks, in addition to social benefits like health checks and medical treatment, according to the Solid Waste Management Rules, 2016, India. The Municipal Solid Waste Workers, whether temporary or full-time, should be given access to amenities like restrooms and locker rooms for their possessions. The Municipal Solid Waste Workers are having insufficient PPE provision, exposing them to occupational hazards despite the National Policy on Safety, Health, and Environment at the Workplace's recommendations for safe, equitable, and humane working conditions.

According to Indian subcontinent socio-cultural value systems, cleaning chores like sweeping and waste collecting were typically seen as traditional occupations for lower-caste individuals. The Indian Constitution guarantees both the Right to Equality of Opportunity in Employment (Article 16) and the Right to Freedom to Practise Any Job (Article 19) (1) (g). But many of these essential rights, like the Right to Just and Humane Work Environment and the Right to Health, are violated, according to the Indian Constitution. Poor health, lack of access to, and utilisation of health services were influenced by a lack of concern, indifference on the part of the authorities and government, lack of health information, and other deeply ingrained traditional occupational practises.

The national policy on occupational health, safety, and the environment was approved by the Indian Ministry of Labour and Employment in February 2009. The workers can use these guidelines to create and maintain a safe workplace culture and environment. It also deals with providing a legal framework, administrative and technical support services, financial and non-financial incentives for employers and employees, research and development capabilities, prevention strategies and their oversight, providing the necessary technical manpower, and incorporating improvements in safety, health, and the environment into other national policies. As a World Health Organisation (WHO) collaborative and reference centre for occupational health, the National Institute of Occupational Health (NIOH) was founded in 1970 in Ahmedabad, Gujarat. It collaborates closely with the Ministries of Labor, Health and Family

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<sup>11</sup> Saha, R. K. (2018). Occupational health in India. *Annals of global health*, 84(3), 330.

Welfare, Environment and Forests, Agriculture, etc. The Institute's focus areas include women's health, agricultural health, toxicology, environmental pollution, occupational and environmental epidemiology, and human resource development. The goals of NIOH are to encourage extensive research to evaluate workplace environmental stresses and variables, to advance the best occupational health through basic and applied research, to create human resources in the area, to develop control technologies, and to create health programmes.

In 1998–1999, India's Ministry of Health and Family Welfare introduced the "National Programme for Control and Treatment of Occupational Diseases." The nodal organisation for this is the National Institute of Occupational Health in Ahmedabad. Major occupational illness categories in India include: work-related injuries, lung diseases, infections, dermatoses, infections, toxicology at work, and mental disorders at work. The solid waste workers can seek help under this programme as well.<sup>12</sup>

### **SUGGESTIONS:**

In order to lighten the workload and lower the likelihood of developing morbidities, the Municipality may implement a system of job rotation between waste collectors and street sweepers. Given that workloads differ depending on where people work, workers in high slum concentration areas may be transferred to low slum concentration areas. By taking preventative steps and offering appropriate medical care at an early stage, the burden of morbidities may be lessened. Given the nature of the job, the primary preventive measures for municipal workers are the adoption of personal hygiene habits and the wearing of safety equipment while at work. The Municipality has a provision for workers to have routine medical examinations in a civil health facility, however there is poor implementation of the programme. As a result, it is important to regulate medical exams and include a provision for private healthcare facilities. The Municipality needs to automate the Solid Waste Management Department, especially the community dustbins and sewers, which require human handling; this might lessen the direct contact of employees with the dirty waste. Corporations may implement the family health insurance option for employees to lessen the financial load of medical expenses.<sup>13</sup>

The government must give Municipal Solid Waste Workers more thought when formulating

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<sup>12</sup> Saha, R. K. (2018). Occupational health in India. *Annals of global health*, 84(3), 330.

<sup>13</sup> Salve, P. S. (2020). A comparative study of prevalence of morbidities among municipal solid waste workers in Mumbai. *SN Comprehensive Clinical Medicine*, 2(9), 1534-1542.

general policies and suggestions. It is crucial to ensure the physical, psychological, and social health of MSW workers while also enhancing their working conditions through the use of protective equipment. In order to understand the unique difficulties faced by MSW employees and to provide humanitarian aid and welfare programmes, human rights advocates, researchers, and administrators should unite. It is suggested that studies be conducted on different types of MSW workers in order to gain a better knowledge of their way of life. It would be beneficial to conduct research on the work habits of MSW employees both during and after public health emergencies. Environmental sanitation and cleanliness are impossible to achieve without MSW staff. It is vital to take action to protect the MSW employees' health, safety, and dignity.

### **CONCLUSION:**

The amount of waste produced everyday by each household has increased due to the growth in the world's population and the increased need for food and other necessities. This has increased the necessity of solid waste management in India. To ensure effective waste management in the country, it is important that the health of solid waste workers is ensured. As discussed in the article, the major health issues faced by the Municipal Solid Waste Workers in India are respiratory, musculoskeletal, dermatological, chronic illness and so on. The health of such workers should be protected by the government and the society. By ensuring that protective equipment, clean drinking water, and washing and sanitation facilities are available throughout working hours, steps need to be taken to improve the working conditions for waste workers. There should be more ergonomic principles applied. Solid waste workers should be subject to regular health monitoring and record keeping. Given the severe lack of epidemiological data and subsequent follow-up studies in this industry, local medical schools and occupational health institutes should be encouraged to examine the health of solid waste employees in comparison to adequate baseline control groups. It is crucial to educate the public about the value of their contribution to society, as to any discrimination against them in social events could be worse.