

UNIT 11 SAFETY PRACTICES IN SOLID WASTES MANAGEMENT

Structure

- 11.1 Introduction
 - Objectives
- 11.2 Occupational Health and Safety
- 11.3 Occupational Health and Safety Management Practices
- 11.4 The Occupational Safety, Health and Working Conditions Code, 2020
- 11.5 Occupational Safety and Health Administration (OSHA)
- 11.6 Workplace Injury Management
- 11.7 Advice for Waste Collectors
- 11.8 Summary
- 11.9 Key Words
- 11.10 Answers to SAQs

11.1 INTRODUCTION

In India, where urbanisation, industrialization, and economic expansion have resulted in increased municipal solid waste (MSW) generation per person, solid waste management (SWM) is a major issue for many urban local bodies (ULBs). In densely populated cities, effective SWM is a huge difficulty. Because India is a varied country with many different religious groups, cultures, and customs, achieving sustainable development within a country experiencing fast population increase and increases in living conditions is more difficult.

Despite tremendous progress in the areas of social, economic, and environmental development, India's SWM systems have remained mostly intact. With about 90% of residual garbage typically discarded rather than properly land filled, the informal sector plays a critical role in extracting value from garbage. There is a pressing need to transition to more sustainable SWM, which necessitates the development of new management systems and waste management facilities. Waste has a detrimental impact on public health, the environment, and the economy, and current SWM systems are inefficient. The Ministry of Environment and Forests (MoEF) introduced waste management and handling rules in India, although compliance is inconsistent and limited.

In India, ineffective waste management has resulted from a lack of sufficient infrastructure as well as limitations in enforcement for managing hazardous material. One of the most common methods of disposal is landfill burning, which is hazardous to both human health and the environment. Waste collection contractors are often underequipped, untrained, and underpaid, and India's high-temperature treatment infrastructure is inadequate.

Due to the country's rapid industrial expansion, hazardous waste is being produced. Indeed, industrialised states like Gujarat, Maharashtra, Tamil Nadu, and Andhra Pradesh are grappling with issues related to increased hazardous waste volumes. Gujarat, for example, is one of India's fastest-growing industrial states, with an expanding chemical, petrochemical, medicines and pharmaceuticals, textiles, pesticides, paper, and fertiliser sectors. As a result, it is one of the country's leading producers of hazardous waste.

The impact of solid waste on people and the environment varies depending on the type of garbage or solid waste generated, the population affected, the length of exposure, and the availability of inhibition and mitigation techniques. In global investigations, a variety of minor and large effects such as psychological effects, disability, and mortality have been reported. On the basis of accessible past studies from around the world, a number of authors have established a link between garbage exposures and examined outcomes.

Nonetheless, the following general threats that a solid waste worker have are as follows:

- Solid waste employees are subjected to high amounts of physical, chemical, and biological pollutants.
- Solid waste workers are subjected to health risks as a result of their work;
- Injuries, as well as acute and chronic musculoskeletal, cutaneous, and respiratory health consequences, are rather well documented among solid waste workers.
- Engineering controls, exposure monitoring, education, personal protection, and other treatments tend to be underutilised when it comes to safeguarding solid waste workers from exposure and health impacts.

Objectives

After studying this unit, you should be able to

- Understand about Health and safety issues.
- Know about the various standards regarding Occupational Health and Safety.
- Understand about workplace Injury management.

- Learn about Employer's responsibility

11.2 OCCUPATIONAL HEALTH AND SAFETY

An occupational Health and Safety (OHS) attempt to improve working conditions and worker health and it is critical for society, businesses, and individuals. Aside from the moral imperative of guaranteeing the safety and health of employees at work, good management of safety and health conditions can lower costs associated with accidents and illness, such as medical treatment, sick leave, and disability benefits. Given the importance of OHS, policymakers, researchers, and practitioners have spent significant time and effort trying to figure out what elements improve the success of OHS management methods. Previous studies have looked at how OHS is influenced by managerial, cultural, and normative aspects, as well as how OHS management practices relate to other organisational characteristics including corporate performance and culture.

These studies, on the other hand, rarely focus on the waste management industry, despite the fact that it is vital for a variety of reasons. To begin with, workers in the waste management industry are at a high risk of developing an occupational sickness or accident due to a multitude of risk factors, including ergonomic, chemical, biological, mechanical, and physical hazards.

Second, a constantly changing working environment, limited human, economic, and technological resources allocated to OHS, and OHS policies developed entirely by owners/managers enhance these hazards.

Every organisation should have a defined policy for the systematic management of health and safety in order to effectively address and control health and safety concerns. A good health and safety policy will state the objectives that the health and safety management system will attempt to achieve. Quality, the environment, and human resources policies will all benefit from the health and safety policy and management system. In those sectors, the health and safety policy and its related management system must have realistic goals and the active participation and engagement of all levels of management within the organisation in order to be successful.

The main part of every health and safety management system is planning to put the policy into action. An efficient health and safety planning system necessitates the establishment, operation, and maintenance of a management system capable of detecting, eliminating, and

controlling hazards and risks. This procedure is especially significant when a health problem takes a long time to manifest, such as asbestosis or lung cancer induced by asbestos fibre inhalation. Because the primary goal of any health and safety plan is to keep people safe at work, workplace safeguards must be implemented and maintained at all times. At each level of the business activity, workplace safeguards tailored to the hazards and dangers are required. Machine guards, electrical safeguards, flammable liquid storage, dust controls, safety instructions and work methods, and so on are all examples.

SAQ 1

- a) What are the various threats to solid waste workers?
- b) What is the importance of Occupational Health and Safety?
- c) What are the issues with India's solid waste management?

11.3 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT PRACTICES

The enormous risks connected with the waste management industry, as well as the prevalence of small enterprises and the difficulty in achieving OHS legal standards, highlight the need for study into the most effective treatments for enhancing OHS performance. An OHS intervention can be defined as any effort to change how things are done in order to improve safety. Interventions can occur at several levels; in general, there is a distinction to be made between interventions that occur in the workplace and interventions that occur in the community. OHS interventions in the workplace include engineering solutions that lower the possibility of a worker engaging in at-risk behaviours, teaching and training programmes, and safety-related policies and procedures. At the community level, implementation of OHS intervention is done through laws, rules, regulations, and programmes, governments, industry, professional bodies, etc.

The efforts of OHS practitioners are crucial for defining and implementing OHS management in Small and Medium Enterprises (SMEs). Some authors conducted a review of the literature on the job, activities, and work environment of OHS practitioners. They come to the conclusion that OHS practitioners' actions can be categorised into three work dimensions: organisational, technical, and human, as well as two activity levels: technical and organisational. The human dimensions refer to human activities inside an organisation, technical activities including technical aspects, such as machinery, equipment, raw materials and processed materials and organisational activities characterised by the formulation of rules, policies and programmes. These efforts could have a strategic or operational influence. When

it comes to policies, work structure, resource allocation, and so on, OHS practitioners' efforts are strategic. Operational activities, on the other hand, include things like preventive maintenance, risk assessment, and training.

The Occupational Health and Safety Assessment Series, OHSAS 18001 and ILO-OSH 2001 occupational health and safety management systems are based on the Plan, Do, Check, Act approach for occupational health and safety management.

Some basic and common aspects can be found in all recognised occupational health and safety management systems. These are the following:

- (i) Planning phase;
- (ii) Performance phase;
- (iii) Performance assessment phase
- (iv) Performance improvement phase

Planning phase - PLAN

A policy statement that specifies the organization's health and safety goals, objectives, and commitment, as well as lines of responsibility, is always included in the planning phase. During this step, hazards are identified and risks are assessed, and important hazards may be incorporated in the policy statement.

Emergency procedures should be devised and applicable health and safety legislative requirements and other standards should be recognised, along with acceptable benchmarks from related businesses, during the planning stage. An organisational structure must be created in order to assign health and safety duties at all levels of the organisation and to address concerns such as competent individuals and health and safety training. Within the organisation, realistic targets should be agreed upon and announced as part of the policy.

Performance phase - DO

Only strong communication at and between all levels of the organisation can ensure the success of the performance phase. The right of workers to elect and be elected as their union representatives and safety committee members is necessary. The primary criterion for all occupational health and safety, quality, and environmental management systems is ongoing performance improvement. Additionally, other stakeholders, including regulators, contractors, customers, and trade unions, should be kept apprised of progress. As with the existence of an

occupational health and safety management system, it is important to monitor the performance of the occupational health and safety management system because that will show whether the organisation has an effective occupational health and safety management system and a positive occupational health and safety culture.

Performance assessment phase - CHECK

Depending on the type of evaluation, the performance assessment phase could be proactive, reactive, or a mix of both. The processes of regular inspection and audit of a company's operations, health and safety committee meetings, and getting feedback from training sessions are all things that companies should strive to do on a regular basis. Accident, work-related injury, and illness and safety and health data, as well as near-misses and any enforcement notices, are used in reactive assessment. Once an inquiry is done, any proposed corrective or preventative measures should be executed as soon as possible and rigorously evaluated on a regular basis.

Performance improvement phase - ACT

This portion of the improvement cycle consists of a review of the efficacy of the health and safety management system and the discovery of any shortcomings. The company's management will need to perform a review on their targets, as well as why targets were not met, in order to see if the organisation met the objectives for the year. Workforce issues, such as the amount of resources made available, the vigilance of supervisors, and the level of cooperation among workers, should be taken into consideration at the earlier stages of the project. To increase effectiveness, a framework that includes recommendations must be established and be able to define the timeframe for implementing any changes. That process should also be checked to make sure that deadlines are being met. It is vital that any organisation has a process for continual improvement that demonstrates a commitment to improving performance on a proactive, continuous basis without waiting for a formal review to take place. In almost all management systems, the requirement for an audit is incorporated, which may be done internally or externally, or both. In performing an audit, the process evaluates the efficiency of the entire management process and may function as a safeguard against the review process. According to the results of many inquiry reports that have studied the link between health and safety management and audit, auditing of the performance of health and safety management should be applied in the same way as audits of financial performance

11.4 THE OCCUPATIONAL SAFETY, HEALTH AND WORKING CONDITIONS CODE, 2020

On September 28, 2020, the President of India approved the Occupational Safety, Health and Working Conditions Code, 2020 (“OSH Code”). The OSH Code includes provisions for a number of legal mandates and statutes that contain information regarding working conditions and has combined these regulations into a single comprehensive statute, including, for example, the Contract Labour (Regulation and Abolition) Act, 1970, the Factories Act, 1948, etc. The new labour regulations are an effort to ensure an improved streamlining of labour laws in the country. Under the OSH regulations, some key provisions of the code are provided below:

11.4.1 Definitions under the OSH Code

A few of the fundamental classifications that have been altered in OSH's Hazard Communication Standard are as follows:

Contract Labour: A worker who is hired for or in conjunction with the work of an establishment and is a member of a contractor workforce has been classified as "contract labour," even if the employer is unaware of the worker's involvement with the contractor workforce. Any contractor employee, other than a part-time employee, who is regularly employed by the contractor for any activities of the establishment and whose employment is governed by mutually accepted standards of employment conditions and results in a continuous increase in pay and other welfare benefits, is excluded from the definition.

Employee: “Employee” means someone who works for wages in an establishment of any type (whether expressly or impliedly) and who may or may not be performing skilled, unskilled, manual, operational, supervisory, managerial, administrative, technical, clerical, or other labour. In order to ensure uniformity in the use of the term employee, as well as the Code on Wages, 2019, all the new codes must follow the same definition.

Employer: “Employers” defined under the OSH Code are companies which employ, whether directly or through any other person, or on their behalf, or on behalf of another, at least one individual who is an employee within their establishment. The employer may also be referred to as the person/entity that is in control of the establishment and the person/entity that contracts with the employer.

Establishment: An “establishment” is

- (i) Any workplace where ten or more workers are employed, anywhere in the world, where any industry, trade, business, manufacturing, or occupation is done.; or
- (ii) A motor transportation undertaking, newspaper establishment, audio-video production, building and other construction work, as well as ten or more workers employed in a plantation.; or
- (iii) a factory employing ten or more employees; or
- (iv) a mine, port, or area near a port where dock work is done

Hazardous Process: A "hazardous process," according to the OSH Code, is any process or action in relation to particular industries (as defined in Schedule I of the OSH Code), in which raw/intermediate/finished/bye-products, etc., would:

- (i) Endanger the health of those involved in or associated with the activity
- (ii) Cause pollution of the environment in general.

Wages: "Wages", as per the OSH Code, includes basic pay, dearness allowance, and retention allowance, if any, and all remuneration stated in terms of money or capable of being stated in terms of money that would be payable to a person in respect of his employment, whether express or implicit, or of work done in such employment.

The OSH Code clarifies that wages do not include (a) bonus; (b) value of accommodation or light, water, medical attendance; (c) employer contribution towards any pension or provident fund; (d) conveyance allowance; (e) sum paid to employed person to defray special expenses; (f) house rent allowance; (g) overtime allowance and (h) gratuity, etc.

Workers: The definition of "workers" under the OSH Code, while similar to the definition of "workmen" under the Contract Labour (Regulation and Abolition) Act. 1971, excludes from its ambit any person who is employed in a supervisory capacity drawing a wage exceeding Rs. 18,000/- (Rupees Eighteen Thousand only) per month or such other amount as may be notified by the Central Government.

11.4.2 Duties of the Employer

Under the OSH Code, every employer is required to undertake the following:

- (i) Make sure that the workplace is free of dangers that will causedamage or occupational disease to employees, and that the OSH Code and government directives on the subject are followed;

- (ii) Give free yearly health examinations or tests to specified classes of employees;
- (iii) Provide and maintain, to the extent that it is practically practicable, a safe and healthy working environment for employees;
- (iv) Distribute appointment letters to workers; and
- (v) Ensuring that no employee is charged for maintaining workplace safety and health, including medical examinations and investigations for the aim of detecting occupational diseases.

The OSH Code also states that it is the responsibility of the architect, project engineer, or designer responsible for any building or construction work, or the design of any project relating to such a building, to ensure that the safety and health of the building workers and employees who are employed in the erection, operation, and maintenance of such a building is taken into account during the planning stage.

11.4.3 Rights of Employee

Every employee has the following rights under the OSH Code:

- (i) To seek information regarding an employee's health and safety at work from the employer, and to complain to the employer about inadequate measures for safeguarding an employee's safety or health in connection with work activity in the workplace, and if not satisfied, to the inspector-cum-facilitator;
- (ii) If he has a reasonable suspicion of imminent serious personal damage or death, or imminent danger to his health, he may immediately notify his employer and simultaneously notify the inspector-cum-facilitator.;
- (iii) If the employer is satisfied that there is an imminent threat, he must take urgent corrective action and notify it to the inspector-cum-facilitator in the way authorised by the government.
- (iv) If the employer is not satisfied with the existence of any imminent danger as perceived by his or her employees, he or she must immediately report the problem to the inspector-cum-facilitator, whose decision on the existence of such imminent risk is final.

11.4.4 Health, Safety and Working Conditions

Employee welfare activities, as stipulated by the Central Government, must be provided and maintained by the employer.

- (i) Separate and adequate facilities for male and female personnel for washing;
- (ii) Separate bathing facilities and locker rooms for male and female employees;
- (iii) Seating for those employees who are required to work in a standing position;
- (iv) Sufficient first-aid boxes or closets with contents accessible at all times during working hours; and
- (v) Any other welfare measures that the Central Government deems necessary for employees to have an acceptable quality of living under the circumstances.

11.5 OCCUPATIONAL SAFETIES AND HEALTH ADMINISTRATION (OSHA)

The United States Department of Labour has formed an agency called the Occupational Safety and Health Administration (OSHA) with significant powers of inspection and investigation to look into and ensure the workplace safety of workers inside the United States. This was President Richard Nixon's decision: he signed the Occupational Safety and Health Act (OSH Act) into law on December 29, 1970, forming the Occupational Safety and Health Administration (OSHA). The overall purpose of OSHA is to make sure the working conditions for men and women are safe and healthy by developing and enforcing standards, as well as providing training, outreach, information, and help. It is the duty of the agency to ensure that various whistle-blower laws and regulations are enforced. Research undertaken by the U.S. Occupational Safety and Health Administration (OSHA) has shown that workplace safety inspections may reduce injuries and associated expenses while having no detrimental impact on employment, sales, credit ratings, or business survival.

11.5.1 History

Since 1934, the Labour Department's Bureau of Labour Standards has been covering various workplace safety issues. During World War II, the economic boom and concomitant worker turnover harmed work safety in practically every sector of the US economy, but after 1945, long-term dynamics reasserted themselves, and accidents began to fall again. In addition, following WWII, new and powerful labour unions began to play a larger role in worker safety. As the country saw a growth in economic activity in the 1960s, there was a rise in the rate of workplace accidents, and therefore Congress passed the Occupational Safety and Health Act (OSHA) on April 28, 1971, the day the Occupational Health and Safety Act (OSH Act) entered into effect. An overwhelming majority of the previous bureau of labour standards was

incorporated into the new structure. Before taking over as the agency's first director, George Guenther was originally appointed.

In OSHA's history, there have been several programmes aimed at helping companies meet safety regulations, teach employees, and provide recognition for exemplary efforts. In 1972, the OSHA Training Institute was founded to provide people who work in both the public and commercial sectors with occupational safety and health training. In 1982, OSHA created the Voluntary Protection Programs, which offer businesses the option of being classified as "model workplaces" if they meet particular criteria.

11.5.2 Rights and Responsibilities under OSH Act

It is the responsibility of employers to create a safe working environment.

Employers are required by law to create a safe and healthy workplace for their employees and to adhere to all OSH Act safety and health regulations. Employers must identify and address workplace safety and health issues. Employers must also endeavour to avoid or lessen dangers by making possible modifications in working circumstances before relying on personal protective equipment such as masks, gloves, or earplugs, according to the OSH Act. Effective approaches to minimise or lessen dangers include switching to safer chemicals, enclosing operations to contain toxic vapours, and using ventilation systems to clean the air.

Employers must also:

- (i) Provide training, labelling, alarms, colourcoded systems, chemical information sheets, and other measures to alert personnel to chemical risks.
- (ii) Provide workers with safety instruction in a language and vocabulary that they understand.
- (iii) Keep detailed records of work-related illnesses and injuries.
- (iv) Conduct workplace tests, such as air sampling, as required by some OSH act criteria.
- (v) Provide free personal protective equipment to workers who are compelled to wear it. Perform hearing tests or other medical testing as required by the OSH act.
- (vi) Post OSHA citations and injury and illness summary statistics where workers may access it on a yearly basis.
- (vii) Report a workplace fatality to OSHA within eight hours. All work-related inpatient hospitalizations must be reported to OSHA within 24 hours.
- (viii) Display the official OSHA Job Safety and Health - It's the Law poster, which explains the OSH Act's rights and responsibilities.

- (ix) Not punish or discriminate against employees who exercise their legal rights, such as reporting a work-related injury or illness.

Workers have the right to:

- (i) Working conditions that do not represent a severe risk of injury.
- (ii) To have their workplace examined, they should file a confidential complaint with OSHA.
- (iii) Get information and training on hazards, how to avoid harm, and the OSH Act standards that relate to their job. Workers must be trained in a language and terminology that they comprehend.
- (iv) Get copies of records of work-related injuries and illnesses that occur at their place of business.
- (v) Obtain copies of the findings of tests and monitoring conducted in order to identify and quantify hazards in their workplace.
- (vi) Receive copies of their medical records from their place of employment.
- (vii) Take part in an OSHA inspection and chat with the inspector in private.
- (viii) If they have been retaliated against or discriminated against by their employer as a result of requesting an inspection or exercising any of their other rights under the OSH Act, they should file a complaint with OSHA.
- (ix) If you are punished or retaliated against for acting as a "whistle-blower" under one of the 21 federal laws over which OSHA has jurisdiction, file a complaint.

Workers who are hired on a temporary basis must be considered as permanent employees. Temporary workers are held jointly accountable by staffing firms and host firms. As a result, both businesses are obligated to follow occupational health and safety regulations and to safeguard the safety and health of their employees. For any violation of any requirement, OSHA could hold both the host and temporary employers liable.

11.5.3 Health and Safety Standards

Work place health and safety requirements fall under the control of OSHA, which is authorised to make those regulations under the Occupational Safety and Health act. Rules addressing workplace hazards and working conditions that put workers' health and safety at risk also include provisions regarding hazardous chemical exposure, provisions for workplace

hazard information, work equipment protection standards, and policies for minimising work-related injuries and fatalities.

The standards found in the Occupational Safety and Health act (OSH Act) for construction, general industry, maritime, and agriculture are set out to safeguard workers from a wide range of hazardous situations. Employers must ensure the safety of workers who enter confined spaces, such as trenches, manholes, sewers, or other locations where people cannot easily see what is on the other side; prevent trenching cave-ins; prevent exposure to infectious diseases; prevent exposure to hazardous chemicals; install guardrails on dangerous machines; and provide respiratory protection/air-purifying equipment.

Employers must also follow the OSH Act's General Duty Clause. When no specific OSHA standard applies to the hazard, this paragraph compels employers to keep their workplaces free of major recognised dangers.

OSHA was allowed to enact regulations based on guidelines established by certain standards bodies, such as the American Conference of Governmental Industrial Hygienists, in its first year of operation, without having to go through all of the usual rulemaking procedures. OSHA has been given the ability to issue regulations that outline the procedures that companies must follow in order to protect their employees against dangers. Before OSHA can issue a standard, it must go through a lengthy and involved process that includes considerable public consultation, notice, and discussion. The agency must demonstrate that there is a serious risk to workers and that firms can take reasonable steps to protect their employees.

OSHA issued an ergonomics standard in 2000. The Congressional Review Act, passed in March 2001, was used to remove the standard. The repeal, which was one of President George W. Bush's first major pieces of legislation, is the first time Congress has effectively utilised the Congressional Review Act to prevent regulation.

Since 2001, OSHA has issued the following standards:

- 2002: Exit Routes, Emergency Action Plans, and Fire Prevention Plans
- 2004: Commercial Diving Operations
- 2004: Fire Protection in Shipyards
- 2006: Occupational Exposure to Hexavalent Chromium
- 2006: Assigned Protection Factors for Respiratory Protection Equipment

- 2007: Electrical Installation Standard
- 2007: Personal Protective Equipment Payment (Clarification)
- 2008: Vertical Tandem Lifts
- 2010: Cranes and Derricks in Construction
- 2010: General Working Conditions in Shipyards
- 2012: GHS Update to the Hazard Communication Standard
- 2014: New Recordkeeping and Reporting Requirements for Employers
- 2014: Revision to Electric Power Generation, Transmission, and Distribution; Electrical Protective Equipment
- 2016: Occupational Exposure to Respirable Crystalline Silica
- 2016: Update General Industry Walking-Working Surfaces and Fall Protection Standards

SAQ 2

- a) What are the different phases in occupational health and safety management systems?
- b) What are the various rights that an employee has under the Occupational Safety, Health and Working Conditions Code, 2020?
- c) What are the responsibilities of the employers as per Occupational Safety and Health Administration (OSHA)?

11.6 WORKPLACE INJURY MANAGEMENT

Workers may sustain injuries or become ill during work. It makes no difference if the damage or illness is caused by their work. What matters is that patients get help in every way, and in serious cases, an ambulance is dispatched. First-aid at Work (FAW) refers to the measures that must be made by employers to guarantee that this occurs. It has the potential to save lives and keep minor injuries from becoming serious ones. Employers must provide adequate and sufficient equipment, facilities, and personnel to enable employees to get first-aid if they are injured or become ill at work, according to the Health and Safety (First-Aid) Regulations 1981. What is adequate and suitable in a particular workplace will be determined by the circumstances.

On any job site, the minimum first-aid provision is:

- (i) a properly filled first-aid box;
- (ii) a designated person in charge of first-aid arrangements.

It is also vital to keep in mind that mishaps might occur at any time. People who are at work need to have access to first-aid at all times. Many small businesses will simply need to provide the bare minimum of first-aid coverage. However, there are some factors that may necessitate more provisioning.

The risk assessments required by the Management of Health and Safety at Work and Control of Substances Hazardous to Health (COSHH) Regulations should reveal any specific hazards in the workplace. The following points should be taken into account:

- (i) Is there a range of risk in different areas of the premises or site?
- (ii) What is the estimated total number of people that will be on site?
- (iii) Are there any young individuals, pregnant or nursing moms, or personnel with special health concerns on the premises?
- (iv) Are the facilities scattered throughout numerous buildings or concentrated in a multi-story structure?
- (v) Are there any hazardous substances, dangerous tools and equipment, hazardous manual handling duties, risks of electrical shock, or threats from neighbours or animals?
- (vi) What is the working-hours pattern? Is there any night work involved?
- (vii) What is your accident and illness history, as well as the type and location of incidents?
- (viii) Is the location far away from emergency medical services?
- (ix) Do employees spend a significant amount of time travelling or working alone?
- (x) Do any of your workers work at other companies' locations?
- (xi) Is there a regular presence of members of the public on site?

11.6.1 Safe Handling and Storage of Waste

In the waste management industry, work-related deaths are ten times higher than the national average. The industry's accident rate is four times higher than the national average. Part 2 of the Environmental Protection Act (EPA) imposes a legislative responsibility of care for waste management. The following are the main requirements:

- (i) To handle trash in such a way that it does not escape into the environment;
- (ii) To only hand over garbage to EPA-approved individuals;

- (iii) To ensure that any garbage is accompanied by a documented description. Holders or manufacturers of trash are required by the Environmental Protection (Duty of Care) Regulations 1991 to complete a "Transfer Note" detailing the type and quantity of waste for collection and disposal. Keep copies of the note for at least two years.
- (iv) To ensure that no one violates the Act's provisions. The EPA is concerned with controlled waste. Controlled waste comprises household, industrial or commercial waste.

It is illegal to deposit controlled waste without first obtaining an environmental permit and/or in a manner that is likely to pollute the environment or endanger human health. Hazardous waste and spillage are also covered by the EPA. Only special preparations can be made to dispose of hazardous garbage. Absolute hazardous waste, such as hydrochloric acid, fuel, oil, or diesel, and minor hazardous waste, such as sawdust, shavings, cuts, wood particle board, and veneer containing dangerous elements, are the two types of hazardous trash. If garbage falls into one of these categories, it must be properly managed, stored, transported, and disposed of. The Environmental Protection Agency (EPA) has a legal obligation to ensure that garbage is not illegally disposed of or handled without an Environmental Permit or Registered Exemption.

To safeguard the environment, the waste must be stored securely and safely in sealed waterproof containers with clear labeling and documented storage and disposal instructions. It must be inspected on a regular basis for leaks, deteriorating containers, and other potential hazards. To determine the risks involved with managing and storing hazardous waste, a risk assessment is required. These compounds can be deadly or extremely flammable. This category includes clinical waste. This garbage is accompanied by a consignment note system along its journey to its eventual destination. A contract with a licensed carrier should be in place before hazardous material is removed from the source. The regulations are designed to ensure that hazardous trash is handled safely and that its movement is tracked.

No matter how large or small a company processes are or how it stores and treats waste, there are valuable lessons to be learned. Furthermore, trash producers owe a duty of care to the organisations that treat and dispose of the waste, as well as the individuals and businesses who work with them on their waste collection jobs. In case of an unplanned chemical reaction,

fire, or spillage at the treatment facility, the likelihood of additional contamination is substantially elevated if rubbish is improperly tagged or handled in unsound containers.

11.6.2 Risk Assessment

A thorough and complete risk assessment is the foundation of excellent health and safety management, and the same concepts apply to assessing hazards in waste management as they do in any other workplace activity. The risk assessment procedure is well-known among most managers, and it simply states:

- (i) Identify the threats
- (ii) Determine who might be hurt and how they might be hurt.
- (iii) Assess the dangers
- (iv) Make a decision on control measures
- (v) Keep track of important results and put controls in place
- (vi) Re-evaluate the assessment and make any necessary changes.

When dealing with chemical wastes, an environment-friendly waste management plan and a Control of Substances Hazardous to Health (COSHH) evaluation is necessary. When fulfilling their obligation to control and manage workplace hazards, employers must identify hazards and reduce or eliminate risks with PPE, but only as a last resort. To enable workers to develop and master safe working practices, such as using personal protection equipment, they must get enough training.

11.6.3 Dangers of Waste Collection and Disposal

The dangers of waste collection and disposal are widely understood. Vehicles are involved in the majority of accidents in the trash business. Reversing a car can be dangerous, especially if it's being backed into a restricted place where workers or pedestrians could be crushed.

When big containers or equipment fall on personnel, serious injuries might occur. Wear and tear, unsafe work systems, and bins that are incompatible with the contractor's hoist are all possible causes. Aside from these major risks, trash operatives who handle large bins are more likely to suffer from the more usual job mishaps, such as slips, trips, falls, and injuries from manual handling. Chemicals in garbage put people at danger of contact dermatitis or possibly poisoning.

Those who work with waste chemicals must be aware of the risks associated with each item. Incompatible substances have been mixed or stored too close together, leading in some of the most heinous waste-related incidents. Inadequate packaging of hazardous chemicals can also result in violent chemical reactions: for example, when lithium/copper strips used in battery manufacture come into contact with water, a particularly devastating fire can occur (e.g., as a result of not being securely packed). All too often, a disastrous fire is the result of an unforeseen exothermic reaction. Another obvious issue is putting flammable liquid waste near combustible materials, such as plastic containers. Accidents have also occurred when liquid chemical wastes reacted with sludge of unknown composition at the bottom of storage or mixing tanks.

When heated or torn, aerosols can explode and fly through the air, posing a serious threat. They must be kept in a safe environment, such as a specifically built cage.

11.6.4 Management of the Risks

When putting out bids for waste management contracts, waste producers should be careful to indicate safe working practices.

- (i) Whether reversing of vehicle can be avoided, for example, by establishing a specific access route or ensuring that bins are put in an accessible area, should be duly considered
- (ii) Collections should be timed to avoid busy periods when there will be more pedestrians.

If bins are provided, the trash producer must ensure that they are compatible with the contractor's hoist and that they are in good working order. Anyone handling garbage containers, whether employed by the garbage producer or a contractor, will require appropriate personal protective equipment. This will most likely include:

- (i) A hard hat
- (ii) Clothes with a high level of visibility
- (iii) Ankle-supporting safety boots (to avoid slipping on muddy or wet surfaces)
- (iv) A pair of thick gloves
- (v) Cut-resistant slacks

Chemical waste handlers may additionally require eyewear and breathing protection. Hygiene is critical, especially when dealing with chemical waste. Hand washing and changing facilities should be available to employees.

Employers must ensure that everyone handling garbage is properly trained, whether it's in manual handling procedures, excellent hygiene to avoid dermatitis, the use of personal protective equipment, or the unique risks of waste chemicals. Employees should be able to identify hazardous substances and understand what to do in the event of a leak, including reporting requirements.

11.7 ADVICE FOR WASTE COLLECTORS

Waste management is an important element of keeping our environment and houses clean and liveable. Waste management is, however, a riskier job than most people know. The waste management business desperately needs to enhance its safety culture.

Employees may need some type of training to ensure that hazardous and non-hazardous wastes are separated on site and that they are fully aware of the hazards and safety procedures that must be taken. Personal protective equipment (PPE), such as overalls, gloves, and eye protection, must be provided and used at all times. Trespassers, fire, and bad weather should all be avoided at the storage location. Appropriate fire safety systems must be in place if flammable or combustible wastes are being kept. Finally, any drains that contain liquid wastes must be protected, and bunds must be installed to prevent the substance from spreading as a result of spills. The Environment Agency has suggested that waste streams be managed in a hierarchy.

- Prevention through altering the process to eliminate waste production (e.g., substitution of a particular material).
- Reduction through increasing the process' efficiency (e.g., better machine maintenance).
- Reuse the trash is recycled back into the process (e.g., using reground waste plastic products as a feed for new products).
- Recovery releasing energy from trash by combustion, recycling, or composting (e.g., the incineration of combustible waste to heat a building).
- Responsible disposal in compliance with legal regulations.

The following are the safety recommendations that will keep you safe during the solid waste collection process, from carrying the correct safety equipment to managing traffic safely.

11.7.1. Safety Equipments for the Extreme Weather Conditions

A waste collection specialist, like anyone with a tough job, must arrive at work with the proper equipment. Because garbage collection workers spend the majority of their time outside, they must be prepared with a weather-appropriate kit:

- (i) **Hot Weather:** Light colour apparel with long sleeves, as well as a safety vest with ventilated mesh pockets. To keep sweat off your face, wear durable safety eyewear and a cap or headband.
- (ii) **Cold Weather:** Layered high-visibility apparel with synthetic insulation for cold weather (as it performs better than gown in wet conditions). Boots should be of excellent traction for navigating ice and snow.
- (iii) **Rainy Weather:** A rain jacket, additional dry clothes, waterproof boots, and a reflective vest are all recommended (if your rain jacket is not reflective).

In addition, no matter what environment you are working in, always make sure to bring some water to drink since dehydration can strike in any type of weather.

11.7.2. Inspection of Collection Vehicle

When it comes to waste collection safety, every detail matters. As part of your pre-shift inspection, make sure to look over the following items:

- (i) Brakes
- (ii) Tyres
- (iii) Lifting and hoisting systems
- (iv) Fire Extinguisher
- (v) System of backup alerts
- (vi) Wipers on the windshield
- (vii) Fluids in the engine
- (viii) Lighting (including hazard lights)
- (ix) Basic first-aid kit

If any of the above is out of order, fix it right away and/or contact a supervisor.

11.7.3. Avoidance of Reverse Driving of the Collection Vehicles

Large trucks with lifts are the most typical waste collection vehicles. The driving of a waste truck necessitates caution and skill, and reverse operation is particularly tough. If at all possible, avoid going backwards. Circling the block may take longer, but it is preferable than a potentially fatal accident.

You may have no choice but to reverse the truck at times. In these situations, the driver will always want assistance from a second person on the ground who can aid direct the truck. The person in charge of directing must keep an eye out for vehicles, children, animals, and any other potential risks. If the motorist can no longer see the individual on the ground, he or she must come to a complete stop.

11.7.4. Commitment to Maintain Good Personal Hygiene

Now that COVID-19 is a constant threat, personal cleanliness is more crucial than ever. Waste collectors should be aware of the dangers they confront and take additional measures, such as:

- (i) Use personal protective equipment (PPE), such as a mask and gloves.
- (ii) Treat wounds and other injuries as soon as possible.
- (iii) Only touch your face when it's absolutely essential.
- (iv) Consult your doctor about whether you should have tetanus and/or hepatitis immunizations.
- (v) Report hypodermic needle puncture wounds right away and get medical help right away.
- (vi) As soon as you arrive home, take a shower.
- (vii) Separately wash your work clothing from your other outfits.
- (viii) Have many sets of work clothing on hand so you don't have to re-wear soiled ones on a whim.

11.7.5. Physical Handling Techniques to Minimize Harm

One of the most important strategies to minimise harm on the workplace is to properly handle waste containers and bulk garbage. To reduce the physical risk, use the following techniques:

- (i) When lifting, always lift with your knees and keep your back straight.
- (ii) Roll garbage containers instead of lugging them whenever possible.
- (iii) If you must move hefty dumpsters or other heavy waste, do so with two hands.
- (iv) Before attempting to lift heavy garbage, make sure your feet are securely placed.

- (v) To avoid repetitive strain injuries, use a diversity of throwing techniques.
- (vi) Be mindful that unidentified sharp items are a continual danger.

11.7.6. Procedure for a Safety Complaint to the Next Level

The best method to handle a safety issue is to discuss it with the other parties involved. Talk to your co-workers about how to handle safety issues to everyone's satisfaction.

You may need to submit the complaint to a supervisor at times. It's a good idea to familiarise yourself with your department's complaint procedures ahead of time so you can file yours promptly and quietly if necessary. Make sure your complaint is specific and actionable, and that it adheres to the rules.

11.7.7. Precautions from Complacency of Routine

Routine and habit are important elements for creating a safety culture, but they can also be detrimental. You can get complacent without even realising it if you complete the same safety checks every day before work.

To avoid falling into the pattern too much, have a different member of your team execute the safety checks each day on a rotating time table. Visual reminders of your checking processes can also be placed around the workplace to serve as a handy reminder of the right procedures.

11.8 Summary

Solid waste has a variety of effects on people and the environment, depending on the type of rubbish or solid waste generated, the population affected, and the period of exposure. Due to a variety of risk factors, workers in the waste management business are at a significant risk of suffering an occupational illness or accident. Occupational Health and Safety (OHS) is important for society, organizations, and individuals since it aims to improve working conditions and worker health. In order to effectively handle and regulate health and safety risks, every organization should have a stated policy for the systematic management of health and safety.

11.9 Key Words

Contract Labour: Worker hired for or in conjunction with the work of an establishment and is a member of a contractor workforce.

Hazardous Process: Any process or action in which raw/intermediate/finished/bye-products, etc., would endanger the health of those involved in or associated with the activity or cause pollution of the environment in general.

OSH Code: The OSH Code includes provisions for a number of legal mandates and statutes that contain information regarding working conditions.

OSHA: The United States Department of Labour's agency with significant powers of inspection and investigation to look into and ensure the workplace safety of workers inside the United States.

SAQ 3

- a) What are the different points to be taken into account in COSHH evaluation?
- b) What are the main requirements for safe handling and storage of waste as mentioned in the Environmental Protection Act (EPA)?
- c) Discuss the various safety recommendations for Waste collectors.

11.10 Answers to SAQs

SAQ 1

- a) Refer last point of Section 11.1
- b) Refer Section 11.2
- c) Refer Section 11.1

SAQ 2

- a) Refer Section 11.3
- b) Refer Section 11.4
- c) Refer Section 11.5

SAQ 3

- a) Refer Section 11.6
- b) Refer Section 11.6.1
- c) Refer Section 11.7

Further Readings

1. <https://sustainability.wm.com/putting-people-first/safety>
2. Tchobanoglous, G., Theisen, H., and Vigil, S. A, "Integrated Solid Waste Management", McGraw Hill, New York
3. Guidelines for Management and Handling of Hazardous wastes MOEF (1991), GoI.