



CERTIFICATE IN **SOLID WASTE** MANAGEMENT

*Empowering Tomorrow's Leaders in
Sustainable Waste Solutions*



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CSBM CAMPUS



Solid Waste Management

Offered By,

Colombo School of Business and Management (CSBM) was established with the patronage of prominent corporate leaders and institutions in Sri Lanka intending to promote a novelty in higher education, professional, executive training, career development, research, business support, and consultancy.

The Colombo School of Business and Management (CSBM) is committed to empowering you with these to better face the business environment and challenges with confidence through our unique solutions in academic and professional programs in business and management. Each of these programs is designed by experts with key learning outcomes incorporated to ensure effectiveness and delivery quality. Our renowned faculty members are veterans in their field who are both practitioners and academics; their strong links with many key organizations mean that you will benefit from their business experience as well as their innovative research knowledge.

CSBM is a certificate-awarding institution under the Tertiary and Vocational Education Commission of Sri Lanka (TVE) (Amendment) Act No 50 of 1999. All our educational programs follow the Sri Lanka Qualification Framework (SLQF).

Overview

Sri Lanka's solid waste management is a critical issue due to its growing population and urbanization. The country generates a significant amount of waste, primarily from households, businesses, and industries, including organic matter, plastics, paper, glass, and hazardous waste. The Central Environmental Authority (CEA) oversees waste management activities, and waste collection is organized by municipal authorities and private sector entities in urban and peri-urban areas. Proper waste segregation is encouraged to separate recyclable materials from non-recyclables, and public awareness campaigns promote responsible disposal.

Recycling initiatives are being promoted to reduce waste going to landfills, and composting is encouraged for organic waste. Public awareness campaigns and educational programs are crucial for promoting responsible waste disposal and recycling practices. Private sector participation is increasing, and public-private partnerships are being explored to improve waste management infrastructure. From this workshop, participants will gain the fundamentals of more sustainable and integrated waste management system, promoting recycling, reducing single-use plastics, and adopting environmentally friendly technologies.

Why Needed to be Attended?

This program provides knowledge enhancement, regulatory compliance, safety and health training, efficiency and cost savings, environmental sustainability, community engagement, networking opportunities, problem-solving skills, career development, and a global perspective. Attending this program helps supervisors stay updated on the latest trends, technologies, and best practices in solid waste management, ensuring compliance with local and national regulations. They also provide insights into optimizing waste collection, disposal, and recycling processes, reducing operational costs. This also educate supervisors on sustainable waste management practices, such as recycling and composting, which can reduce the environmental impact of waste disposal. Overall, attending this program can enhance a supervisor's knowledge, skills, and networking opportunities.

Program Objective

The objective of a Solid Waste Management program is to manage and mitigate the environmental, social, and economic impacts of solid waste generation, collection, disposal, and recycling effectively and sustainably. This involves various goals and targets aimed at improving the overall management of solid waste.

Learning Outcomes

By the end of the course, participants will be able to,

- Demonstrate effective leadership and communication skills to manage a team of solid waste workers.
- Identify and inspect tools, equipment, and materials used in solid waste operations.
- Plan and organize waste collection routes based on the volume and type of waste generated.
- Oversee the loading of waste onto collection vehicles, ensuring proper weight distribution.
- Educate the workforce and the community on the importance of waste segregation.
- Monitor the composting process, including temperature, moisture levels, and turning frequency.
- Gain a comprehensive understanding of the biogas production process, including the feedstock selection, microbial digestion, and gas capture.
- Understand the legal and regulatory requirements related to landfill operations, including waste disposal laws and environmental regulations.

Teaching and Learning Activities

Week	Module No	Topic	Course Content	Learning Outcome
01	01	Supervise solid waste operational workforce	<p>Organize solid waste operations.</p> <ol style="list-style-type: none"> Operational plan studied as per given instructions. Relevant resource obtained as per the Standard Operating Procedure (SOP) Duty assigned and target communicated to the workforce as per the activity plan. Institutional solid waste administrative activities performed as per SOP 	<ol style="list-style-type: none"> Evaluate the importance of aligning operational plans with strategic objectives. obtain relevant resources efficiently and effectively. Ensure that targets are effectively communicated to the workforce in accordance with the activity plan. Adhering to standardized operating procedures enhances efficiency in managing institutional solid waste
02			<p>Monitor daily activities.</p> <ol style="list-style-type: none"> Commencement of daily activities guided as per the daily work schedule. Ongoing operations directed by visiting the sites. Problems (if any) addressed (rectified) and feedback obtained as per the situation. Demonstrate the operational activities when necessary. Occupational health & safety practices ensured as per the SOP. Relevant data recorded & reported as per the SOP 	<ol style="list-style-type: none"> Individuals develop efficient routines for the commencement of daily activities and fostering productivity. Improved site management enhanced problem-solving skills, and increased efficiency. Rectified issues, learned valuable lessons, and obtained feedback for continuous improvement. Demonstrating operational activities, when necessary, learners gain practical skills. Adhering to SOPs for occupational health and safety practices, ensuring a safe workplace. Ensuring that relevant data is accurately recorded and reported in accordance with SOP.
03	02	Maintain tools,	<p>Determine tools, equipment & material requirements.</p>	<ol style="list-style-type: none"> Identify the required tools, equipment, and materials.

		equipment & material of solid waste operations	<ol style="list-style-type: none"> 1. Action plan studied and requirements of tools, equipment & material identified. 2. Existing tools, equipment and material identified & listed as per the specified procedure. 3. Shortage of tools, equipment & material requested as per the specified procedure. 4. Relevant data recorded as per the SOP. 	<ol style="list-style-type: none"> 2. Identify, list, and manage existing tools, equipment, and materials for streamlined operations. 3. Ensure that requests are made in accordance with specified procedures, preventing disruptions in workflow. 4. Consistently ensuring that relevant data is recorded in accordance with the Standard Operating Procedure (SOP) guidelines.
04			<p>Monitor issuing, receiving, and reviewing tools, equipment & material.</p> <ol style="list-style-type: none"> 1. Tools, equipment & material issued on request as per the SOP. 2. Tools, equipment & material received by checking the conditions specified. 3. Damages rectified & lost items recorded as per the SOP. 4. Minimum stock level maintained as per the SOP. 5. Preventive & corrective maintenance guided as per the service & operational manuals and manufacturer's instructions 	<ol style="list-style-type: none"> 1. Demonstrate proficiency in requesting, handling, and utilizing tools, equipment, and materials in accordance with established SOP. 2. Master the vital skill of ensuring compliance with specified conditions upon receipt. 3. Rectify damages and meticulously record lost items in accordance with SOP. 4. Adherence to the SOP by maintaining minimum stock levels effectively. 5. Proficiency in conducting preventive and corrective maintenance, adhering to service and operational manuals as well as manufacturer's instructions.
05	03	Ensure appropriate solid waste collection	<p>Organize facilities for daily collection of solid waste.</p> <ol style="list-style-type: none"> 1. Solid waste collection areas, activities and timing are decided as per the given route map and schedule. 2. Street cleanliness activities and areas decided as per the plan & guidelines. 	<ol style="list-style-type: none"> 1. Solid waste collection areas, activities, and timing align with the provided route map and schedule for efficient management.

			3. Availability of required resources ensured according to the route map.	2. Through adherence to the established plan and guidelines, street cleanliness activities are conducted, resulting in improved urban hygiene and community satisfaction. 3. Ensure the availability of required resources as outlined in the route map.
06			<p>Ensure the cleanliness of sites.</p> <ol style="list-style-type: none"> 1. Solid waste operational assistants instructed and guided to ensure proper cleanliness of defined sites. 2. Defined streets and other sites visited to ensure the appropriate cleanliness and collection of segregated waste. 3. Appropriate handing over of tools, equipment, machinery, and vehicles ensured as per SOP. 	<ol style="list-style-type: none"> 1. Able to maintain proper cleanliness at designated sites, fostering responsible waste management. 2. Ensure cleanliness and proper waste segregation in ten words. 3. Identify proper handling of tools, equipment, machinery, and vehicles during handovers, fostering safety and efficiency.
07			<p>Attended to improvements.</p> <ol style="list-style-type: none"> 1. Public complaints attended and reported as per SOP. 2. Required actions taken to eliminate illegal disposal & burning. 3. Progress and situation of process recorded and reported with suggestions to the authorized personnel as per SOP. 	<ol style="list-style-type: none"> 1. Employees will demonstrate proficiency in handling public complaints, following SOPs. 2. Will develop a comprehensive understanding of environmental stewardship and legal compliance. 3. Recording, reporting, and offering suggestions to authorized personnel in accordance with established SOPs.
08	04	Supervise transportation & unloading of solid waste	<p>Ensure appropriate transportation.</p> <ol style="list-style-type: none"> 1. Type of vehicles for transportation selected according to the given plan. 2. Appropriate loading of solid waste to the vehicle ensured. 3. Loaded solid waste transported ensuring environmentally friendly manner & following stipulated guidelines and given plan. 	<ol style="list-style-type: none"> 1. Students will identify, analyze, and justify vehicle choices based on plans. 2. Will learn efficient and safe solid waste loading into vehicles. 3. Understand how to minimize ecological impact while adhering to regulatory

				requirements and operational directives.
09			<p>Ensure appropriate unloading of solid waste.</p> <ol style="list-style-type: none"> 1. Location selected within the site for unloading according to the type of waste and space available. 2. Continuity and proper unloading assured for smooth functioning of transportation process. 3. Following safety and health procedures by solid waste operational assistants ensured. 4. Appropriate handing over of tools, equipment, machinery, and vehicles ensured as per SOP. 5. Progress and situation of process recorded and reported with suggestions to the authorized personnel as per SOP. 	<ol style="list-style-type: none"> 1. By considering waste type and available space, the selected unloading location optimizes site efficiency and safety. 2. Understand essential to guarantee smooth and efficient operations. 3. Ensure a secure work environment and minimize potential hazards. 4. Ensure proper handover of tools, equipment, machinery, and vehicles, demonstrating proficiency in handling procedures. 5. Learn to meticulously record and report it, while also offering valuable suggestions to authorized personnel,
10	05	Ensure appropriate segregation, storing & recycling of solid waste	<p>Organize segregation process.</p> <ol style="list-style-type: none"> 1. Tools, equipment, and PPE obtained as per segregation requirement. 2. Solid waste operational assistants allocated and instructed as per segregation requirement. 3. Appropriateness of space and cleanliness ensured as per given standard procedures 	<ol style="list-style-type: none"> 1. Learners will enhance workplace safety and operational efficiency. 2. Allocated and instructed to meet segregation requirements, enhancing their skills. 3. Identify appropriateness of space and cleanliness involves adhering to specified standard procedures
11			<p>Perform Segregation process.</p> <ol style="list-style-type: none"> 1. Biodegradable and Non-biodegradable waste separated from the mixed waste at a justifiable accuracy and time duration. 2. Separated non-biodegradable waste from mixed waste further segregated according to the type of recyclable items at a justifiable accuracy and time duration. 3. Pre segregated non-biodegradable waste received from collection 	<ol style="list-style-type: none"> 1. Ability to efficiently separate biodegradable and non-biodegradable waste from mixed waste with high accuracy and within a reasonable time frame. 2. Learn to separation of non-biodegradable waste from mixed waste, subsequently categorizing recyclable items with remarkable efficiency and speed.

			<p>process further segregated according to the type of recyclable items at a justifiable accuracy and time duration.</p> <ol style="list-style-type: none"> 4. Segregated bio-degradable waste sent for pretreatment process as per the given guidelines. 5. Residuals sent for final disposal as per given guidelines. 6. Cleanliness of the used tools, equipment and the working area ensured after completion of segregation process. 	<ol style="list-style-type: none"> 3. Understand efficient segregation of pre-segregated non-biodegradable waste, based on recyclable item types, with both accuracy and timely processing. 4. Ensure efficient and eco-friendly waste management while reducing environmental impact. 5. Learn specified guidelines for disposing of residuals in a final, responsible manner. 6. Understand importance of maintaining cleanliness by ensuring that tools, equipment, and the working area are kept clean following the completion of the segregation process.
12			<p>Store segregated waste</p> <ol style="list-style-type: none"> 1. Segregated recyclables prepared for storing following accepted procedures. 2. Prepared recyclables placed according to the waste category ensuring safety aspects. 3. Progress and status of segregation and storing processes recorded daily and reported to the authorized personnel as per organizational procedures. 	<ol style="list-style-type: none"> 1. Participants will proficiently store segregated recyclables using approved protocols. 2. Learners ensure safety while promoting eco-friendly practices. 3. Understand how to compliance with organizational procedures, facilitating informed decision-making by authorized personnel.
13	06	Ensure systematic composting process	<p>Organize composting process.</p> <ol style="list-style-type: none"> 1. Tools, equipment, and PPE obtained as per compost requirement. 2. Solid waste operational assistants allocated and instructed as per compost requirement. 3. Appropriateness of space and cleanliness ensured as per given standard procedure. 	<ol style="list-style-type: none"> 1. Acquire and utilize tools, equipment, and PPE in accordance with composting specifications and safety protocols. 2. Solid waste operational assistants are assigned and trained based on compost needs. 3. Ensure adherence to standard procedures.
14			<p>Perform composting process.</p>	<ol style="list-style-type: none"> 1. Ensure efficient decomposition and reduce environmental impact.

			<ol style="list-style-type: none"> 1. Separated biodegradable waste received & piled as per standard procedure. 2. Composting process maintained continuously. 3. Control parameters checked & ensured as specified. 4. Compost pile maintained for curing and maturation as specified. 5. Matured compost sieved & maintained for further maturation as specified. 	<ol style="list-style-type: none"> 2. Continuous maintenance of the composting process results in rich, nutrient-dense soil. 3. Ensure control parameters are checked as specified is to demonstrate proficiency in meticulous quality control practices and adherence to specified guidelines. 4. Successful compost pile maintenance ensures proper curing and maturation results. 5. Enhance its nutrient-rich quality and microbial activity, optimizing its soil-enriching potential.
15			<p>Prepare compost product for marketing.</p> <ol style="list-style-type: none"> 1. Compost products are enriched by mixing enrichment agent if required as specified. 2. Compost product packed, labeled & stored as per standard procedure. 3. Progress & status of packing & storing process recorded as per organizational procedure. 	<ol style="list-style-type: none"> 1. Compost product quality is enhanced through enrichment agent incorporation as specified. 2. Understand proper packaging, labeling, and storage following standard procedures to ensure quality and safety. 3. Identify proficiency in documenting packing and storage progress in accordance with organizational protocols.
16	07	Ensure systematic biogas process	<p>Organize biogas process.</p> <ol style="list-style-type: none"> 1. Tools, equipment, and PPE obtained as per biogas generation process requirement. 2. Solid waste operational assistants allocated and instructed as per biogas requirement. 3. Appropriateness of space and cleanliness ensured as per given standard procedure. 	<ol style="list-style-type: none"> 1. Identify necessary tools, equipment, and PPE in accordance with biogas generation procedures. 2. Solid waste operational assistants are trained and guided based on biogas needs. 3. Ensure the appropriateness of space and cleanliness as per standard procedures.
17			<p>Perform biogas generation process.</p> <ol style="list-style-type: none"> 1. Received waste ensured total biodegradability. 2. Biodegradable waste is fed to the biogas digester as specified. 	<ol style="list-style-type: none"> 1. Ensure that received waste achieves total biodegradability, promoting environmental responsibility and reducing ecological harm.

			<ol style="list-style-type: none"> 3. Biogas generation process maintained as per recommended procedure. 4. Biogas utilization process with relevant accessories maintained as per recommended procedure. 5. Residue of the process removed & biodegradable waste fed timely as per recommended procedure. 	<ol style="list-style-type: none"> 2. Understand the efficient conversion of organic matter into renewable energy. 3. Adhering to recommended procedures ensures efficient biogas generation with optimal outcomes. 4. Understanding the relevant accessories and maintaining them according to recommended procedures for efficient operation. 5. Enhances environmental sustainability and resource efficiency.
18	08	Ensure sanitary land filling operations	<p>Receive solid waste.</p> <ol style="list-style-type: none"> 1. Landfilling schedule studied & relevant data recorded as per given instructions. 2. Solid waste and covering material received as per the landfilling schedule & relevant data recorded. 3. Solid waste weighing operations performed & required data recorded as per standard procedure. 4. Type of the received waste examined before dispose as per the given instructions. 	<ol style="list-style-type: none"> 1. Understand the guidelines and diligently recording the relevant data, ensuring compliance with provided instructions. 2. Understanding how to receive materials in accordance with landfilling schedules and accurately recording relevant data to ensure proper disposal and environmental compliance. 3. Identify standard procedures, and meticulously record all necessary data. 4. Understanding the necessity of examining the type of received waste before disposal in accordance with provided instructions to ensure proper environmental management.
19			<p>Handle landfilling operations.</p> <ol style="list-style-type: none"> 1. Instructions given for appropriate unloading to the specified locations. 2. Instructions given for appropriate pushing, leveling & compacting of solid waste. 3. Instructions given for appropriate covering of compacted solid waste. 	<ol style="list-style-type: none"> 1. Learners achieve precision in logistics and reduce errors. 2. Students will demonstrate proficient and safe waste management practices. 3. Learners will demonstrate proper disposal techniques, reducing environmental impact.

20			<p>Maintain the landfill site.</p> <ol style="list-style-type: none"> 1. Landfill gas collection system monitored as specified. 2. Leachate collection system ensured for proper functioning. 3. Internal access roads & storm water drains ensured proper conditions. 4. Unauthorized disposal of waste & entering of stray & wild animals prevented as per standard procedure. 	<ol style="list-style-type: none"> 1. Identify effectively monitor it as specified in the guidelines. 2. Understand its efficient and reliable operation, safeguarding environmental integrity. 3. Will be able to design and implement to guarantee optimal conditions for safety and drainage within the facility. 4. Effectively prevents unauthorized waste disposal and the entry of stray and wild animals, ensuring a safer environment.
21			<p>Assist with market survey.</p> <ol style="list-style-type: none"> 1. Information gathered referring to relevant information sources as per specified procedure. 2. Gathered information recorded as per specified procedure. 3. Price proposed as above findings as per specified procedure. 	
22	09	Perform selling activities	<p>Sale of recyclable items.</p> <ol style="list-style-type: none"> 1. Recyclable items prepared for sale considering market demand as per specified procedure. 2. Selling of recyclable items as per SOP. 3. Relevant details recorded as per specified procedure. 	
23			<p>Sale of compost</p> <ol style="list-style-type: none"> 1. Compost prepared for sale as per given instructions. 2. Selling of compost as per SOP. 3. Relevant details recorded as per specified procedure. 	

Who Should Attend?

A solid waste management course is ideal for individuals interested in understanding the principles, practices, and regulations related to the effective management of solid waste, including professionals in environmental science, urban planning, civil engineering, and individuals seeking careers in waste management or environmental sustainability. It provides essential knowledge and skills for efficiently handling, reducing, recycling, and disposing of solid waste to mitigate environmental impacts.

Fee & Reimbursement

The investment per person is Rs. 55,000.00 which includes study materials, coursework, post-course support, and certification of completion.

Program duration

One day per week for six months – 9.00 AM to 5.00 PM

Medium of instruction.

English/Sinhala

Academic Coordinator

Ms. Janani Sepion

MBA (General), UOC

BSc (Hons) (Management), Ireland

Contact Information

Mobile: 070-3667690

Email: janani@csbm.edu.lk

Contact Information

CEO/Director	Mr. Pradeep Alexander	076-8036368	alexander.p@csbm.edu.lk
Registrar	Mr. K Gamage	070-3667689	gamage@csbm.edu.lk
Administration Coordinator	Ms. Achini Priyadarshani	070-3667688	achini@csbm.edu.lk
General Contact	CSBM Campus	011-2667678	csbmoofficial@gmail.com



CSBM

CAMPUS

Tel: 011 2667 678

Email: info@csbm.edu.lk

65/5, Ward Place, Colombo 07

www.csbm.edu.lk