



Skills Framework for Environmental Services

A Guide to Occupations and Skills

An initiative of

SKILLSfuture

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About the Skills Framework

The Skills Framework is a SkillsFuture initiative developed for the Singapore workforce to promote skills mastery and lifelong learning. Jointly developed by SkillsFuture Singapore (SSG), Workforce Singapore (WSG) and National Environment Agency (NEA), together with employers, industry associations, education and training providers and unions, the Skills Framework for Environmental Services provides useful information on:



With the Skills Framework, individuals are equipped to make informed decisions about career choices, as well as take responsibility for skills upgrading and career planning.



Assess Career Interests

- Discover employment opportunities
- Understand career pathways
- Recognise personal attributes required



Prepare for Desired Jobs

- Understand skills and competencies required



Find Avenues to Close Skills Gaps

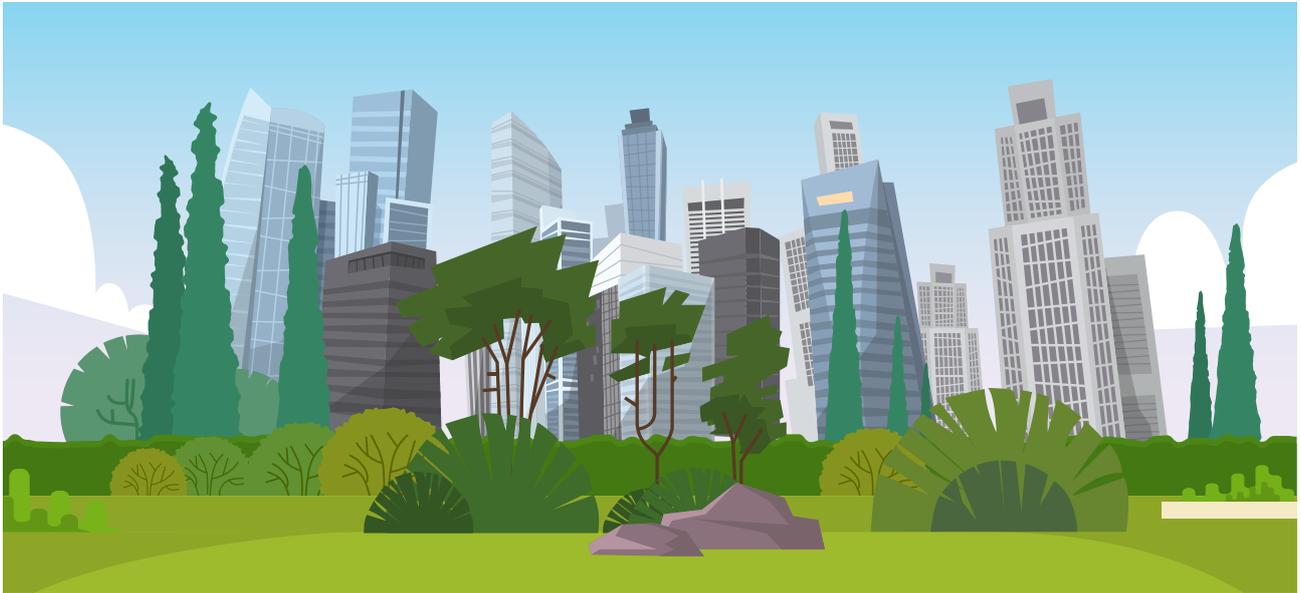
- Identify relevant training programmes to equip oneself with the required skills and competencies
- Participate in on-the-job training opportunities provided by companies



Renew, Upgrade and Deepen Skills

- Plan for career development/transition
- Recognise skills and competencies required for the intended job role
- Identify training programmes to upgrade and deepen skills

Environmental Services Landscape



Singapore is well-known internationally for being a clean and green garden city. The clean streets and homes its inhabitants enjoy every day are a result of a thriving Environmental Services industry, which manages waste and keeps the city hygienic and liveable.



LISA
A job-seeker

“I am Lisa, I am looking for a job and I do not know how to begin. I am unsure what types of jobs are suitable for me.”



PETER
An employer

“I am Peter, I am a General Manager of an Environmental Services company. To stay ahead of competition, I need to build up the capabilities of my staff and equip them with the necessary skills.”



TIM
A worker

“I am Tim, I have been placed into a new job role in an Environmental Services company. In my new role, I will lead a team, and I hope the Skills Framework for Environmental Services will help me better understand the requirements of this role.”

Let Lisa, Peter and Tim take you on a journey to understand the Environmental Services industry using the Skills Framework for Environmental Services. The adventure begins now!

Environmental Services Landscape

For Employers and Workers



Hi Tim, now that our company is looking to become more efficient in our operations, let's plan how to prepare our team to keep up with the upcoming automation processes.

Sure, Peter! To help us in our planning, we can consider using the Skills Framework for Environmental Services which was shared by the Human Resource department earlier.



Oh yes, the Skills Framework not only talks about the existing skills required for each job, it also captures the emerging skills arising from the latest trends in our industry.

That's right! We can also refer to the Skills Maps in the Skills Framework to find out how the industry trends impact the tasks that are performed in each job role.



For Job-Seekers



Hey Lisa, I understand you are currently looking for a job. How is the job search coming along?

Hi Tim, it's ok, but I am having trouble deciding on what job to choose.



How about pursuing a job in an area that you are passionate about?

Actually, I would love to work in a job that allows me to maintain a clean and safe environment that everyone can enjoy.



Oh, a job in the Environmental Services industry sounds suitable for you! Why not refer to the Skills Framework for Environmental Services to understand more about this industry, the different Career Pathways available, and the skills and competencies required?

Sounds wonderful! I will read through the Skills Framework to find out more.



Key Statistics



The sector information helps me understand how the Environmental Services industry is organised.

The Environmental Services industry comprises the Cleaning, Waste Management and Pest Management sub-sectors. It is made up of more than 2,000 establishments and includes a mix of both international and local enterprises. A majority of the establishments in the Environmental Services Industry are small and medium-sized enterprises (SMEs).

The industry has a workforce of over 80,000 individuals who are employed in a diverse range of jobs: from general cleaners, to engineers and specialists in waste collection, recycling processes and waste treatment, as well as environmental health and safety professionals.

So what exactly does environmental services in Singapore involve? Read on to find out!



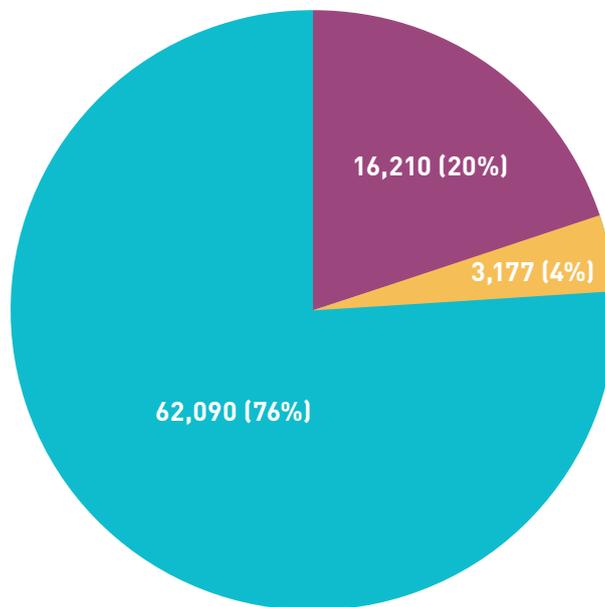
Key Statistics



Did you know?

The Environmental Services Industry employs 2% of the total labour force. More than two-thirds are in the rank-and-file group with a predominantly mature workforce.

Total Workforce in 2018: 81,477



■ Cleaning ■ Waste Management ■ Pest Management



Average age of resident workforce

Cleaning – 60 years
Waste Management (WM) – 49 years
Pest Management (PM) - 38 years



Rank-and-File workforce

Cleaning – 94%
WM – 67%
PM - 76%

Future Developments



I am excited to know that the Environmental Services industry is a forward-looking one, and there will be many opportunities that will be available to me as the industry continues to transform.

As Singapore's infrastructure, economy and population continue to grow, the demand for environmental services will also rise in tandem. Upholding the high standards of public cleanliness and hygiene is paramount in maintaining a liveable city for Singaporeans to live, work and play in.

While the Environmental Services industry has progressed over the years, the National Environment Agency, together with its industry partners and stakeholders, are driving the transformation to propel the industry forward. The transformation efforts under the Environmental Services Industry Transformation Map (ES ITM) will ensure that the industry remains competitive. With the adoption of technology and innovative solutions, work and productivity will be enhanced. Value-added jobs will also grow with the Cleaning and Waste Management sub-sectors.

As the industry embarks on this transformation journey, the workforce can look forward to rewarding and enriching career and skills upgrading opportunities that contribute to promoting environmental sustainability in Singapore for years to come. As business models and work processes evolve to meet Singapore's long-term demand for environmental services, employees will need to acquire new, deeper knowledge and skills to perform their jobs better or to take on redesigned jobs to meet the complex and growing needs of the industry.

Mature job-seekers will be given opportunities to take on value-added jobs and receive training on how to use technology and machinery to make their jobs easier, expanding their skill-sets in the process. Younger job-seekers can also look forward to clearer career and training pathways, and to becoming professionals and specialists as they get equipped with the skills and capabilities that enable them to design solutions and products to meet the demands of the future.

Future Developments

Major trends shaping the Environmental Services industry:

EMERGING TRENDS



Leveraging Technology

Improve business operational efficiency through the adoption of technology



Lean Thinking

Cultivate an innovative and manpower-lean format to achieve operational efficiencies



Increase in Service Demand

Strengthen human resource capabilities to build a quality workforce and provide quality services

EMERGING SKILLS

- Automation Research and Implementation
- Internet of Things Management
- Robotics and Automation Application

- Data and Statistical Analytics
- Process Improvement and Optimisation
- Process Quality Management

- Customer Management
- Market Research
- Stakeholder Management

Desired Attributes for Environmental Services Talents

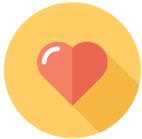


Do you have a passion for the environment and enjoy working with people? The Environmental Services Industry offers opportunities to develop your passion and grow your career.



Decisive

Takes appropriate action after understanding the situation in challenging scenarios



Passionate

Possesses a desire to continuously improve and stay up-to-date with industry trends and knowledge



Resilience

Resilient with positive attitude to take on exciting challenges



Service-Oriented

Able to communicate with stakeholders in a professional manner



Team Player

Able to work with colleagues to achieve the common goal



I can refer to the desired attributes to assess if I am a good fit for this industry.

Initiative and Schemes



There are a variety of initiatives and schemes put up by Government agencies to help Individuals and Employers in terms of career guidance, training and funding support.

For Individuals

Education and Career Guidance

Education and Career Guidance [ECG] is about equipping students, as well as adults, with necessary knowledge, skills and values to make informed education and career decisions. With the help of trained ECG counsellors, students will be exposed to a wide range of education and career options, and given the opportunities to make informed post-secondary education choices.

Singaporeans in the workforce can benefit from career coaching, employability skills workshops and networking sessions through the Workforce Singapore (WSG) Career Centres and the Employment and Employability Institute (e2i).

Career Matching Services

WSG's Careers Connect and NTUC's e2i centres offer an expanded suite of career matching services tailored to jobseekers' needs. Jobseekers can seek advice from Career Coaches to guide them in their job search, as well as in their career planning and development.

MyCareersFuture.sg

MyCareersFuture.sg aims to provide jobseekers with a fast and smart search service to match them with relevant jobs, based on their skills and competencies. The portal also highlights jobs which are eligible for government support.

NEA-Industry Scholarship

NEA and industry firms are jointly offering a local scholarship to Polytechnic and Institute of Technical Education (ITE) students who are keen to build a career in the Environmental Services industry. Full-term and mid-term scholarships are available to support outstanding students who demonstrate academic excellence, strong leadership potential and a passion for environmental sustainability.

Initiatives and Schemes by:

■ SkillsFuture Singapore ■ Workforce Singapore ■ National Environment Agency

Initiative and Schemes



Wow! I didn't know that there are so many initiatives and schemes available. Now that I am aware, I will use the 'MySkillsFuture' portal to chart my own career and learning pathways.

For Individuals

MySkillsFuture

A one-stop online portal that enables Singaporeans to chart their own career and lifelong learning pathways, through access to industry information and tools to search for training programmes to broaden and deepen skills.

Professional Conversion Programme (PCP)

The PCP is a career conversion programme for mid-career Professionals, Managers, Executives and Technicians (PMETs) to undergo skills conversion and move into new occupations or sectors that have good prospects and opportunities for progression.

SkillsFuture Credit

Credit of \$500 for all Singapore Citizens aged 25 and above to defray cost for a wide range of skills-related courses to encourage skills development and lifelong learning. Find out more about SkillsFuture Credit here: www.skillsfuture.sg/credit

P-Max

A place-and-train programme that helps to match job-seeking Professionals, Managers, Executives and Technicians (PMETs) into suitable SME jobs, where they will also be able to acquire skills to help them excel in an SME environment.

SkillsFuture Work-Study Programmes

A work-study programme designed to give graduates from the Institutes of Technical Education and Polytechnics a head start in careers related to their discipline of study. Suitable candidates will be matched with a job related to their field of study and undergo structured on-the-job training and mentorship in participating companies, allowing them to gain industry experience and attain an industry recognised certification concurrently.

Career Trial

Singapore jobseekers can gain experience and confidence through a short-term career trial to be assessed for full-time jobs paying at least \$1,500/month or part-time jobs paying at least \$750/month. They will receive training allowance during the trial period and retention incentives if they stay on the job for 3 months or more.

Rank-and-File Place-and-Train Programmes

An initiative to help individuals to reskill and take on new or enhanced job roles.

Initiatives and Schemes by:

■ SkillsFuture Singapore ■ Workforce Singapore



I can use the 'SkillsFuture Credit' to undergo relevant training that can help me in my career development.

Initiative and Schemes



These are useful in helping me to recruit, retrain and retain staff.

For Employers

SkillsFuture Employer Award

A tripartite initiative that recognises employers who have made significant efforts in investing in their employees' skills development and are strong advocates for SkillsFuture and building a lifelong learning culture in their workplace.

P-Max

A place-and-train programme that helps SMEs to better recruit, train, manage and retain their newly-hired Professionals, Managers, Executives and Technicians (PMETs).

Career Trial

Employers can assess a jobseeker's job fit via a short-term career trial before offering formal employment full-time jobs paying at least \$1,500/month or part-time jobs paying at least \$750/month to suitable Singapore Citizens. Companies can receive up to \$5,400 of salary support to hire unemployed Singapore Citizens who have been actively looking for jobs for 6 months or more.

Career Matching Services

Employers can receive recruitment advice to uncover new talent and find the right people for their business needs.

Rank-and-File Place-and-Train Programmes

An initiative that provides training and salary support to help individuals in Rank-and-File (RnF) jobs reskill to take on new or enhanced job roles.

MyCareersFuture.sg

Employers can access MyCareersFuture.sg, an online job matching portal, to post jobs and search candidates. MyCareersFuture.sg provides employers with candidate recommendations and resume preview services and allows employers to sort applicants based on how well their skills or experience fit the job post descriptions.

Initiatives and Schemes by:

■ SkillsFuture Singapore

■ Workforce Singapore

Initiative and Schemes



As an employer, I can ensure that my employees can reskill and upskill with these programmes.

For Employers

Enhanced Hiring Incentive

The Enhanced Hiring Incentive provides salary support to employers who hire local workers through eligible reskilling and training programmes, with higher support for those aged 40 and above.

Job Redesign under Productivity Solutions Grant (PSG-JR)

Support for Job Redesign under Productivity Solutions Grant (PSG-JR) encourages companies to work with pre-approved consultants to redesign work processes, tasks and responsibilities. Job Redesign can support business transformation and help make jobs more productive and attractive for employees, helping companies to hire and retain good workers to support the business.

SkillsFuture Enterprise Credit (SFEC)

A one-off \$10,000 credit to help employers cover up to 90% of out-of-pocket expenses for supportable enterprise development and workforce transformation programmes.

Job Redesign Framework

A guide that serves as a self-help resource for employers who are looking to transform their workforce. Employers will be able to learn about the process of reconfiguring, enriching, enlarging or removing components within a job role to improve productivity and overall performance of a business.

Professional Conversion Programme (PCP)

The PCP is a career conversion programme for mid-career Professionals, Managers, Executives and Technicians (PMETS) to undergo skills conversion and move into new occupations or sectors that have good prospects. Through the PCPs' industry-recognised training, employers will gain a wider pool of candidates to consider when hiring. They can also benefit from the course fee grants and salary support when training eligible PMETs under the programme.

NEA-Industry Scholarship

NEA and industry firms are jointly offering a local scholarship to Polytechnic and Institute of Technical Education (ITE) students who are keen to build a career in the Environmental Services industry. Full-term and mid-term scholarships are available to support outstanding students who demonstrate academic excellence, strong leadership potential and a passion for environmental sustainability.

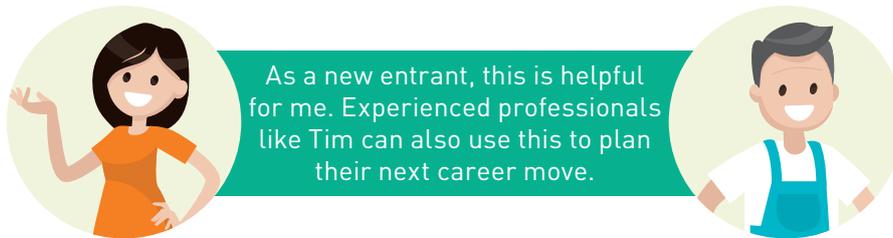
Initiatives and Schemes by:

■ SkillsFuture Singapore ■ Workforce Singapore ■ National Environment Agency

For more information on the initiatives and schemes, please visit
skillsfuture.sg | wsg.gov.sg

Realise Your Potential – Take the Next Step Forward

Now that you have an idea of what a career in the environmental services sector can offer and the available Government initiatives and schemes to support your career goals, you are ready to take the next step!



NEW ENTRANTS

Use the Skills Framework for Environmental Services to find out about careers in the sector



UNDERSTAND the career pathways and the attributes needed to take on a particular occupation in the sector



UNDERSTAND the skills and competencies required for the job role and identify relevant Training Programmes to help you become a qualified personnel

EXPERIENCED PROFESSIONALS

Use the Skills Framework for Environmental Services to find out how to chart your career



PLAN for vertical career progression within the track that you are currently in, or for lateral career moves across the tracks



IDENTIFY skills that you are lacking in your current or next job role

IDENTIFY relevant training programmes

TRAINING PROGRAMMES

Embark on your career in Environmental Services

Programmes that equip new entrants with skills and knowledge for specific occupations in the sector at their respective entry levels

Programmes for experienced employees or individuals to broaden or deepen specific skills and knowledge for various occupations in the sector

Lifelong learning for skills deepening to meet existing and emerging demands of the sector

For list of Training Programmes available for the Environmental Services industry, please visit skillsfuture.sg/skills-framework/environmental-services

Skills Maps

Pest Management



PEST MANAGEMENT
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Cleaning



CLEANING OPERATIONS
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Waste Management



WASTE COLLECTION
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MATERIALS RECOVERY
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Pest Management

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Operations Director/General Manager	74



Senior Service Supervisor

Muhammad Nazmi Bin Osman

THE POTENTIAL OF PEST MANAGEMENT INDUSTRY

When employees of a law firm came to work and found papers toppled off their desks, their first instinct was that they had been burgled. It was Mr Muhammad Nazmi Bin Osman who eventually cracked the case. Following the trail of some tiny footprints, he found the culprit: a rat that had fallen from the ceiling.

The excitement of this “detective work” is what keeps Nazmi in his job at the pest management company, Aardwolf Pestkare (S) Pte Ltd, for the last 11 years. Today, as a Senior Service Supervisor, Nazmi manages a team of nine technicians, or “boys” as he affectionately calls them.

There are times when his “boys” need to get their hands dirty and crawl into bushes or drains, but “the pest management industry is not just about filthy and hazardous jobs, and being exposed to pesticides,” Nazmi passionately declares.

For one thing, working conditions have improved because of technology. Now, cameras are placed on false ceilings so staff can check footage from these areas using their smartphones, and pesticides are made with water-based and gel formulations that are safer for health and more environmentally-friendly. As the industry evolves and improves with technological advancements, companies might even use drones to monitor high places.

There is also a growing emphasis on having soft skills, especially for those who have rise through the ranks like Nazmi. A supervisory role, he shares, is much like being a “businessman” – you need similar leadership and management skills to serve both clients and the team.

Nazmi hopes that the Skills Framework for Environmental Services will help educate people about working in the pest management industry and encourage them to join.

“The Skills Framework is useful because it provides a comprehensive overview of the job requirements and expectations,” Nazmi says. He believes that if people understand the roles better, they will see the potential the pest management industry has to offer as an essential service for the city, and one with abundant opportunities to grow.

His journey over the last decade is testament to the potential the sector has, he says. Since entering the sector with GCE “O” Level qualifications, the solid combination of on-the-job training, external training, and support of his bosses have helped him rise from a trainee to supervisor.

Motivated individuals who thrive on problem-solving will enjoy work in the pest management industry, he says. His secret to success: “Be open to learn new things, keep a positive attitude and do your best!”

“If people understand the roles better, they will see the potential the pest management industry has to offer as an essential service for the city, and one with abundant opportunities to grow.”

Pest Control Worker

JOB ROLE DESCRIPTION

The Pest Control Worker supports and executes pest management work in accordance with instructions and under supervision. He/She is responsible for pest management tasks such as assisting in preparation of work site, and in the application of various pest management mitigation and prevention methods, pest disposal and to reinstate premises from pest infestation.

He performs mainly manual tasks as well as use tools, equipment and automation technology to aid in pest management work. He carries out his work indoors and/or outdoors, and is required to comply with safety procedures and protocols given the hazards involved with pests, chemicals, work environment and implications to the general public.

He should be physically fit, task-oriented and cooperative with other team members to complete the allocated work.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS (FOR LEGISLATED / REGULATED OCCUPATIONS)
	Handle tools and equipment	<ul style="list-style-type: none"> • Adhere to applicable workplace safety and health (WSH) regulations and usage of personal protective equipment (PPE) • Perform safety and functionality checks on tools and equipment • Carry out maintenance of tools and equipment • Operate automated equipment to aid in pest management work • Report on tools and equipment to be replaced due to performance or safety considerations 	In accordance with: <ul style="list-style-type: none"> • Control of Vectors and Pesticides Act
	Execute pest management services	<ul style="list-style-type: none"> • Carry out pest management work under supervision • Prepare work site areas for pest management work • Assist in the application of chemical and/or non-chemical based pest management and treatment within work site area under supervision • Assist in application of preventive measures to counter pest infestation • Assist in site assessment to determine scope of work • Carry out pest disposal and reinstate work site • Report treatment issues and challenges to the appropriate person 	
	Handle incidents	<ul style="list-style-type: none"> • Respond to incidents and emergencies as directed • Report operational abnormalities to the appropriate person 	

Pest Control Worker

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
	Customer Management	Level 1	Communication	Basic
	Equipment and Inventory Management	Level 1	Interpersonal Skills	Basic
	Incident and Accident Investigation	Level 2	Service Orientation	Basic
	Pest Control Detection and Monitoring Application	Level 1	Teamwork	Basic
	Pest Control Site Assessment and Analysis	Level 1	Lifelong Learning	Basic
	Pest Disposal Management	Level 1		
	Pesticide Application	Level 1		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Practices Implementation	Level 1		

Pest Control Technician

JOB ROLE DESCRIPTION

The Pest Control Technician executes technical processes involved in pest management independently and when required, manages a team of workers. He/She performs pest management work by applying appropriate pest management mitigation and prevention methods. He uses both chemical and/or non-chemical based pest management methods as well as tools and equipment for both on-site and off-site pest management. He identifies issues on-site and recommends appropriate techniques to handle pests and infested areas. He also performs routine maintenance of tools and equipment and prepares chemicals to be used in pest management works.

He is able to make use of tools and equipment and automation technology to aid him in his work. He is expected to perform his work indoors and/or outdoors and is required to adhere to safety procedures and protocols given the hazards involved with pests, chemicals, work environment and implications to the general public.

He should be physically fit, task-oriented and an able leader to lead the workers on-site. He should have an eye for details to resolve issues on-site and an effective communicator with stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS (FOR LEGISLATED / REGULATED OCCUPATIONS)
	Plan pest management operations	<ul style="list-style-type: none"> • Provide inputs to the manpower and resource planning for pest management work • Perform site assessment to determine scope of work • Prepare pest inspection reports for planning of pest management work to be carried out 	In accordance with: <ul style="list-style-type: none"> • Control of Vectors and Pesticides Act
	Handle tools and equipment	<ul style="list-style-type: none"> • Adhere to applicable workplace safety and health (WSH) regulations and usage of personal protective equipment (PPE) • Follow maintenance checklists for safety and functionality checks on tools and equipment • Perform routine maintenance of tools and equipment • Operate automated equipment and perform troubleshooting when necessary • Repair tools and equipment and change spare parts 	
	Execute pest management services	<ul style="list-style-type: none"> • Prepare and/or allocate work site areas for pest management work by segregation • Identify and analyse the types of pests to be handled • Prepare and allocate chemical and/or non-chemical-based pest management methods to eliminate pest infestation (to be continued...)	

Pest Control Technician

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS (FOR LEGISLATED / REGULATED OCCUPATIONS)
	Execute pest management services	(continued)	<ul style="list-style-type: none"> • Manage team and guide workers to perform pest management work with the use of chemical and/or non-chemical-based methods and required equipment on-site • Resolve technical and/or manpower challenges that may impact pest management work on-site • Manage pest disposal and reinstate work site • Prepare work site reports to track work progress • Recommend preventive measures to clients on pest management
Handle incidents		<ul style="list-style-type: none"> • Respond to incidents and emergencies as directed • Report operational abnormalities to the appropriate person 	

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
	Customer Management	Level 2	Communication	Intermediate
Effectiveness Management	Level 3	Interpersonal Skills	Intermediate	
Emergency Response Management	Level 2	Service Orientation	Intermediate	
Equipment and Inventory Management	Level 2	Teamwork	Intermediate	
Incident and Accident Investigation	Level 2	Decision Making	Basic	
Learning and Development	Level 2			
Pest Behavioural Management	Level 2			
Pest Control Detection and Monitoring Application	Level 2			
Pest Control Site Assessment and Analysis	Level 2			
Pest Disposal Management	Level 2			
Pesticide Application	Level 2			
Risk Management and Administration	Level 2			
Stakeholder Management	Level 3			
Workplace Safety and Health Culture Development	Level 2			
Workplace Safety and Health Practices Implementation	Level 1			

Pest Control Supervisor

JOB ROLE DESCRIPTION

The Pest Control Supervisor executes processes involved in pest management independently and manages teams of workers in multiple pest management projects. This includes planning of pest management work, incident management and managing equipment and resources used in multiple project sites. He/She oversees pest management work using chemical and/or non-chemical based pest management mitigation and prevention methods, tools and equipment for the purpose of pest removal for both on-site and off-site work areas. He manages issues on-site and implements appropriate techniques and measures to handle pests and infested areas.

The work requires high amount of planning and coordination, preparation of work reports, usage of chemicals, mechanised and automated equipment as well as oversight of execution of pest management works. He is expected to perform his work indoors and/or outdoors and enforce strict compliance to safety procedures and protocols given the hazards involved with pests, chemicals, work environment and implications to the general public.

He should be physically fit, task-oriented and an able leader to lead the teams on-site. He should have an eye for details to be able to resolve issues on-site. He possesses effective verbal and written communication skills to manage the teams and stakeholders and to prepare accurate reports.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS (FOR LEGISLATED / REGULATED OCCUPATIONS)
	Plan pest management operations	<ul style="list-style-type: none"> • Oversee manpower and resource planning for pest management work • Conduct quality assurance checks and site assessment to evaluate work performance of team members • Coordinate and complete pest inspection reports submitted by team members 	In accordance with: <ul style="list-style-type: none"> • Control of Vectors and Pesticides Act
	Handle tools and equipment	<ul style="list-style-type: none"> • Enforce compliance to applicable workplace safety and health (WSH) regulations and usage of personal protective equipment (PPE) • Review maintenance checklist for safety and functionality checks on tools and equipment • Coordinate and ensure the optimal use of tools and equipment • Supervise team on troubleshooting issues for tools and equipment • Troubleshoot issues pertaining to mechanised and automated equipment 	
	Execute pest management services	<ul style="list-style-type: none"> • Oversee work site areas for pest management work by segregation • Interpret plans, specifications and government regulations for various chemical agents • Guide team members in the use of chemical and/or non-chemical based methods and required equipment on-site (to be continued...)	

Pest Control Supervisor

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS (FOR LEGISLATED / REGULATED OCCUPATIONS)
	Execute pest management services	(continued) <ul style="list-style-type: none"> • Manage technical and/or manpower challenges that may impact pest management work on-site • Coordinate and complete work site reports • Liaise with clients to implement appropriate mitigation measures on pest management 	
	Handle incidents	<ul style="list-style-type: none"> • Respond to major incidents and emergencies • Report and update on major incidents and emergencies to the management 	
	Manage team	<ul style="list-style-type: none"> • Manage staff conflicts, grievances and disputes • Provide coaching and feedback to improve team performance • Provide on-the-job training to enhance capabilities of team members and/or direct reports • Act as mentor to team members and/or direct reports 	

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
	Customer Management	Level 3	Communication	Intermediate
	Effectiveness Management	Level 3	Developing People	Intermediate
	Emergency Response Management	Level 3	Leadership	Intermediate
	Equipment and Inventory Management	Level 3	Service Orientation	Intermediate
	Incident and Accident Investigation	Level 3	Resource Management	Intermediate
	Learning and Development	Level 3		
	Pest Behavioural Management	Level 3		
	Pest Control Detection and Monitoring Application	Level 3		
	Pest Control Site Assessment and Analysis	Level 3		
	Pest Disposal Management	Level 3		
	Pesticide Application	Level 3		
	Risk Management and Administration	Level 3		
	Stakeholder Management	Level 3		
	Workplace Safety and Health Culture Development	Level 3		
Workplace Safety and Health Practices Implementation	Level 2			

Pest Control Manager

JOB ROLE DESCRIPTION

The Pest Control Manager oversees pest management operations. He/She may manage multiple sites or projects concurrently and is able to manage resources effectively. He establishes operational standards and procedures for the organisation and drives the adoption of technologies for enhancing productivity and effectiveness of pest management operations. He is also involved in business development activities, including the development of proposals for getting new contracts, launch of new products and the development of marketing collaterals to grow the organisation's brand.

He is required to balance his time between planning and reviewing progress reports in office, and monitoring of work sites with the aid of technology. He is required to engage with both internal and external stakeholders as part of his work.

He is an efficient planner and operations manager, often required to manage within resource constraints. He should be an effective communicator and competent in problem solving as well as resolving conflicts. He should also be proficient in collaboration and stakeholder management to meet organisation's goals and clients requirements.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS (FOR LEGISLATED / REGULATED OCCUPATIONS)
	Execute business development plans	<ul style="list-style-type: none"> • Collaborate with the teams in the management of contracts and development of marketing collaterals for business development • Participate in tender interviews, pitch meetings and/or marketing presentations to potential clients to showcase technical capability and experience • Undertake site visits to resolve onsite challenges that may impact the scope of work or achievement of contract criteria • Evaluate the technical and commercial feasibility of the scope of work with respect to the organisation's technical capability and commercial considerations • Develop cost and effort estimates to draft technical and commercial proposals to bid for a tendered contract 	In accordance with: <ul style="list-style-type: none"> • Control of Vectors and Pesticides Act
	Plan pest management operations	<ul style="list-style-type: none"> • Attend client briefings to establish expectations, key performance indicators (KPIs), service level agreements (SLAs) and related protocols • Conduct detailed site assessments to determine actual scope of work on site and associated risks and challenges • Plan the requirements for manpower, materials, tools and equipment as well as supervision for the site, in consideration of budget and contract specifications (to be continued...)	

Pest Control Manager

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS (FOR LEGISLATED / REGULATED OCCUPATIONS)
	Plan pest management operations	(continued) <ul style="list-style-type: none"> • Establish action plans to enhance the effectiveness of pest management operations • Procure and allocate mechanised and automated equipment for pest management work • Attend new product launches for pest management operations and service enhancements • Plan the work schedules of teams to ensure pest management work is done effectively 	
	Execute pest management services	<ul style="list-style-type: none"> • Communicate roles, responsibilities and performance expectations to supervisors in charge of the site • Advise on technical and manpower challenges pertaining to pest management work • Review site operations to track progress and allocate resources effectively • Review data obtained to establish and/or review procedures, protocols and guidelines for pest management work on site 	
	Manage safety of pest management services	<ul style="list-style-type: none"> • Enforce workplace safety and health (WSH) regulations • Assess the risks associated with pest management work on site to establish safety procedures and protocols • Establish safety procedures, protocols and guidelines for pest management work on site 	
	Manage team	<ul style="list-style-type: none"> • Resolve staff conflicts, grievances and disputes • Manage capability development of staff • Develop plans to promote good teamwork that align with organisational core values 	
	Manage incidents	<ul style="list-style-type: none"> • Analyse and manage major incidents and emergencies in collaboration with relevant persons • Make critical decisions to resolve major incidents and emergencies • Review incident and emergency reports • Manage and report incident and emergency investigations 	

Pest Control Manager

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
		Business Development	Level 4	Leadership
	Business Negotiation	Level 4	Communication	Advanced
	Conflict Management	Level 4,5	Decision Making	Advanced
	Contract Preparation, Evaluation, Negotiation and Tendering	Level 3,4	Resource Management	Advanced
	Contract and Vendor Management	Level 3,4	Problem Solving	Advanced
	Customer Management	Level 4,5		
	Effectiveness Management	Level 4		
	Financial Management	Level 4		
	Learning and Development	Level 4,5		
	Market Research	Level 3,4		
	Pest Behavioural Management	Level 4		
	Pest Control Detection and Monitoring Application	Level 4		
	Pest Control Site Assessment and Analysis	Level 4		
	Pest Disposal Management	Level 4		
	Process Improvement and Optimisation	Level 4		
	Process Quality Management	Level 4		
	Risk Management and Administration	Level 4		
	Stakeholder Management	Level 4		
	Workplace Safety and Health Performance Management	Level 3,4		
	Workplace Safety and Health Practices Implementation	Level 3		

Cleaning Operations

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Cleaning Supervisor

Rahmatunnisha Bti Mohamed Abdul Karim
Horsburgh Integrated Services Pte Ltd

LEADING BY EXAMPLE

“All your money can be spent, but experiences never run out when they are shared.” This is a motto that Rahmatunnisha Bti Mohamed Abdul Karim, Cleaning Supervisor at Horsburgh Integrated Services Pte Ltd, lives by. One of her main responsibilities is ensuring a clean and hygienic environment at the National Dental Centre of Singapore.

Rahmatunnisha does daily checks to ensure that the grounds are clean and sanitised, especially as she works in the healthcare environment. She checks if the floor is dry and follows strict protocol when handling cleaning chemicals, preventing any safety lapse that could result in grave consequences.

Being in the sector for 10 years, Rahmatunnisha believes in sharing her wealth of experience with those around her. Keeping up with the latest technologies and methods also enable her to stay ahead on trends, which she will master and pass on to her peers. ‘The most satisfying part of my job is seeing my staff understand and correctly perform the tasks that I taught in a step-by-step manner.’

Rahmatunnisha also observed the evolving role of a cleaner over the years. For example, cleaners used to go about their work without the need to interact with the public, but now they are also required as part of customer service. To do so, they will need to be equipped with interpersonal skills, and she’s happy that the Skills Framework for Environmental Services has outlined ‘Customer Management’ as an emerging skill.

“We work together and help each other,” Rahmatunnisha says proudly, likening her team to a family. Her advice to anyone who wants to join the sector is to first grasp the basics. “Young or old, there is no limit to what you can achieve if you start at the bottom and work your way to the top.” She also feels that age is not a factor in competence and encourages them to join the sector.

As a Supervisor, Rahmatunnisha orientates new staff. The Skills Framework provides clear job descriptions and tasks, as well as the skills required, so she can now better explain and guide her staff. She can also point her colleagues to relevant courses that are available for them to attain the right skills and encourage them to move up the career ladder. “How we do things may change in the future. Cleaning may become different – you must always upgrade yourself.”

“How we do things may change in the future. Cleaning may become different – you must always upgrade yourself.”

General Cleaner

JOB ROLE DESCRIPTION

The General Cleaner is responsible for performing cleaning operational duties as directed. He/She may be assigned to a variety of places within indoor and outdoor public places.

He carries out cleaning on horizontal and vertical surfaces, transportation devices, furniture and furnishings, used crockery and cutlery, drains, drop-inlet chambers, bin centre areas, washrooms and vehicles. In performing these functions, he is also required to handle and dispose waste, reinstate equipment and supplies used for cleaning, handle and report operation problems to the appropriate persons while on duty.

He is a physically fit, attentive and service-oriented individual.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Provide cleaning services	<ul style="list-style-type: none"> • Perform cleaning in the premises as directed • Ensure safety measures are adhered to during operation • Update job and log card record entries
	Handle tools and equipment	<ul style="list-style-type: none"> • Prepare the appropriate tools and equipment for cleaning • Ensure the appropriate tools and equipment are adequate and in working condition • Ensure tools and equipment are replenished, reinstated and maintained
	Handle incidents	<ul style="list-style-type: none"> • Respond immediately to incidents and emergencies • Report abnormalities to the appropriate person

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
	Cleaning Chemical Handling	Level 2	Communication	Basic
	Customer Management	Level 1	Interpersonal Skills	Basic
	Emergency Response Management	Level 2	Teamwork	Basic
	Equipment and Inventory Management	Level 1	Service Orientation	Basic
	Food Shop Hygiene Maintenance	Level 1	Problem Solving	Basic
	Furniture and Furnishing Maintenance	Level 1		
	Horizontal Surface Maintenance	Level 1		
	Incident and Accident Investigation	Level 2		
	Public Hygiene Maintenance	Level 1		
	Risk Management and Administration	Level 1		
	Robotics and Automation Application	Level 2		
	Vertical Surface Maintenance	Level 1		
	Washroom Maintenance	Level 1		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Practices Implementation	Level 1		

Multi-Skilled Cleaner/Team Leader



I can navigate the information in the Skills Map easily to understand what is required of me in this job. It describes the Critical Work Functions, Key Tasks, work context, personal attributes, Technical and Generic Skills and Competencies for this job role. I can prepare myself accordingly to ensure that I am equipped to meet the demands of this job.

JOB ROLE DESCRIPTION

The Multi-skilled Cleaner/Team Leader performs cleaning operation duties as directed. He/She may be assigned to more than one project sites to perform a variety of cleaning functions. The project sites may include indoor and outdoor public places. As part of his function, he may be responsible for leading a team of cleaners in a single project and to assume the overall responsibility of the service performance of his team.

He carries out cleaning on horizontal and vertical surfaces, vertical and horizontal transportation devices, furniture and furnishings, drains, drop-inlet chambers, bin centre areas, washrooms and vehicles. In performing these functions, he is expected to use motorised equipment, specialised cleaning agents and/or advanced handheld machines, dispose of waste, and reinstate equipment and supplies used for cleaning. He is required to handle cleaning-related operation problems and communicate with relevant stakeholders and clients.

He is physically fit, responsive, able to multi-task and capable of interacting with stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Provide cleaning services	<ul style="list-style-type: none"> • Perform cleaning in the premises using appropriate ride-on machinery and/or equipment with supplies as directed • Ensure safety measures are adhered to during operation • Update job and log card record entries
	Manage cleaning teams	<ul style="list-style-type: none"> • Administer work plans and assign cleaning duties to cleaning teams to meet schedules and/or timeline • Conduct task briefing to cleaning teams • Conduct induction programmes for new cleaners
	Handle tools and equipment	<ul style="list-style-type: none"> • Prepare and collect the appropriate tools and equipment for cleaning • Ensure tools and equipment are adequate and in working condition • Ensure the ride-on machinery and supplies are replenished, reinstated and maintained • Ensure stocks of cleaning supplies are in order and update supervisors on replenishment orders on a timely basis
	Handle incidents	<ul style="list-style-type: none"> • Respond immediately to incidents and emergencies • Report abnormalities to the appropriate person

Multi-Skilled Cleaner/Team Leader

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
		Cleaning Chemical Handling	Level 2	Communication
	Customer Management	Level 2	Decision Making	Basic
	Emergency Response Management	Level 2	Interpersonal Skills	Basic
	Equipment Maintenance Management	Level 2	Service Orientation	Basic
	Food Shop Hygiene Maintenance	Level 2	Problem Solving	Basic
	Furniture and Furnishing Maintenance	Level 2		
	Horizontal Surface Maintenance	Level 2		
	Incident and Accident Investigation	Level 2		
	Internet of Things Management	Level 2		
	Learning and Development	Level 2		
	Public Hygiene Maintenance	Level 2		
	Risk Management and Administration	Level 2		
	Robotics and Automation Application	Level 2		
	Stakeholder Management	Level 3		
	Vertical Surface Maintenance	Level 2		
	Washroom Maintenance	Level 2		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Practices Implementation	Level 2		

Cleaning Supervisor

JOB ROLE DESCRIPTION

The Cleaning Supervisor is responsible for supervising multiple team of cleaners in multiple cleaning projects, while ensuring service quality delivery and safety. This includes assisting in planning of cleaning service operations work plans, incident management and managing inventory of the cleaning equipment and materials used in multiple project sites. He/She is also required to provide guidance to the cleaners.

He may be assigned to a variety of places which may include indoor and outdoor public places. He is expected to communicate with his stakeholders as part of his role in performing duties.

He is physically fit, responsive, able to multi-task and capable of interacting with stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Manage cleaning services	<ul style="list-style-type: none"> • Communicate assigned cleaning duties to the cleaning team • Monitor cleaning operations to ensure quality service delivery • Assist in coordinating and liaising with clients at project sites • Ensure teams adhere to safety measures during cleaning operations • Implement operation plans to improve work processes and service quality • Submit compiled daily cleaning reports to management
	Manage inventory, equipment and maintenance schedule	<ul style="list-style-type: none"> • Ensure stocks of cleaning tools and equipment are in order and replenishment orders are fulfilled in a timely manner • Assist in implementation of maintenance schedule for cleaning devices on a timely basis
	Manage cleaning teams	<ul style="list-style-type: none"> • Assist in planning work schedules and deployment of manpower • Provide appropriate guidance to cleaners • Facilitate effective work processes • Provide feedback and recommend process improvements to the cleaning team
	Manage incidents	<ul style="list-style-type: none"> • Respond to major incidents and emergencies • Report and update on major incidents and emergencies to the management

Cleaning Supervisor

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
		Cleaning Chemical Handling	Level 3	Communication
	Customer Management	Level 3	Problem Solving	Intermediate
	Effectiveness Management	Level 3	Decision Making	Intermediate
	Emergency Response Management	Level 2	Service Orientation	Intermediate
	Equipment and Inventory Management	Level 3	Developing People	Basic
	Food Shop Hygiene Maintenance	Level 3		
	Furniture and Furnishing Maintenance	Level 3		
	Horizontal Surface Maintenance	Level 3		
	Incident and Accident Investigation	Level 3		
	Internet of Things Management	Level 3		
	Learning and Development	Level 3		
	Public Hygiene Maintenance	Level 3		
	Risk Management and Administration	Level 3		
	Robotics and Automation Application	Level 3		
	Stakeholder Management	Level 3		
	Vertical Surface Maintenance	Level 3		
	Washroom Maintenance	Level 3		
	Workplace Safety and Health Culture Development	Level 3		
	Workplace Safety and Health Performance Management	Level 2		
	Workplace Safety and Health Practices Implementation	Level 3		

Cleaning Operations Executive

JOB ROLE DESCRIPTION

The Cleaning Operations Executive assists with the management of cleaning operation duties as directed by the manager. This includes managing resources, work procedures, service contracts and work incidents. He/She is also required to implement and recommend operation plans to improve work processes and service quality for the organisation.

He works in an office environment and performs site visits when necessary. He is expected to communicate with relevant stakeholders and clients as part of his role in performing operational duties.

He is organised, responsive, approachable, able to multi-task and capable of interacting with stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Manage cleaning services	<ul style="list-style-type: none"> • Coordinate with supervisor and client to ensure quality service delivery • Ensure cleaning teams adhere to safety measures to during cleaning operation • Assist in budget planning for cleaning operations • Compile and analyse relevant data to propose recommendations for cleaning process improvement • Assist in development and review of operation plans to improve work procedures and quality service delivery • Review daily cleaning job reports for submission to management
	Manage inventory, equipment and maintenance schedule	<ul style="list-style-type: none"> • Allocate equipment and/or technologies and supplies to project sites • Maintain stock of supplies of materials and equipment • Identify and recommend suitable equipment and/or technologies to improve cleaning operations • Implement maintenance schedules for tools and equipment
	Manage cleaning teams	<ul style="list-style-type: none"> • Facilitate planning of work schedules and deployment of manpower • Facilitate effective work processes • Facilitate the capability development of staff
	Manage contracts	<ul style="list-style-type: none"> • Interpret tender specifications and prepare quotations for cleaning operations • Liaise between internal and external parties to analyse and solidify an overall contract strategy • Assist in negotiating terms, conditions and pricing, and ensure they are accurately executed and satisfied • Ensure that budget guidelines set are followed and deviation to these should be communicated with explanations • Raise requests for purchases as required within agreed limits • Ensure contractual payments are follow up • Assist in resolving existing contract conflicts • Report potential risks on contractual changes to the management
	Manage incidents	<ul style="list-style-type: none"> • Guide teams to respond to major incidents and emergencies • Assist in providing updates on major incidents and emergencies to the appropriate person

Cleaning Operations Executive

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
		Automation Research and Implementation	Level 3	Resource Management
	Business Development	Level 3	Decision Making	Intermediate
	Business Continuity Management	Level 3	Communication	Intermediate
	Business Negotiation	Level 3	Problem Solving	Intermediate
	Cleaning Chemical Handling	Level 4	Teamwork	Intermediate
	Conflict Management	Level 4		
	Contract and Vendor Management	Level 3		
	Contract Preparation, Evaluation, Negotiation and Tendering	Level 3		
	Customer Management	Level 4		
	Data and Statistical Analytics	Level 3		
	Effectiveness Management	Level 4		
	Emergency Response Management	Level 3		
	Equipment and Inventory Management	Level 3		
	Financial Management	Level 3		
	Incident and Accident Investigation	Level 4		
	Internet of Things Management	Level 4		
	Knowledge Management	Level 3		
	Learning and Development	Level 4		
	Market Research	Level 3		
	Process Improvement and Optimisation	Level 4		
	Process Quality Management	Level 4		
	Risk Management and Administration	Level 4		
	Robotics and Automation Application	Level 4		
	Stakeholder Management	Level 4		
	Strategy Planning	Level 4		
	Workplace Safety and Health Culture Development	Level 4		
	Workplace Safety and Health Practices Implementation	Level 4		

Cleaning Operations Manager

JOB ROLE DESCRIPTION

The Cleaning Operations Manager is responsible for managing the cleaning operations of the organisation. This includes overseeing the management of resources on project sites, directing and monitoring business operations, developing operation plans, managing service contracts and incidents, and communicating with stakeholders and clients to ensure quality work. He/She is also required to carry out capability development activities and any other operational requirements as directed by the management.

He works in an office environment and performs site visits when necessary. He builds relationships with relevant stakeholders and clients as part of his role in performing operational duties.

He is organised, responsive, approachable, resourceful, service-oriented leader, able to multi-task and manage operations effectively.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Manage cleaning services	<ul style="list-style-type: none"> • Manage cleaning operations and liaise with clients to ensure quality service delivery • Ensure teams adhere to safety measures to during cleaning operations • Facilitate budget planning for cleaning operations • Evaluate relevant data to propose recommendations for cleaning process improvement • Develop and review operation plans to improve work procedures and quality service delivery • Implement strategic plans to improve relationships with clients
	Manage inventory, equipment and maintenance schedule	<ul style="list-style-type: none"> • Plan and select appropriate equipment and/or technologies and supplies for project sites • Ensure sufficient stock of supplies of materials and equipment • Evaluate the identified and recommended equipment and/or technologies that are suitable for business operations • Oversee the control and allocation of resources to project sites
	Manage cleaning teams	<ul style="list-style-type: none"> • Manage the planning of work schedules and deployment of manpower • Manage the capability development of staff • Develop plans to promote good teamwork in alignment with organisational core values
	Manage contracts	<ul style="list-style-type: none"> • Oversee the preparation of tender specifications and quotations for cleaning operations • Manage internal and external parties during contract development to analyse and solidify an overall contract strategy • Manage negotiating terms, conditions and pricing, and ensure they are accurately executed and satisfied • Manage actions with internal procurement and legal teams if required • Manage existing and contract conflicts • Analyse potential contract risks arising from contract changes • Review guidelines on contractual clauses to mitigate contract conflicts
	Manage incidents	<ul style="list-style-type: none"> • Analyse and manage major incidents and emergencies in collaboration with relevant persons • Make critical decisions to resolve major incidents and emergencies • Review incident and emergency reports • Manage and report incident and emergency investigations

Cleaning Operations Manager

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
		Automation Research and Implementation	Level 4	Leadership
	Business Continuity Management	Level 4	Resource Management	Advanced
	Business Development	Level 4	Decision Making	Advanced
	Business Negotiation	Level 4	Communication	Advanced
	Cleaning Chemical Handling	Level 4	Problem Solving	Advanced
	Conflict Management	Level 5		
	Contract and Vendor Management	Level 4		
	Contract Preparation, Evaluation, Negotiation and Tendering	Level 4		
	Customer Management	Level 5		
	Data and Statistical Analytics	Level 5		
	Effectiveness Management	Level 5		
	Emergency Response Management	Level 3		
	Financial Management	Level 4		
	Incident and Accident Investigation	Level 5		
	Internet of Things Management	Level 5		
	Knowledge Management	Level 4		
	Learning and Development	Level 5		
	Market Research	Level 4		
	Process Improvement and Optimisation	Level 5		
	Process Quality Management	Level 5		
	Risk Management and Administration	Level 5		
	Robotics and Automation Application	Level 5		
	Stakeholder Management	Level 5		
	Strategy Planning	Level 5		
	Workplace Safety and Health Culture Development	Level 4		
	Workplace Safety and Health Practices Implementation	Level 4		

Waste Collection

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Assistant Manager

Lex Teo

SembWaste Pte Ltd

NOTHING GOES TO WASTE

While many people view collected waste as materials with no purpose, Lex Teo sees them as useful resources. Turning waste into useful resources is what Lex does on a daily basis as Assistant Manager at SembWaste Pte Ltd. His main responsibility is to oversee day-to-day depot operations, maintenance and logistics to facilitate efficient business operations.

Having majored in Environmental Engineering at Nanyang Technological University (NTU), Lex realised that he wanted to contribute back to society in a meaningful way. He applied what he learned to design and create a Vibro Separator. This specially-created sieving machine separates bigger waste items from the smaller ones, and is now integrated into the existing sorting line, making operations more efficient and achieving higher output.

In addition, he oversees the sorting of timber from waste. The timber goes into a shredder to produce wood chips and is transported to a biomass plant on Jurong Island. The plant then produces steam to generate energy, creating value from waste.

Lex hopes that with developments such as the concept of energy-from-waste, more young talent like himself will be excited to join the industry. "We are headed towards trends like this. It is not

something many Singaporeans want to do because they have the wrong perception of the industry. They have this idea that it's a dirty job. However, the sector is growing, with a lot of potential to harness," Lex explains.

"The Skills Framework provides clarity in terms of career progression with clear job descriptions and tasks. It can also potentially encourage my colleagues and subordinates to move up the career ladder. The Skills Framework also keeps us well-informed on the latest trends and skills so that we know what courses are relevant and available in order to better plan our professional paths," he says.

In the future, he hopes that people will be more conscious of how they dispose their waste. "The next generation should be more aware. They can sort their waste into different categories before it comes to us. It is a recycling culture that needs to be developed. That would make this back-end process a lot better."

"The Environmental Services industry is growing, with a lot of potential to harness."

Waste and Recyclables Collection Attendant

JOB ROLE DESCRIPTION

The Waste and Recyclables Collection Attendant supports the operations of the waste collection truck. He/She conducts all activities according to the collection schedules and assist with the pulling and managing of heavy equipment and objects. In performing these functions, he maintains, secures all equipment and to inform on operational problems to the appropriate person while on duty.

He is required to work outdoors in all weather conditions. He is constantly exposed to unpleasant sights and smells and may at times be exposed to dangerous and/or toxic substances. As such, he will be handling potentially dangerous materials and must ensure that all activities are completed in a safe and efficient manner.

He is physically fit and attentive, resilient and a team player.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Provide waste and recyclables collection services	<ul style="list-style-type: none"> • Perform waste and recyclables collection in the premises as directed • Identify and sort collected waste and recyclables • Ensure safety measures are adhered to during operations
	Handle tools and equipment	<ul style="list-style-type: none"> • Prepare the appropriate tools and equipment for waste and recyclables collection • Operate equipment to compress collected waste and recyclables • Report equipment faults to the supervisor • Ensure tools and equipment are replenished, reinstated and maintained
	Handle incidents	<ul style="list-style-type: none"> • Report operational abnormalities to the appropriate persons • Provide immediate response to incidents and emergencies

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
	Emergency Response Management	Level 2	Communication	Basic
	Equipment and Inventory Management	Level 1	Teamwork	Basic
	Hazardous Material Management	Level 2	Interpersonal Skills	Basic
	Incident and Accident Investigation	Level 2	Service Orientation	Basic
	Internet of Things Management	Level 2	Problem Solving	Basic
	Robotics and Automation Application	Level 2		
	Waste Collection Management	Level 1		
	Waste Disposal Management	Level 1		
	Waste Sorting Management	Level 1		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Practices Implementation	Level 1		

Mechanical Operator/Waste and Recyclables Collection Truck Driver

JOB ROLE DESCRIPTION

The Mechanical Operator/Waste and Recyclables Collection Truck Driver carries out operational duties in an outdoor environment using mechanical motorised vehicles in accordance with the assigned schedules. He/She pulls and manage heavy equipment and objects, estimates the weight load to ensure compliance with load limitations, sweeps roads and roadsides while operating a mechanical and motorised vehicle. In performing most of these functions, he is required to reinstate and maintain the mechanical motorised vehicle and the appropriate tools and equipment and to communicate with relevant stakeholders.

He works outdoors in all weather conditions and is constantly exposed to unpleasant sights and smells, and may at times be exposed to dangerous and/or toxic substances. He may handle potentially dangerous materials and must ensure that all activities are completed in a safe and efficient manner.

He is physically fit, responsive, able to multi-task and capable of interacting with stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Provide environmental maintenance services	<ul style="list-style-type: none"> • Communicate with the supervisor on the assigned duties • Use appropriate mechanical motorised vehicle, tools and equipment as directed • Ensure weight loads are within load limitations • Report affected routes to the supervisor • Ensure safety measures are adhered to during operations • Update job and log card record entries
	Handle mechanised tools and equipment	<ul style="list-style-type: none"> • Conduct pre-operational checks on the allocated vehicles and the appropriate tools and equipment to ensure readiness • Operate equipment to compress collected waste and recyclables • Identify and report equipment faults to the supervisor • Ensure the mechanical motorised vehicle and tools and equipment are replenished, reinstated and maintained
	Handle incidents	<ul style="list-style-type: none"> • Attend to enquiries from client and team • Report operational abnormalities to the appropriate persons • Assist in incident investigations • Provide immediate response to incidents and emergencies

Mechanical Operator/Waste and Recyclables Collection Truck Driver

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
	Customer Management	Level 2	Communication	Basic
	Emergency Response Management	Level 2	Teamwork	Basic
	Equipment and Inventory Management	Level 2	Interpersonal Skills	Basic
	Incident and Accident Investigation	Level 2	Service Orientation	Basic
	Internet of Things Management	Level 2	Problem Solving	Basic
	Risk Management and Administration	Level 2		
	Robotics and Automation Application	Level 2		
	Stakeholder Management	Level 3		
	Transport Management System Administration	Level 1		
	Waste Collection Management	Level 2		
	Waste Material Loading and Unloading Administration	Level 2		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Practices Implementation	Level 2		

Waste and Recyclables Collection Supervisor

JOB ROLE DESCRIPTION

The Waste and Recyclables Collection Supervisor is responsible for supervising waste and recyclables collection services. This includes implementing operation work plans, assisting with the planning of waste and recyclables collection routes, and planning designated and alternate routes for collection to improve work processes. He/She is also required to provide guidance to his team.

He works in a waste management facility and perform site visits when necessary. He also oversees the handling of potentially dangerous materials and ensures that all activities are completed in a safe and efficient manner. He is constantly exposed to unpleasant sights and smells and may at times be exposed to dangerous and/or toxic substances.

He is physically fit, responsive, able to multi-task and capable of interacting with stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Manage waste and recyclables collection services	<ul style="list-style-type: none"> • Assist in route planning for waste and recyclables collection operations • Communicate with the teams on assigned routes • Monitor waste and recyclables collection operations to ensure quality service delivery • Ensure team adheres to safety measures during operations • Evaluate reported affected routes and report to appropriate persons to ensure continuation of waste and recyclables collection operations • Implement operation plans to improve work processes and service quality
	Manage inventory, equipment and maintenance schedule	<ul style="list-style-type: none"> • Ensure stocks of tools and equipment are in order • Ensure replenishment orders are fulfilled on a regular basis
	Manage teams	<ul style="list-style-type: none"> • Evaluate reported equipment faults and inform appropriate person • Assist in planning work schedules and deployment of manpower • Provide appropriate guidance to teams to ensure operations are running efficiently • Facilitate effective work processes
Manage incidents	<ul style="list-style-type: none"> • Provide feedback and recommend process improvements to the team • Attend to enquiries from clients and teams • Report operational abnormalities to the authorities 	

Waste and Recyclables Collection Supervisor

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
		Conflict Management	Level 4	Communication
	Customer Management	Level 2	Problem Solving	Intermediate
	Effectiveness Management	Level 3	Decision Making	Intermediate
	Emergency Response Management	Level 2	Managing Diversity	Intermediate
	Equipment and Inventory Management	Level 2	Developing People	Basic
	Hazardous Material Management	Level 3		
	Incident and Accident Investigation	Level 2		
	Internet of Things Management	Level 3		
	Learning and Development	Level 2		
	Process Improvement and Optimisation	Level 3		
	Process Quality Management	Level 3		
	Stakeholder Management	Level 3		
	Transport Route and Schedule Planning	Level 2		
	Waste Collection Management	Level 3		
	Workplace Safety and Health Culture Development	Level 3		
	Workplace Safety and Health Performance Management	Level 2		
	Workplace Safety and Health Practices Implementation	Level 3		

Weighbridge Operator

JOB ROLE DESCRIPTION

The Weighbridge Operator supports the operations of daily weighing of all waste collection vehicles. He/She ensures the smooth operations of daily weighing of all waste collection vehicles using a weighbridge. This includes directing incoming traffic to the site, recording the weight of all waste collection vehicles arriving and leaving the site, completing relevant documentation and proposing recommendations to improve work processes. In performing these functions, he is also required to troubleshoot and resolve cases arising from daily operations, maintain equipment and to report operation problems to the appropriate person.

He supports the operations of daily weighing of all waste collection vehicles and performs site visits when necessary. He is expected to communicate with his stakeholders as part of his role.

He is physically fit, responsive, able to multi-task and capable of interacting with stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Perform weighbridge operations	<ul style="list-style-type: none"> • Direct traffic in and out of the premises • Operate weighbridge as directed • Ensure safety measures are adhered to during weighing operations • Ensure all weight loads are recorded and captured accurately in the system • Propose plans and/or solutions to improve work processes
	Handle tools and equipment	<ul style="list-style-type: none"> • Prepare and inspect the appropriate tools and equipment • Report equipment faults to the appropriate persons • Ensure tools and equipment are replenished, reinstated and maintained
	Manage incidents	<ul style="list-style-type: none"> • Report operational abnormalities to the appropriate persons • Provide response to incidents and emergencies

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
	Emergency Response Management	Level 2	Communication	Intermediate
	Equipment and Inventory Management	Level 2	Digital Literacy	Basic
	Incident and Accident Investigation	Level 2	Interpersonal Skills	Intermediate
	Internet of Things Management	Level 2	Service Orientation	Basic
	Process Improvement and Optimisation	Level 3	Problem Solving	Basic
	Robotics and Automation Application	Level 2		
	Stakeholder Management	Level 3		
	Transport Management System Administration	Level 2		
	Waste Material Loading and Unloading Administration	Level 2		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Practices Implementation	Level 2		

Weighbridge Supervisor

JOB ROLE DESCRIPTION

The Weighbridge Supervisor oversees the operations of daily weighing of all waste collection vehicles. This includes implementing service operations work plans, incident management, ensuring all documentation is completed and updated accurately into the system. In performing these functions, he/she is also required to troubleshoot and resolve cases from daily operations, monitor equipment maintenance processes and report operational problems to the appropriate person while on duty.

He works in a waste management facility and performs site visits when necessary. He is expected to communicate with his stakeholders as part of his role in performing operational duties.

He is physically fit, responsive, able to multi-task and capable of interacting with stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Supervise weighbridge operations	<ul style="list-style-type: none"> • Monitor weighing operations to ensure quality service delivery • Ensure safety measures are adhered to during weighing operations • Report contamination or non-conforming wastes delivered to site to the appropriate persons immediately • Ensure that record entries are updated accurately in the system • Extract and submit relevant data from the system • Implement operation plans to improve work processes and service quality
	Manage inventory, equipment and maintenance schedule	<ul style="list-style-type: none"> • Ensure tools and equipment are replenished timely, reinstated and maintained • Evaluate reported equipment faults and report to the appropriate persons
	Manage incidents	<ul style="list-style-type: none"> • Provide critical response to major incidents and emergencies • Report operational abnormalities to the appropriate persons

Weighbridge Supervisor

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
		Data and Statistical Analytics	Level 3	Communication
	Emergency Response Management	Level 2	Digital Literacy	Basic
	Equipment and Inventory Management	Level 3	Interpersonal Skills	Intermediate
	Incident and Accident Investigation	Level 3	Sense Making	Intermediate
	Internet of Things Management	Level 3	Problem Solving	Basic
	Process Improvement and Optimisation	Level 3		
	Process Quality Management	Level 3		
	Robotics and Automation Application	Level 3		
	Stakeholder Management	Level 3		
	Transport Management System Administration	Level 3		
	Waste Material Loading and Unloading Administration	Level 3		
	Workplace Safety and Health Culture Development	Level 3		
	Workplace Safety and Health Performance Management	Level 2		
	Workplace Safety and Health Practices Implementation	Level 3		

Waste and Recyclables Collection Executive

JOB ROLE DESCRIPTION

The Waste and Recyclables Collection Executive assists with the management of waste and recyclables collection operations. This includes overseeing the management of organisational resources, collection routes, work procedures and schedules, incidents and reports to the management. He/She is also required to plan collection routes, compile and analyse data, recommend suitable operational plans and/or equipment to improve work processes and service quality of the organisation.

He works in a waste management facility and performs site visits when necessary. He is expected to communicate with his stakeholders and clients as part of his role in performing operational duties.

He is organised, responsive, approachable, able to multi-task and capable of interacting with stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Manage waste and recyclables collection services	<ul style="list-style-type: none"> • Monitor waste and recyclables collection operations to ensure quality service delivery • Ensure waste and recyclables collection teams adhere to safety measures during operations • Evaluate relevant data and prepare appropriate reports for management • Compile and analyse relevant data to provide recommendations to improve the waste and recyclables collection process • Conduct research on existing and emerging trends in waste and recyclables collection • Assist in the development and review of operation plans to improve work procedures and quality service delivery • Implement operation plans to improve and track work processes and quality service
	Manage vehicle routing and scheduling	<ul style="list-style-type: none"> • Plan suitable routes for waste and recyclables collection • Allocate planned collection routes to waste collection teams • Source and recommend alternative waste and recyclables collection routes arising from seasonal peaks • Provide appropriate advice to the team to ensure continuation of waste and recyclables collection operations on the affected routes • Assist with the development and review of route planning procedures
	Manage inventory, equipment and maintenance schedule	<ul style="list-style-type: none"> • Control and allocate equipment and/or technologies and supplies to project sites • Evaluate reported mechanical faults and inform appropriate persons • Identify and recommend suitable equipment and/or technologies to improve waste and recyclables sorting operations • Implement suitable equipment and/or technologies • Implement maintenance schedules of all appropriate tools and equipment
	Manage teams	<ul style="list-style-type: none"> • Facilitate planning of deployment of manpower and work schedules • Facilitate effective work processes • Facilitate the capability development of staff
	Manage incidents	<ul style="list-style-type: none"> • Attend to enquiries from clients and team • Guide team to respond to major incidents and emergencies • Assist in providing updates on major incidents and emergencies to the appropriate persons

Waste and Recyclables Collection Executive

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
		Automation Research and Implementation	Level 3	Resource Management
	Business Continuity Management	Level 3	Communication	Intermediate
	Customer Management	Level 4	Digital Literacy	Intermediate
	Data and Statistical Analytics	Level 4	Computational Thinking	Intermediate
	Effectiveness Management	Level 4	Lifelong Learning	Intermediate
	Emergency Response Management	Level 3		
	Equipment and Inventory Management	Level 3		
	Hazardous Material Management	Level 4		
	Incident and Accident Investigation	Level 3		
	Internet of Things Management	Level 4		
	Knowledge Management	Level 3		
	Learning and Development	Level 4		
	Process Improvement and Optimisation	Level 4		
	Process Quality Management	Level 4		
	Risk Management and Administration	Level 4		
	Robotics and Automation Application	Level 4		
	Stakeholder Management	Level 4		
	Strategy Planning	Level 4		
	Transport Management System Administration	Level 4		
	Transport Route and Schedule Planning	Level 3		
	Waste Collection Management	Level 4		
	Waste Material Loading and Unloading Administration	Level 3		
	Workplace Safety and Health Culture Development	Level 4		

Waste and Recyclables Collection Manager

JOB ROLE DESCRIPTION

The Waste and Recyclables Collection Manager manages the overall waste and recyclables collection operations. He/She is required to evaluate data and reports to develop suitable operation plans to improve work procedures and collaborate with appropriate persons to forecast service demands. He also oversees the planning and implementation of the waste collection routes, maintenance schedules of all waste collection equipment and manage incidents related to waste and recyclables collection.

He works in a waste management facility and perform site visits when necessary. He is expected to manage the waste and recyclables collection team and communicate with his stakeholders and clients as part of his role in performing operation duties.

He is organised, responsive, approachable, resourceful, service-oriented leader, able to multi-task and manage operations effectively.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Manage waste and recyclables collection services	<ul style="list-style-type: none"> • Maintain oversight of all waste and recyclables collection operations to ensure quality service delivery • Ensure waste and recyclables collection teams adhere to safety measures during waste and recyclables collection operations • Forecast service demands in collaboration with relevant persons • Evaluate and review data and/or reports for waste and recyclables collection process improvement • Evaluate research outcomes on existing and emerging trends on waste and recyclables collection • Develop and review operation plans to improve work procedures and quality service delivery • Drive implementation of new and/or revised processes
	Manage vehicle routing and scheduling	<ul style="list-style-type: none"> • Maintain oversight on the planning of suitable waste and recyclables collection routes • Evaluate and approve proposed alternative waste and recyclables collection routes arising from seasonal peaks • Develop and review route planning procedures
	Manage inventory, equipment and maintenance schedule	<ul style="list-style-type: none"> • Manage the implementation of new technology and/or equipment and/or maintenance schedules of tools and equipment • Review reported mechanical faults and determine appropriate action to be taken • Evaluate and select suitable equipment and/or technologies to improve waste and recyclables collection operations based on organisation and service requirements • Develop equipment maintenance schedules for tools and equipment
	Manage teams	<ul style="list-style-type: none"> • Manage the planning of work schedules and deployment of manpower • Develop plans to promote good teamwork in alignment with organisational core values • Manage the capability development of staff
	Manage incidents	<ul style="list-style-type: none"> • Analyse and manage major incidents and emergencies in collaboration with relevant persons • Make critical decisions to resolve major incidents and emergencies • Review incident and emergency reports • Manage and report incident and emergency investigations

Waste and Recyclables Collection Manager

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
		Automation Research and Implementation	Level 4	Leadership
	Business Continuity Management	Level 4	Resource Management	Advanced
	Business Development	Level 4	Decision Making	Advanced
	Conflict Management	Level 5	Communication	Advanced
	Customer Management	Level 5	Digital Literacy	Advanced
	Data and Statistical Analytics	Level 5		
	Effectiveness Management	Level 5		
	Emergency Response Management	Level 3		
	Equipment and Inventory Management	Level 3		
	Hazardous Material Management	Level 4		
	Incident and Accident Investigation	Level 3		
	Internet of Things Management	Level 5		
	Knowledge Management	Level 4		
	Learning and Development	Level 5		
	Market Research	Level 4		
	Process Improvement and Optimisation	Level 5		
	Process Quality Management	Level 5		
	Risk Management and Administration	Level 5		
	Robotics and Automation Application	Level 5		
	Stakeholder Management	Level 5		
	Strategy Planning	Level 5		
	Transport Management System Administration	Level 5		
	Transport Route and Schedule Planning	Level 4		
	Waste Collection Management	Level 4		
	Waste Material Loading and Unloading Administration	Level 4		
	Workplace Safety and Health Culture Development	Level 4		
	Workplace Safety and Health Practices Implementation	Level 4		

Materials Recovery

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Operations Manager

Jade Loh

Plaspulp Union Pte Ltd

GIVING RECYCLABLES A NEW LEASE OF LIFE

When Jade Loh worked in a manufacturing company, she saw the large amount of waste it generated. She began to think about the life cycle of these materials, and what happens to them after they are discarded. This led her to join Plaspulp Union Pte Ltd, a company that provides waste disposal and recycling services. As Operations Manager, she gives these waste products a new lease of life.

It begins when scrap is collected and sent to the factory. The scrap material is then treated and processed into raw materials to be sold. Jade's responsibilities include monitoring the quality of these recycled products, and ensuring a smooth production output to meet the company's targets.

"The challenge in handling many different types of waste is being able to work out the ideal solutions to recycle and reuse each of them. One has to be quick, decisive and flexible to try various methods," Jade says. This is why she feels people who join the profession should be able to work in a fast-paced environment, be receptive to new ideas and possess an innovative spirit.

Jade's team goes through a phase of trial and error when they explore recycling solutions for complicated waste materials. "We will study the properties of the material and its potential uses, then evaluate the right method of recycling," she explains.

In the future, Jade wishes to improve in the area of quality control and management. She is glad that the Skills Framework for Environmental Services has captured emerging skills such as 'Process Quality Management' which will help her in overseeing her production team. "The Skills Framework enables me to tap on the courses and grants available for upgrading. It also provides clarity in terms of career progression and personal development. This gives me a clear view of my own career goals, while being able to work with my team to develop their careers," she says.

Besides personal improvement, Jade has a vision to increase the practice of recycling in Singapore. While it is an uphill task, she hopes that the public will be more aware of the importance of recycling and what it means to be environmentally-friendly.

"The Skills Framework enables me to tap on the courses and grants available for upgrading, providing clarity in career progression and personal development."

Waste Recycling Sorter

JOB ROLE DESCRIPTION

The Waste Recycling Sorter identifies and sorts materials which are suitable for recycling. He/She sorts waste at the waste management facility, places the materials at the conveyor belt, removes non-recyclable items accurately and reports operational faults to the appropriate person. He is also required to ensure the assigned appropriate tools and equipment are in working condition and provide updates on equipment faults.

He works in the waste management facility and may be exposed to unpleasant sights and smells, and to dangerous and/or toxic substances. As such, he may be required to handle potentially dangerous materials and must ensure that all activities are completed in a safe and efficient manner.

He is physically fit and attentive, resilient and a team player.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Perform waste sorting and materials recovery operations	<ul style="list-style-type: none"> Identify and sort collected waste Deposit recyclable waste on conveyor belts as directed Ensure safety measures are adhered to during waste sorting operations
	Handle tools and equipment	<ul style="list-style-type: none"> Ensure the appropriate tools and equipment are in working condition Report equipment faults to the supervisor Ensure tools and equipment are replenished timely, reinstated and maintained
	Manage incidents	<ul style="list-style-type: none"> Report operational abnormalities to the appropriate person Provide immediate response to incidents and emergencies

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
	Emergency Response Management	Level 2	Communication	Basic
	Environmental Management System Policies, Standards, Procedures and Practices Management	Level 1	Teamwork	Basic
	Equipment and Inventory Management	Level 1	Interpersonal Skills	Basic
	Hazardous Material Management	Level 2	Service Orientation	Basic
	Incident and Accident Investigation	Level 2	Problem Solving	Basic
	Waste Sorting Management	Level 1		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Practices Implementation	Level 1		

Waste Recycling Machine Operator

JOB ROLE DESCRIPTION

The Waste Recycling Machine Operator sorts and transports materials for recycling in the waste management facility using motorised equipment. He/She is required to operate cranes and related machines to load, transport and remove materials in the facility. In performing most of these functions, conducts functional checks on the machines, maintains machines and reports faults to the appropriate persons.

He is required to work at the waste management facility on a rotational shift, and may potentially handle dangerous materials, while ensuring that all activities are completed in a safe and efficient manner. He is constantly exposed to unpleasant sights and smells and may at times be exposed to dangerous and/or toxic substances.

He is physically fit, responsive, able to multi-task and capable of interacting with stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Perform waste sorting and materials recovery operations	<ul style="list-style-type: none"> Operate appropriate equipment to transport and/or sort waste as directed Ensure safety measures are adhered to during operation Update job and log card record entries accurately
	Handle tools and equipment	<ul style="list-style-type: none"> Ensure the appropriate tools and equipment are in working condition Identify and report equipment faults to the supervisor Ensure tools and equipment are replenished timely, reinstated and maintained
	Manage incidents	<ul style="list-style-type: none"> Report operational abnormalities to the appropriate persons Provide immediate response to incidents and emergencies

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
	Emergency Response Management	Level 2	Communication	Basic
	Environmental Management System Policies, Standards, Procedures and Practices Management	Level 1	Teamwork	Basic
	Equipment and Inventory Management	Level 2	Interpersonal Skills	Basic
	Hazardous Material Management	Level 2	Problem Solving	Basic
	Incident and Accident Investigation	Level 2	Service Orientation	Basic
	Robotics and Automation Application	Level 2		
	Stakeholder Management	Level 3		
	Waste Sorting Management	Level 2		
	Workplace Safety and Health Culture Development	Level 2		
Workplace Safety and Health Practices Implementation	Level 2			

Waste Recycling Supervisor/ Waste Recovery Supervisor

JOB ROLE DESCRIPTION

The Waste Recycling Supervisor/Waste Recovery Supervisor is responsible for overseeing the materials recycling and sorting operations. He/She conducts inspections to ascertain and verify uncontaminated recyclable materials. He also evaluates reported mechanical faults and inform relevant teams to rectify issues. In performing most of these functions, he is also required to inspect mechanical equipment daily, evaluates reported mechanical faults and inform relevant teams to rectify issues.

He works in the waste management facility, and is constantly exposed to unpleasant sights and smells and may at times be exposed to dangerous and/or toxic substances. He oversees the handling of potentially dangerous materials and ensures that all activities are completed in a safe and efficient manner.

He is physically fit, responsive, able to multi-task and capable of interacting with stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Manage waste sorting and materials recovery operations	<ul style="list-style-type: none"> • Communicate assigned duties to the team • Monitor waste sorting operations to ensure quality service delivery • Monitor operations of lifting and loading machinery • Ensure team adheres to safety measures during waste sorting operations • Ensure the job and log record entries are updated accurately
	Manage inventory, equipment and maintenance schedule	<ul style="list-style-type: none"> • Ensure waste sorting equipment is serviced on a regular basis • Evaluate reported equipment faults and inform appropriate persons • Provide recommendations on suitable equipment and/or technologies to improve waste sorting operations • Coordinate the purchase of all materials and supplies necessary for waste sorting operations • Coordinate with appropriate persons to schedule regular maintenance of waste sorting equipment • Ensure stocks of tools and equipment are in order and replenishment orders are fulfilled in a timely manner
	Manage teams	<ul style="list-style-type: none"> • Assist in planning work schedules and deployment of manpower • Provide appropriate guidance to teams to ensure operations are running efficiently • Facilitate effective work processes
	Manage incidents	<ul style="list-style-type: none"> • Provide critical response to major incidents and emergencies • Report operational abnormalities to the appropriate persons

Waste Recycling Supervisor/ Waste Recovery Supervisor

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
		Effectiveness Management	Level 3	Communication
	Emergency Response Management	Level 3	Problem Solving	Intermediate
	Equipment and Inventory Management	Level 3	Decision Making	Intermediate
	Hazardous Material Management	Level 3	Managing Diversity	Intermediate
	Incident and Accident Investigation	Level 3	Developing People	Basic
	Learning and Development	Level 2		
	Process Improvement and Optimisation	Level 3		
	Process Quality Management	Level 3		
	Stakeholder Management	Level 3		
	Waste Sorting Management	Level 3		
	Workplace Safety and Health Culture Development	Level 3		
	Workplace Safety and Health Performance Management	Level 2		
	Workplace Safety and Health Practices Implementation	Level 3		

Waste Recycling Executive/ Waste Recovery Executive

JOB ROLE DESCRIPTION

The Waste Recycling Executive/Waste Recovery Executive assists with the management of waste sorting and materials recovery operations. He/She consolidates relevant data to research on the existing and emerging trends on waste and recyclables sorting processes. He also recommends suitable equipment and/or technologies to improve waste and recyclables sorting operations. He is required to evaluate reported mechanical faults to rectify issues. In performing most of these functions, he recommends and facilitates the implementation of effective work processes, maintenance schedules of equipment and manage incidents related to waste sorting operations.

He works in a waste management facility where he is exposed to unpleasant sights and smells, and may at times be exposed to dangerous and/or toxic substances. He oversees the handling of potentially dangerous materials and ensures that all activities are completed in a safe and efficient manner. He is also required to manage teams and incidents relating to waste sorting and materials recovery operations and to communicate with relevant stakeholders and clients.

He is organised, responsive, approachable, able to multi-task and capable of interacting with stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Manage waste sorting and materials recovery operations	<ul style="list-style-type: none"> • Ensure quality service delivery for waste and recyclables sorting operations • Ensure teams adhere to safety measures during waste and recyclables sorting operations • Conduct final inspections on sorted waste and recyclables • Report and recommend to the appropriate persons to initiate the transfer of sorted waste and recyclables to the appropriate destination • Research and report on the existing and emerging trends on waste and recyclables sorting processes • Assist in the development and review of operation plans to improve work procedures and quality service delivery • Implement operation plans to improve and track work processes and quality service
	Manage inventory, equipment and maintenance schedule	<ul style="list-style-type: none"> • Control and allocate equipment and/or technologies and supplies to project sites • Make critical decisions on reported equipment faults • Identify and recommend suitable equipment and/or technologies to improve waste and recyclables sorting operations • Implement suitable equipment and/or technologies • Implement and/or initiate maintenance schedules of all appropriate tools and equipment
	Manage teams	<ul style="list-style-type: none"> • Facilitate the planning of work schedules and deployment of manpower • Facilitate effective work processes • Facilitate the capability development of staff
	Manage incidents	<ul style="list-style-type: none"> • Attend to enquiries from clients and team • Guide teams to respond to major incidents and emergencies • Assist in providing updates on major incidents and emergencies to the appropriate persons

Waste Recycling Executive/ Waste Recovery Executive

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
		Automation Research and Implementation	Level 3	Resource Management
	Business Continuity Management	Level 3	Communication	Intermediate
	Customer Management	Level 4	Digital Literacy	Intermediate
	Data and Statistical Analytics	Level 3	Computational Thinking	Intermediate
	Effectiveness Management	Level 4	Lifelong Learning	Intermediate
	Emergency Response Management	Level 3		
	Equipment and Inventory Management	Level 3		
	Hazardous Material Management	Level 4		
	Incident and Accident Investigation	Level 3		
	Internet of Things Management	Level 4		
	Knowledge Management	Level 3		
	Learning and Development	Level 4		
	Process Improvement and Optimisation	Level 4		
	Process Quality Management	Level 4		
	Risk Management and Administration	Level 4		
	Robotics and Automation Application	Level 4		
	Stakeholder Management	Level 4		
	Strategy Planning	Level 4		
	Waste Sorting Management	Level 3		
	Workplace Safety and Health Culture Development	Level 4		
	Workplace Safety and Health Practices Implementation	Level 4		

Waste Recycling Manager/ Waste Recovery Manager

JOB ROLE DESCRIPTION

The Waste Recycling Manager/Waste Recovery Manager manages the materials sorting operations. He/She oversees the inspected sorted waste and recyclables to reduce wastage. He evaluates the consolidated data and reports to develop/review operation plans to improve work procedures. He also collaborates with the appropriate stakeholders to transfer the sorted waste to the appropriate destination. He manages the implementation of new equipment, processes, maintenance schedules of tools and equipment and evaluates reported mechanical faults to rectify issues.

He works in a waste management facility and in carrying out these functions, he is also required to manage teams and incidents relating to materials sorting operations and to communicate with relevant stakeholders and clients.

He is organised, responsive, approachable, resourceful, service-oriented leader, able to multi-task and manage operations effectively.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Manage waste sorting and materials recovery operations	<ul style="list-style-type: none"> • Maintain oversight of all waste and recyclables sorting operations to ensure quality service delivery • Ensure team adhered to safety measures during operation • Oversee and manage the inspected sorted waste and recyclables • Collaborate with the appropriate persons on the transfer of sorted waste and recyclables to the appropriate destination • Evaluate recommended waste and recyclables sorting and/or recovery improvement processes • Develop and review operation plans to improve work procedures and quality service delivery • Drive the implementation of new and/or revised processes
	Manage inventory, equipment and maintenance schedule	<ul style="list-style-type: none"> • Manage the implementation of new technology and/or equipment and/or processes and/or maintenance schedules of all appropriate tools and equipment • Review reported mechanical faults and determine appropriate actions to be taken • Evaluate and select suitable equipment and/or technologies to improve operations based on organisation and service requirement • Develop equipment maintenance schedules for tools and equipment
	Manage teams	<ul style="list-style-type: none"> • Manage the planning of work schedules and deployment of manpower • Develop plans to promote good teamwork in alignment with organisational core values • Manage the capability development of staff
	Manage incidents	<ul style="list-style-type: none"> • Analyse and manage major incidents and emergencies in collaboration with appropriate persons • Make critical decisions to resolve major incidents and emergencies • Review incident and emergency reports • Manage and report incident and emergency investigations

Waste Recycling Manager/ Waste Recovery Manager

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
		Automation Research and Implementation	Level 4	Leadership
	Business Continuity Management	Level 4	Resource Management	Advanced
	Business Development	Level 4	Decision Making	Advanced
	Conflict Management	Level 5	Communication	Advanced
	Customer Management	Level 5	Digital Literacy	Advanced
	Data and Statistical Analytics	Level 5		
	Effectiveness Management	Level 5		
	Emergency Response Management	Level 3		
	Equipment and Inventory Management	Level 3		
	Incident and Accident Investigation	Level 3		
	Internet of Things Management	Level 5		
	Knowledge Management	Level 4		
	Learning and Development	Level 5		
	Market Research	Level 4		
	Process Improvement and Optimisation	Level 5		
	Process Quality Management	Level 5		
	Risk Management and Administration	Level 4		
	Robotics and Automation Application	Level 5		
	Stakeholder Management	Level 5		
	Strategy Planning	Level 5		
	Waste Sorting Management	Level 3		
	Workplace Safety and Health Culture Development	Level 4		
	Workplace Safety and Health Practices Implementation	Level 4		

Treatment and Disposal

JOB ROLES	PAGE
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Waste Treatment Executive/Waste Disposal Executive	70
Waste Treatment Plant Manager	72
Operations Director/General Manager	74



Engineer

Max Heng Ming Xuan
Keppel Infrastructure

ENGINEERING THE ABILITY TO ADAPT

Max Heng joined Keppel Infrastructure's Management Trainee Scheme after graduating from Nanyang Technological University, and is now an Operations & Maintenance Engineer at the Keppel Seghers Tuas Waste-to-Energy plant. His main job scope involves optimising and improving processes at the plant, which has the capacity to treat 800 tonnes of solid waste to generate about 22 megawatt (MW) of green energy daily. He also ensures that plant operations run smoothly.

Max recalled that during one of his regular site walks, a driver came up to him and grabbed his arm unexpectedly. The driver thanked Max for implementing measures that improved workplace safety at the facility's reception hall for refuse trucks. The driver also made some suggestions to Max, some of which were adopted. Max cited this incident as it served as a good reminder that his safety projects affect people on the ground, be it his own staff or external vendors.

Max's greatest challenge is equipping himself with relevant knowledge outside of his engineering specialisation. Plant operations and maintenance can cut across different engineering fields, so he has to be able to adapt. "I feel that one must be open to changes, and be able to come up with solutions while working within constraints. The ability to adapt and respond quickly is very important, as there is no one-size-fits-all solution," Max says.

"The nature of process plants requires one to

constantly relook and rethink situations and solutions in order to minimise disruptions." He is glad that the Skills Framework for Environmental Services has captured emerging skills such as Process Improvement & Optimisation and Robotics & Automation application in order to keep up with the evolving demand of their job. "As engineers, we have to constantly learn and upgrade our skills to help us in our daily work. The standard operating procedures of running the plant need to be constantly reviewed to stay current."

Currently taking lessons to be a Singapore Certified Energy Manager (SCEM) which will equip him with more technical skills to track energy usage of the plants he manages, Max says the Skills Framework can also equip employees with more competitive knowledge that can position them for better career development. "With emerging skills in the sector being highlighted, it allows both the organisation and myself to better prepare ourselves and stay ahead of the competition," says Max.

"With emerging skills in the sector being highlighted, it allows both the organisation and myself to better prepare ourselves and stay ahead of the competition."

Waste Treatment Worker/ Waste Disposal Worker

JOB ROLE DESCRIPTION

The Waste Treatment Worker/Waste Disposal Worker is responsible for the handling, transfer, treatment and disposal of waste materials in the waste management plant. He/She is required to perform waste treatment and disposal operations using the appropriate equipment. He also cleans and maintains septic tanks after operations. In performing most of these functions, he handles incidents relating to waste treatment and disposal. He maintains the conditions of the waste treatment equipment and provides updates on operational problems to the appropriate person while on duty. He will also be required to dispose of non-recyclable waste in a safe and efficient manner.

He is required to work in the waste treatment and disposal management plant, where he may be exposed to unpleasant sights and smells, and dangerous and/or toxic substances. He may be required to handle potentially dangerous materials and must ensure that all activities are completed in a safe and efficient manner.

He is physically fit and attentive, resilient and a team player.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Perform waste treatment and disposal operations	<ul style="list-style-type: none"> • Identify and transfer waste • Dispose of non-recyclable waste as directed • Ensure safety measures are adhered to during operations • Perform waste treatment using appropriate equipment and/or technology and/or chemical • Perform cleaning services after waste treatment and disposal operations using appropriate chemical agents, tools and equipment • Update job and log card record entries
	Handle tools and equipment	<ul style="list-style-type: none"> • Ensure the appropriate tools and equipment are in working condition • Conduct inspections on equipment and/or facilities to ensure optimal functioning • Identify and report equipment faults to supervisor • Ensure tools and equipment are replenished, reinstated and maintained
	Handle incidents	<ul style="list-style-type: none"> • Report operational abnormalities to the appropriate persons • Provide immediate response to incidents and emergencies

Waste Treatment Worker/ Waste Disposal Worker

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
	Cleaning Chemical Handling	Level 2	Communication	Basic
	Emergency Response Management	Level 2	Teamwork	Basic
	Environmental Management System Policies, Standards, Procedures and Practices Management	Level 1	Interpersonal Skills	Basic
	Equipment and Inventory Management	Level 2	Problem Solving	Basic
	Hazardous Material Management	Level 2	Decision Making	Basic
	Horizontal Surface Maintenance	Level 2		
	Robotics and Automation Application	Level 2		
	Vertical Surface Maintenance	Level 1		
	Waste Disposal Management	Level 2		
	Waste Treatment Management	Level 2		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Practices Implementation	Level 2		

Waste Treatment Supervisor/ Waste Disposal Supervisor

JOB ROLE DESCRIPTION

The Waste Treatment Supervisor/Waste Disposal Supervisor supervises the operations and maintenance of a waste management plant. He/She is required to establish protocols to treat and dispose waste, and guide team on work processes. He also establishes and implements work schedules and operations, plans and evaluates the team's performance. He is required to inspect the condition of the waste treatment equipment and provide updates on operational problems to the appropriate person.

He works in a waste treatment and disposal management plant, and oversees the handling, treatment, and disposal operations of potentially dangerous materials while ensuring that all activities are completed in a safe and efficient way. He is constantly exposed to unpleasant sights and smells and may at times be exposed to dangerous and/or toxic substances.

He is physically fit, responsive, able to multi-task and capable of interacting with stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Manage waste treatment and disposal operations	<ul style="list-style-type: none"> • Communicate assigned duties to the team • Monitor waste treatment and disposal operations to ensure quality service delivery • Ensure team adheres to safety measures during waste treatment and disposal operations • Ensure the job and log record entries are updated accurately
	Manage teams	<ul style="list-style-type: none"> • Assist in planning work schedules and deployment of manpower • Provide appropriate guidance to teams to ensure operations are running safely and efficiently • Facilitate effective work processes
	Manage inventory, equipment and maintenance schedule	<ul style="list-style-type: none"> • Ensure waste treatment and disposal equipment is serviced on a regular basis • Evaluate reported equipment faults • Supervise inspection equipment and/or facilities to ensure optimal functioning • Provide recommendations on suitable equipment and/or technologies to improve waste treatment and disposal operations • Coordinate the purchase of all materials and supplies necessary for waste treatment and disposal operations • Coordinate with appropriate persons to schedule regular maintenance of waste treatment and disposal equipment and facilities
	Manage incidents	<ul style="list-style-type: none"> • Attend to enquiries from clients and the team • Provide critical response to major incidents and emergencies • Report operational abnormalities to the appropriate person

Waste Treatment Supervisor/ Waste Disposal Supervisor

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
	Effectiveness Management	Level 4	Communication	Intermediate
	Emergency Response Management	Level 3	Problem Solving	Intermediate
	Environmental Management System Policies, Standards, Procedures and Practices Management	Level 2	Decision Making	Intermediate
	Equipment and Inventory Management	Level 3	Managing Diversity	Intermediate
	Hazardous Material Management	Level 3	Developing People	Basic
	Incident and Accident Investigation	Level 3		
	Internet of Things Management	Level 2		
	Learning and Development	Level 2		
	Process Improvement and Optimisation	Level 3		
	Process Quality Management	Level 3		
	Robotics and Automation Application	Level 3		
	Stakeholder Management	Level 3		
	Waste Disposal Management	Level 3		
	Waste Treatment Management	Level 3		
	Workplace Safety and Health Culture Development	Level 3		
	Workplace Safety and Health Practices Implementation	Level 3		

Waste Treatment Executive/ Waste Disposal Executive

JOB ROLE DESCRIPTION

The Waste Treatment Executive/Waste Disposal Executive is responsible for assisting with the management of the operations and maintenance of a waste management plant, and ensures that the waste management plant complies with the appropriate organisational requirements. He/She consolidates relevant data and trends to conduct environmental impact assessments and improvise work processes. He also evaluates reported mechanical faults to rectify issues. In performing most of these functions, he recommends and facilitates the implementation and maintenance schedules of equipment and manages incidents related to waste treatment and disposal operations.

He works in a waste treatment and disposal management plant, and oversees the handling, treatment, and disposal operations of potentially dangerous materials while ensuring that all activities are completed in a safe and efficient way. He is constantly exposed to unpleasant sights and smells and may at times be exposed to dangerous and/or toxic substances. He also manages team and incidents relating to operations and maintenance of a waste treatment and disposal plant and communicates with relevant stakeholders and clients.

He is organised, responsive, approachable, able to multi-task and capable of interacting with stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Manage waste treatment and disposal operations	<ul style="list-style-type: none"> • Ensure team achieved the given objectives and prevent contamination to the environment • Ensure team adheres to safety measures during waste treatment and disposal operations • Coordinate with appropriate persons to ensure the treatment plant complies with the organisational requirements • Gather relevant data to conduct environmental impact assessments • Research and report on existing and emerging trends in waste treatment and disposal processes • Implement methods and standard operating procedures for waste treatment and disposal operations • Implement operation plans to improve and track work processes in compliance with organisational requirements
	Manage inventory, equipment and maintenance schedule	<ul style="list-style-type: none"> • Evaluate reported mechanical faults and inform the appropriate persons • Identify and recommend suitable equipment and/or technologies to improve waste treatment and disposal operations • Report on inspected equipment and/or facilities to ensure optimal functioning • Implement suitable equipment and/or technologies in waste treatment and disposal • Implement and/or initiate maintenance schedules of all appropriate tools and equipment
	Manage teams	<ul style="list-style-type: none"> • Facilitate the planning of work schedules and deployment of manpower • Facilitate effective work processes • Facilitate the capability development of staff
	Manage incidents	<ul style="list-style-type: none"> • Attend to enquiries from clients and teams • Guide the team to respond to major incidents and emergencies • Assist in providing updates on major incidents and emergencies to the appropriate person

Waste Treatment Executive/ Waste Disposal Executive

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
		Automation Research and Implementation	Level 3	Resource Management
	Business Continuity Management	Level 3	Communication	Intermediate
	Cleaning Chemical Handling	Level 4	Digital Literacy	Intermediate
	Customer Management	Level 4	Computational Thinking	Intermediate
	Data and Statistical Analytics	Level 4	Lifelong Learning	Intermediate
	Effectiveness Management	Level 4		
	Emergency Response Management	Level 4		
	Environmental Management System Framework Development and Implementation	Level 3		
	Environmental Management System Policies, Standards, Procedures and Practices	Level 3		
	Equipment and Inventory Management	Level 3		
	Financial Management	Level 3		
	Hazardous Material Management	Level 4		
	Incident and Accident Investigation	Level 3		
	Internet of Things Management	Level 4		
	Knowledge Management	Level 3		
	Learning and Development	Level 3		
	Process Improvement and Optimisation	Level 4		
	Process Quality Management	Level 4		
	Risk Management and Administration	Level 4		
	Robotics and Automation Application	Level 4		
	Stakeholder Management	Level 4		
	Strategy Planning	Level 4		
	Waste Disposal Management	Level 3		
	Waste Treatment Management	Level 4		
	Workplace Safety and Health Culture Development	Level 4		
	Workplace Safety and Health Practices Implementation	Level 4		

Waste Treatment Plant Manager

JOB ROLE DESCRIPTION

The Waste Treatment Plant Manager is responsible for managing the operations and maintenance of a waste management plant and ensures compliance with the relevant organisational requirements. He/She reviews the relevant data and trends to evaluate environmental impact assessments and improve work processes. In performing most of these functions, he is also required to manage the implementation, maintenance schedules of equipment and manage incidents related to waste treatment and disposal operations.

He works in the waste treatment and disposal management plant, overseeing the handling, treatment and disposal operations of potentially dangerous materials and ensures that all activities are completed in a safe and efficient way. He is constantly exposed to unpleasant sights and smells and may at times be exposed to dangerous and/or toxic substances. He is expected to manage teams and incidents relating to operations and maintenance of a waste treatment and disposal plant and communicates with relevant stakeholders and clients.

He is organised, responsive, approachable, resourceful, service-oriented leader, able to multi-task and manage operations effectively.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Manage waste treatment and disposal operations	<ul style="list-style-type: none"> • Maintain oversight of all waste treatment and disposal operations • Ensure objectives are achieved and prevent contamination of the environment • Ensure team adheres to safety measures during waste treatment and disposal operations • Oversee the collaboration with appropriate persons to ensure the treatment plant complies with the organisational requirements • Evaluate environmental impact assessments • Evaluate the recommended waste treatment and disposal improvement processes • Develop and revise methods and standard operating procedures for waste treatment and disposal operations
	Manage inventory, equipment and maintenance schedule	<ul style="list-style-type: none"> • Drive implementation of new and/or revised processes for waste treatment and disposal operations that complies with the organisational requirement • Manage the implementation of new technology and/or equipment and/or processes and/or maintenance schedules of tools and equipment • Review reported mechanical faults and determine appropriate action to be taken • Evaluate inspected equipment and/or facilities to ensure optimal functionality • Evaluate and select suitable equipment and/or technologies to improve operations based on organisation and service requirements
	Manage teams	<ul style="list-style-type: none"> • Develop equipment inspection and/or maintenance schedules of tools and equipment • Manage the planning of work schedules and deployment of manpower • Develop plans to promote good team work that align with organisational core values
	Manage incidents	<ul style="list-style-type: none"> • Manage capability development of staff • Analyse and manage major incidents and emergencies in collaboration with relevant person • Make critical decisions to resolve major incidents and emergencies • Review the submitted incident and emergency reports

Waste Treatment Plant Manager

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
		Automation Research and Implementation	Level 4	Leadership
	Business Continuity Management	Level 4	Resource Management	Advanced
	Business Development	Level 4	Decision Making	Advanced
	Cleaning Chemical Handling	Level 4	Communication	Advanced
	Conflict Management	Level 5	Digital Literacy	Advanced
	Customer Management	Level 5		
	Data and Statistical Analytics	Level 5		
	Effectiveness Management	Level 5		
	Emergency Response Management	Level 3		
	Environmental Management System Framework Development and Implementation	Level 3		
	Environmental Management System Policies, Standards, Procedures and Practices	Level 4		
	Hazardous Material Management	Level 4		
	Incident and Accident Investigation	Level 3		
	Internet of Things Management	Level 5		
	Knowledge Management	Level 4		
	Learning and Development	Level 5		
	Market Research	Level 4		
	Process Improvement and Optimisation	Level 5		
	Process Quality Management	Level 5		
	Risk Management and Administration	Level 3		
	Robotics and Automation Application	Level 5		
	Stakeholder Management	Level 5		
	Strategy Planning	Level 5		
	Waste Disposal Management	Level 3		
	Waste Treatment Management	Level 4		
	Workplace Safety and Health Culture Development	Level 4		
	Workplace Safety and Health Practices Implementation	Level 4		

Operations Director/General Manager

JOB ROLE DESCRIPTION

The Operations Director/General Manager is responsible for providing the overall direction of the organisation within the guidelines set up by the board of directors or a similar governing body. As a systems thinker, he strategises and directs operational activities, translates organisational goals into achievable steps, anticipates and stays ahead of trends, and takes advantage of opportunities. He also mentors the management team as part of succession planning and represents the organisation in meetings with clients, investors and business partners.

He works in an office environment and performs site visits when necessary. He is expected to build relationships with stakeholders as part of his role.

This requires him to be organised, strategic, adaptable, highly driven and capable of interacting with key stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Lead teams	<ul style="list-style-type: none"> • Develop strategy plans to promote organisation core values • Manage the professionalism of the staff • Mentor and lead management staff • Lead organisational succession planning, capability development and employee engagement
	Drive business operations	<ul style="list-style-type: none"> • Drive the overall growth of business and operations • Drive opportunities to improve market visibility and presence of the organisation • Lead budget planning for the organisation • Represent and promote the organisation • Direct the development and review of operation policies and procedures
	Manage client relationships	<ul style="list-style-type: none"> • Collaborate with clients to achieve business goals • Direct the development and review of strategic plans to improve relationships with clients
	Manage incidents	<ul style="list-style-type: none"> • Oversee the conduct and review of contingency plans • Endorse emergency and crisis management response plans, processes and procedures • Provide direction on analysed trends of reported incidents

Operations Director/General Manager

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
		Automation Research and Implementation	Level 5	Leadership
	Business Continuity Management	Level 5	Communication	Advanced
	Business Development	Level 5	Developing People	Advanced
	Business Negotiation	Level 5	Global Mindset	Advanced
	Conflict Management	Level 6	Problem Solving	Advanced
	Contract Preparation, Evaluation, Negotiation and Tendering	Level 5		
	Contract and Vendor Management	Level 5		
	Customer Management	Level 6		
	Data and Statistical Analytics	Level 6		
	Effectiveness Management	Level 5		
	Environmental Management System Framework Development and Implementation	Level 5		
	Environmental Management System Policies, Standards, Procedures and Practices	Level 6		
	Financial Management	Level 5		
	Internet of Things Management	Level 5		
	Knowledge Management	Level 5		
	Learning and Development	Level 6		
	Market Research	Level 5		
	Process Improvement and Optimisation	Level 5		
	Process Quality Management	Level 5		
	Robotics and Automation Application	Level 5		
	Stakeholder Management	Level 5		
	Strategy Planning	Level 6		
	Risk Management and Administration	Level 6		
	Workplace Safety and Health Culture Development	Level 6		
	Workplace Safety and Health Performance Management	Level 5		
	Workplace Safety and Health Policy Development	Level 6		
	Workplace Safety and Health System Management	Level 5		



Operations Director

Ramkripal Pandey
TES-AMM (Singapore) Pte Ltd

THE VALUE OF RECYCLING

The recycling and disposal of e-waste has been a growing market segment in recent years. E-waste refers to discarded electrical or electronic items, such as mobile phones or batteries. The improper disposal of e-waste can release hazardous substances into the environment. There is therefore a need to properly dispose or recycle these items, and this is where Ramkripal Pandey comes in. He is the Operations Director of TES-AMM (Singapore) Pte Ltd, a company that handles the refurbishment of e-waste and data security, as well as the recycling of e-waste.

Some of Ramkripal's responsibilities include being in charge of legal and regulation compliance, business development, and providing operational advisory to his management team. While he joined the Environmental Services sector by chance, he is still contributing to the sector almost three decades later and his long career has made him realise the value of recycling.

Ramkripal believes new entrants to the sector should see the value of the materials they handle, and it is this appreciation that contributed to his continued passion for the profession. "Having passion means that one can appreciate the sector and be able to contribute to it significantly," he says. "It also gives them the resilience to manage the challenges of a tough environment."

One of the challenges is to manage work processes safely according to regulations. Ramkripal has to navigate local and international legislation, such as getting regulatory approvals from various countries' regulatory bodies. A prime example is the Basel Permit, which allows the export, import or transit of hazardous waste.

In the future, Ramkripal hopes that the sector is able to attract the right talent. "It is about getting the right people to join the sector and retaining these talents. One of my goals is to groom more people with the skills to evaluate and treat waste efficiently using environmentally-friendly technology," he explains. Ramkripal is glad that skills such as 'Waste Treatment Management' is highlighted in the Skills Framework, as it is an important asset for workers in the sector. It allows potential entrants to understand the competencies they need, and help companies to get relevant talents into their organisation.

"The Skills Framework provides clear job descriptions and tasks, as well as lists the skills required for each role. It helps me identify the right people for the job and helps the company develop talent," he says.

"It is about getting the right people to join the Environmental Services sector and for these talents to be retained."

Environment, Health and Safety

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Environment, Health and Safety Specialist

JOB ROLE DESCRIPTION

The Environmental Health and Safety Specialist is responsible for assisting with the development of the workplace, environmental, health and safety protection programmes and provides support to administer prevention programmes for incidents and emergencies. He/She also provides assistance to ensure compliance with the applicable environmental health and safety standards. He is required to prepare and review relevant reports, correspondences, procedures and manuals.

He is required to work in an office and perform site visits when necessary, and is expected to communicate with relevant stakeholders as part of his role in performing operational duties.

He is organised, responsive, approachable, able to multi-task and capable of interacting with stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Manage Environmental Management System (EMS) implementation	<ul style="list-style-type: none"> • Assist with the development of EMS framework • Implement EMS standards, policies and procedures • Implement environmentally sustainable work practices • Conduct routine EMS compliance reviews and audits • Assist in EMS communication and engagement
	Manage fire safety processes	<ul style="list-style-type: none"> • Inspect facilities regularly to locate hazardous conditions and fire code violations, recommend rectifying actions • Present fire code requirements and fire prevention information to relevant persons to maintain safety • Identify corrective actions necessary to bring properties into compliance with applicable standards • Assist with the development of fire evacuation plans and fire drills
	Manage incidents	<ul style="list-style-type: none"> • Ensure all incident reports are compiled and submitted on time • Facilitate incident investigations • Collaborate with the appropriate persons to manage incidents and emergencies • Assist with the conduct and review of contingency planning • Support and implement the development of emergency and crisis management response plans, processes and procedures • Prepare appropriate statistical trending reports, technical reports, correspondence and procedural manuals • Assist in the development emergency and crisis management response plans, processes and procedures • Prepare and submit incident reports to the appropriate persons
	Manage Workplace Safety and Health (WSH) implementation	<ul style="list-style-type: none"> • Assist in the development of the WSH framework • Assist in WSH compliance reviews and audits • Provide relevant WSH information to the organisation • Assist in WSH workplace communication and engagement

Environment, Health and Safety Specialist

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
	Data and Statistical Analytics	Level 4	Communication	Intermediate
	Emergency Response Management	Level 4	Digital Literacy	Intermediate
	Environmental Management System Framework development and Implementation	Level 4	Decision Making	Intermediate
	Environmental Management System Policies, Standards, Procedures and Practices	Level 3	Problem Solving	Intermediate
	Incident and Accident Investigation	Level 4	Sense Making	Intermediate
	Risk Management and Administration	Level 4		
	Stakeholder Management	Level 3		
	Workplace Safety and Health Culture Development	Level 4		
	Workplace Safety and Health Performance Management	Level 3		
	Workplace Safety and Health Policy Development	Level 3		
	Workplace Safety and Health Practices Implementation	Level 4		
	Workplace Safety and Health System Management	Level 4		

Environment, Health and Safety Manager

JOB ROLE DESCRIPTION

The Environmental Health and Safety Manager is responsible for overseeing the implementation of the safety practices and procedures in the organisation in accordance with the relevant health and safety standards. He/She leads initiatives to deliver the desired safety practices and procedures in the organisation. In performing most of these functions, he is responsible for developing safety practices and procedures and guidelines in the organisation in accordance with the relevant health and safety standards.

He is required to work in an office and perform site visits when necessary, and is expected to manage teams, communicate with relevant stakeholders as part of his role in performing operational duties.

He is organised, responsive, approachable, resourceful, service-oriented leader, able to multi-task and manage operations effectively.

CRITICAL WORK FUNCTIONS AND KEY TASKS/ PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Manage Environmental Management System (EMS) implementation	<ul style="list-style-type: none"> • Manage the development of EMS framework • Evaluate and review EMS standards, policies and procedures • Manage EMS compliance reviews and audits • Develop and review environmentally sustainable work practices
	Manage fire safety processes	<ul style="list-style-type: none"> • Evaluate inspected facilities to locate hazardous conditions, fire code violations and approve recommended rectifying actions • Evaluate identified corrective actions necessary ensure properties comply with applicable standards • Develop fire evacuation plans and oversee the execution of fire drills
	Manage incidents	<ul style="list-style-type: none"> • Analyse incident reports and provide recommendations to mitigate incidents • Collaborate with the appropriate person to validate data on major incidents and emergencies • Develop and review emergency and crisis management response plans, processes and procedures • Review statistical trending reports, technical reports, correspondence and procedures manuals
	Manage Workplace Safety and Health (WSH) implementation	<ul style="list-style-type: none"> • Manage the development of the WSH framework • Conduct WSH compliance reviews and audits • Oversee the compliance to WSH standards and practices • Oversee WSH workplace communication and engagement implementation plans

Environment, Health and Safety Manager

SKILLS & COMPETENCIES	TECHNICAL SKILLS & COMPETENCIES		GENERIC SKILLS & COMPETENCIES (TOP 5)	
	Data and Statistical Analytics	Level 5	Communication	Advanced
	Emergency Response Management	Level 5	Digital Literacy	Advanced
	Environmental Management System Framework Development and Implementation	Level 4	Decision Making	Advanced
	Environmental Management System Policies, Standards, Procedures and Practices	Level 5	Problem Solving	Advanced
	Incident and Accident Investigation	Level 5	Sense Making	Advanced
	Risk Management and Administration	Level 5		
	Stakeholder Management	Level 4		
	Workplace Safety and Health Culture Development	Level 5		
	Workplace Safety and Health Performance Management	Level 4		
	Workplace Safety and Health Policy Development	Level 5		
	Workplace Safety and Health Practices Implementation	Level 4		
Workplace Safety and Health System Management	Level 5			

Overview of Technical Skills and Competencies

Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
Business Management	Business Continuity Management	Manage business continuity strategies and plans to establish processes so as to minimise disruption to business functions and to ensure full functionality of the organisation as soon as possible			●	●	●	
	Data and Statistical Analytics	Analyse and interpret data sets to uncover trends or patterns in order to locate and define new business and/or services improvement opportunities by identifying relevant statistical tools			●	●	●	●
	Financial Management	Manage organisation's finances to aid business growth and operations			●	●	●	
	Risk Management and Administration	Identify, assess and prioritise risks and apply resources to mitigate risks and impact of incidents	●	●	●	●	●	●
	Strategy Planning	Develop organisational strategies and policies by analysing the impact of internal and external influencing factors and seeking consultation from relevant stakeholders				●	●	●
Cleaning Operations	Cleaning Chemical Handling	Apply the correct use of cleaning chemicals by identifying its purpose and assessing the risks involved in its usage		●	●	●		
	Food Shop Hygiene Maintenance	Maintain the cleanliness and hygiene of food shop to ensure public health maintenance	●	●	●			
	Furniture and Furnishing Maintenance	Maintain the cleanliness and hygiene of furniture and furnishing in a safe manner	●	●	●			
	Horizontal Surface Maintenance	Maintain the cleanliness and hygiene of the various forms of horizontal surfaces in a safe manner	●	●	●			
	Public Hygiene Maintenance	Maintain the cleanliness and hygiene of public areas and the related amenities in a safe manner	●	●	●			
	Vertical Surface Maintenance	Maintain the cleanliness and hygiene of the various vertical and ceiling surfaces in a safe manner	●	●	●			
	Washroom Maintenance	Maintain the cleanliness and hygiene of washroom facilities in a safe manner	●	●	●			
Environmental Management System Management	Environmental Management System Framework Development and Implementation	Develop, maintain and implement the Environmental Management System framework in accordance with legislative and company requirements through a systematic approach			●	●	●	
	Environmental Management System Policies, Standards, Procedures and Practices Management	Apply an effective and systematic process for managing and maintaining Environmental Management System policies, standards, procedures and practices in accordance with legislative requirements and management system requirements	●	●	●	●	●	●

Overview of Technical Skills and Competencies

Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
Equipment Maintenance	Equipment and Inventory Management	Maintain stocks inventory and equipment to meet operation requirements	●	●	●			
People Development	Conflict Management	Perform conflict management within the organisation to assist members in resolving grievances and disputes				●	●	●
	Effectiveness Management	Set goals with team and evaluate team's effectiveness in achieving the defined goals and objectives			●	●	●	
	Learning and Development	Manage employees' learning and development activities to maximise employee' potential and capabilities to contribute to the organisation		●	●	●	●	●
Pest Management Operations	Pesticide Application	Apply pesticides safely and efficiently according to environmental requirements to manage and remove pests	●	●	●			
	Pest Behavioural Management	Employ pest-proofing methods and behavioural control measures to prevent pest infestations and intrusions for the purpose of protecting valued resources, premises and the environment		●	●	●		
	Pest Control Detection and Monitoring Application	Operate pest control detection and monitoring equipment and mechanisms, which also includes the management and testing of new pest control systems and technologies	●	●	●	●		
	Pest Control Site Assessment and Analysis	Plan and execute assessment of sites to develop pest management programmes to mitigate the risks of pest activity and future pest problems	●	●	●	●		
	Pest Disposal Management	Remove and dispose dead pests and waste materials safely and appropriately to reduce risk of contamination, prevent spread of diseases and protect the environment	●	●	●	●		
Productivity	Process Improvement and Optimisation	Establish systems to discover critical processes and maximise these processes to achieve maximum efficiency in accordance with organisation procedures			●	●	●	
	Process Quality Management	Apply processes to align all the business to the quality requirements of the organisation in order to maximise quality			●	●	●	

Overview of Technical Skills and Competencies

Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels						
			1	2	3	4	5	6	
Stakeholder and Customer Management	Business Development	Identify new business opportunities, this could be new markets, new partnerships, new ways to reach existing markets, or new products or service offerings to better meet the needs of existing markets and to ensure that these work in an integrated fashion and bring benefits to the organisation			●	●	●		
	Business Negotiation	Manage and direct business negotiation to achieve desired outcomes			●	●	●		
	Contract Preparation, Evaluation, Negotiation and Tendering	Manage contract creation, evaluation , negotiation, tendering to maximise operation and financial performance of an organisation			●	●	●		
	Contract and Vendor Management	Manage contract creation, execution and analysis for the purpose of maximising financial, operational performance and minimising risk			●	●	●		
	Customer Management	Manage customers with the goal of improving business relationships with customers and achieving service requirements	●	●	●	●	●	●	
	Market Research	Establish procedures in gathering, analysing and interpreting information about a market, a product or a service to be offered in a particular market and present findings to relevant stakeholders			●	●	●		
	Stakeholder Management	Monitor and maintain constructive relationships with stakeholders to achieve its stated goals			●	●	●		
Technology Management	Automation Research and Implementation	Manage equipment and information technologies and integrate into organisation operations or processes to achieve organisation desired outcomes			●	●	●		
	Internet of Things Management	Integrate physical devices, equipment and buildings in a connected environment via network to communicate, collect and exchange data		●	●	●	●		
	Knowledge Management	Develop and adopt knowledge management systems to ensure that all systems supporting knowledge management work in an integrated fashion and are appropriately supported, analysed and developed to guarantee a high and continuing level of efficiency benefit to the organisation			●	●	●		
	Robotics and Automation Application	Apply and integrate evaluated technologies into organisation operations or processes to achieve organisation desired outcomes and reduce reliance on manual labour		●	●	●	●		
Transportation Management	Transport Management System Administration	Manage and administer the Transport Management System for intermodal movements	●	●	●	●	●		
	Transport Route and Schedule Planning	Optimise transportation resources for route scheduling and dispatching for waste collection and/or cleaning		●	●	●			

Overview of Technical Skills and Competencies

Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels						
			1	2	3	4	5	6	
Waste Management Operations	Hazardous Material Management	Manage the handling of hazardous materials during collection, transportation, storage and disposal processes including spillage incidents		●	●	●			
	Waste Collection Management	Identify different types of waste and perform waste collection in a safe manner to ensure safe public health and environment	●	●	●	●			
	Waste Disposal Management	Manage the waste disposal process including the transportation process to landfill or incineration plant and operation of the heavy machinery to manage the transportation of the waste	●	●	●				
	Waste Material Loading and Unloading Administration	Manage the weighbridge system to record and report the net weight of the waste received at site and direct traffic in and out of deposition site safely		●	●	●			
	Waste Sorting Management	Manage the waste sorting process including the operation of the heavy machinery to assist in sorting the bulky waste	●	●	●				
	Waste Treatment Management	Manage the whole waste treatment process including planning of resources to efficiently treat the waste collected in a manner that is safe to personnel and environment		●	●	●			
Workplace Safety and Health	Emergency Response Management	Manage emergency response plans for the range of contingencies affecting work operations such as fire, explosions, power failures, chemical spillage, leakages, collapses, flooding, falling from height and other types of emergencies		●	●	●	●		
	Incident and Accident Investigation	Investigate workplace incidents and accidents based on root cause analysis and identification of corrective actions to prevent recurrences		●	●	●	●		
	Workplace Safety and Health Culture Development	Create and maintain a Workplace Safety and Health culture based on a common set of attitudes, behaviours and competencies		●	●	●	●	●	
	Workplace Safety and Health Performance Management	Establish and monitor indicators measuring effectiveness of the Workplace Safety and Health policy and work procedures in preventing incidents and safeguarding employees in marine industry operations		●	●	●	●		
	Workplace Safety and Health Policy Development	Develop organisational Workplace Safety and Health policies to ensure compliance with national regulations pertaining to the marine and offshore sector by applying knowledge of regulations and staying abreast of regulatory changes and practices				●	●	●	
	Workplace Safety and Health Practices Implementation	Implement Workplace Safety and Health practices in accordance with legislative requirements to ensure safe work practices	●	●	●	●			
	Workplace Safety and Health System Management	Manage developed Workplace Safety and Health procedures by following set policies to schedule inspections, internal and external audits, establish emergency response procedures including roles and responsibilities of the organisation in the event of an emergency			●	●	●		

Overview of Technical Skills and Competencies

General Description for Technical Skills and Competencies (TSCs)

Level	Responsibility (Degree of supervision and accountability)	Autonomy (Degree of decision-making)	Complexity (Degree of difficulty of situations and tasks)	Knowledge and Abilities (Required to support work as described under Responsibility, Autonomy and Complexity)
6	Accountable for significant areas of work, strategy or overall direction	Empowered to chart direction and practices within and outside of work (including professional field/ community), to achieve/exceed work results	Complex	<ul style="list-style-type: none"> • Synthesise knowledge issues in a field of work and the interface between different fields, and create new forms of knowledge • Employ advanced skills, to solve critical problems and formulate new structures, and/or to redefine existing knowledge or professional practice • Demonstrate exemplary ability to innovate, and formulate new ideas and structures
5	Accountable for achieving assigned objectives, decisions made by self and others	Provide leadership to achieve desired work results; Manage resources, set milestones and drive work	Complex	<ul style="list-style-type: none"> • Evaluate factual and advanced conceptual knowledge within a field of work, involving critical understanding of theories and principles • Select and apply an advanced range of cognitive and technical skills, demonstrating mastery and innovation, to devise solutions to solve complex and unpredictable problems in a specialised field of work • Manage and drive complex work activities
4	Work under broad direction Hold accountability for performances of self and others	Exercise judgement; adapt and influence to achieve work performance	Less routine	<ul style="list-style-type: none"> • Evaluate and develop factual and conceptual knowledge within a field of work • Select and apply a range of cognitive and technical skills to solve non-routine/ abstract problems • Manage work activities which may be unpredictable • Facilitate the implementation of innovation
3	Work under broad direction May hold some accountability for performance of others, in addition to self	Use discretion in identifying and responding to issues, work with others and contribute to work performance	Less routine	<ul style="list-style-type: none"> • Apply relevant procedural and conceptual knowledge and skills to perform differentiated work activities and manage changes • Able to collaborate with others to identify value-adding opportunities
2	Work with some supervision Accountable for a broader set of tasks assigned	Use limited discretion in resolving issues or enquiries. Work without frequently looking to other for guidance	Routine	<ul style="list-style-type: none"> • Understand and apply factual and procedural knowledge in a field of work • Apply basic cognitive and technical skills to carry out defined tasks and to solve routine problems using simple procedures and tools • Present ideas and improve work
1	Work under direct supervision assigned Accountable for tasks	Minimal discretion required. Expected to seek guidance	Routine	<ul style="list-style-type: none"> • Recall factual and procedural knowledge • Apply basic skills to carry out defined tasks • Identify opportunities for minor adjustments to work tasks

Overview of Generic Skills and Competencies

Generic Skills and Competencies (GSCs)

GSC	GSC Description	Proficiency Levels		
		Basic	Intermediate	Advanced
Communication	Convey and exchange thoughts, ideas and information effectively through various mediums and approaches.	Communicate information with others to respond to general inquiries and to obtain specific information.	Articulate and discuss ideas and persuade others to achieve common outcomes.	Negotiate with others to address issues and achieve mutual consensus.
Computational Thinking	Develop and use computational models, tools and techniques to interpret and understand data, solve problems and guide decision-making.	Use computational models, tools and techniques to identify patterns in a problem and develop a solution.	Modify existing computational models, tools and techniques to develop different solutions.	Develop and create computational models, tools and techniques to implement new solutions and apply to other problems.
Creative Thinking	Adopt a fresh perspective to combine ideas or information in new ways and make connections between seemingly unrelated fields to create new ideas and applications.	Connect ideas or information from related fields or applications to address an immediate issue.	Connect or combine ideas or information from unrelated fields or applications to generate multiple ideas to bring about a specific outcome.	Create original applications or ideas to reveal new possibilities and reshape goals through high level of innovativeness.
Decision Making	Choose a course of action from various alternatives using a reasoned process to achieve intended goals.	Make decisions of simple or routine nature to achieve intended goals using given information and guidelines.	Make decisions in a complex setting to achieve intended goals using a structured process and multiple sources of available information.	Make decisions in a volatile and ambiguous setting using a structured process and limited sources of available information to achieve intended goals.
Developing People	Help others to learn and develop their capabilities to enhance their performance and achieve personal or professional goals.	Use demonstration and explanation to teach a familiar task to inexperienced co-workers.	Provide coaching to others to develop their skills and knowledge on their jobs to enhance performance.	Provide mentorship to help others in their professional and personal development to improve performance and further their careers.
Digital Literacy	Use ICT tools, equipment and software to create, evaluate and share information digitally with others.	Perform basic functions using software programmes pertaining to computer operating systems and file management, and search online information.	Use available software features to create and edit documents, customise templates and reports and evaluate online information.	Use available software features to enhance documents, analyse and manipulate data, and use ICT to organise, share and communicate information clearly and coherently.
Global Mindset	Awareness of diversity across global cultures and markets. Seek opportunities to adopt successful practices and ideas.	Demonstrate understanding of global challenges and opportunities and how to transfer best practices across cultures. Respect cultural differences and needs of a diverse workforce.	Develop global networks and manage virtual relationships while balancing both local and global perspectives. Adopt a local and global perspective when making decisions.	Build the organisation's capabilities to compete in a global environment. Manage tension between corporate requirements, global and cultural differences.

Overview of Generic Skills and Competencies

Generic Skills and Competencies (GSCs)

GSC	GSC Description	Proficiency Levels		
		Basic	Intermediate	Advanced
Interpersonal Skills	Manage relationships efficiently and communicate with others effectively to achieve mutual consensus and outcomes.	Recognise own internal feelings and emotional states to manage interpersonal relationships in social situations.	Detect and decipher emotions of others to manage interpersonal relationships in social situations.	Influence, guide and handle others' emotions to build instrumental relationships and manage conflicts and disagreements.
Leadership	Lead others to achieve objectives in the most effective way. Provide an inclusive workplace that cultivates workplace relationships and teamwork, and foster the development of others.	Demonstrate professionalism to set a good example at peer level. Support others through own initiative and enthuse others through own positive and energetic approach.	Lead by example at team level. Encourage and guide others to adopt a point of view, make changes or take action. Provide a team environment that facilitates relationships building, teamwork and the development of others.	Lead by example at organisational level. Inspire, motivate and guide others to adopt a point of view, make changes or take action. Cultivate an open, cooperative and collaborative learning culture for the organisation.
Lifelong Learning	Seek out opportunities to enhance one's knowledge and skills. Access and acquire new knowledge and skills actively for continual learning.	Organise and manage own learning by setting learning targets. Identify learning approaches to achieve work or career goals.	Engage in collaborative learning by discussing one's learning with others and soliciting feedback to continually improve oneself.	Conduct self-reflective practices to review one's learning to facilitate continual growth in one's career or profession.
Managing Diversity	Work well with people from different ethnic, social, cultural and educational backgrounds and understand the concerns and interests of diverse work groups.	Demonstrate sensitivity to the cultural characteristics, values, beliefs, and behaviors of another ethnic or cultural group.	Build relationships with different ethnic or cultural groups by engaging in cross-cultural cooperative projects.	Manage conflicts arising from different ethnic or cultural groups and work effectively in cross-cultural settings.
Problem Solving	Generate feasible and efficient solutions to solve problems and capitalise on new opportunities.	Identify easily perceivable problems and follow given guidelines and procedures to solve the problems.	Identify less perceivable problems and use problem solving tools and techniques to solve the problems.	Anticipate potential problems beyond the current scope and apply higher order problem solving tools and techniques to turn problems into opportunities.
Resource Management	Efficient and effective deployment and allocation of resources when and where they are needed. Include planning, allocating and scheduling of resources to tasks, which typically include manpower, machines, money and materials.	Use resources to ensure optimum and efficient use of resources.	Deepen insights into the planning, allocation and deployment of resources to anticipate needs. Plan the allocation and deployment of resources efficiently and effectively.	Establish strategies for the allocation and deployment of resources efficiently and effectively.

Overview of Generic Skills and Competencies

Generic Skills and Competencies (GSCs)

GSC	GSC Description	Proficiency Levels		
		Basic	Intermediate	Advanced
Sense Making	Organise and analyse data and information accurately to identify relationships and detect patterns and trends to gain insights for decision-making.	Identify relationships and linkages within different components of data.	Interpret data to uncover patterns and trends between various sources of data.	Analyse data relationships, patterns and trends to gain important insights and make informed decisions.
Service Orientation	Commit to exceeding both internal and external customers' needs. Proactively identify customer needs and sustain a culture of service excellence within the organisation.	Exceed customer needs and expectations and handle service challenges with a positive mindset. Demonstrate an understanding of the organisation's service vision, mission and values.	Anticipate customer needs and expectations and elicit feedback from customers to improve service. Build relationships with customers to create and sustain customer loyalty.	Model, lead, train and motivate staff with a focus on sustaining a culture that encourages commitment to service excellence and high performance.
Teamwork	Work collaboratively and effectively with others to contribute to group efforts to achieve identified objectives.	Contribute to a positive and cooperative working environment by fulfilling own responsibilities and providing support to co-workers to achieve team goals.	Facilitate work team activities, provide assistance and support needed by team members and promote ownership and commitment among team members to work goals to improve team performance.	Establish teams, design and assess tasks to continually improve team effectiveness and cultivate a sense of organisational ownership and a cooperative working environment.
Transdisciplinary Thinking	Understanding of concepts across multiple disciplines, with the capacity to synthesise the knowledge and insights to guide decisions and foster cooperation.	Research and adapt concepts from outside one's field of expertise to supplement one's core knowledge and proficiency.	Co-relate material from diverse knowledge bases to guide decisions and policy making. Participate in reflective and trans-disciplinary communities within and outside the organisation.	Synthesise knowledge and insights across disciplinary boundaries to aid strategic decisions and foster cooperation within and outside of the organisation.
Virtual Collaboration	Use online collaborative communication tools to work as teams to accomplish tasks or projects.	Participate and contribute in a virtual team. Set up appropriate online collaborative tools and supporting equipment.	Use interactive collaborative tools to foster cohesion and commitment among virtual team members to achieve goals. Keep up-to-date with innovative online collaborative tools and applications to enhance one's proficiency in engaging in virtual collaboration.	Leverage on diverse team talent, latest online collaborative technologies and virtual platforms to produce collaborative behaviour and achieve technological savviness in virtual collaboration.

The Skills Framework for Environmental Services has helped:

me in preparing my company to stay ahead of the competition!

me to prepare for my new role with more confidence!

me to make informed choices in joining this industry and I am excited to embark on my career!



Supporting Organisations and Acknowledgements

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Achates Environment Management	Hou Kit Services Pte Ltd
Anticimex Pest Management Pte Ltd	Huatong Contractor Pte Ltd
Asiatic Agricultural Industries Pte Ltd	IEM Corporation Pte Ltd
ATL Maintenance Pte Ltd	IK Services Pte Ltd
Beng Soon Machinery Services (Singapore) Pte Ltd	Ikari Services Pte Ltd
Bestco Metal Pte Ltd	Impetus Conceptus Pte Ltd
Bestway Cleaning Services Pte Ltd	Inavab Fumigation & Pest Control Management Pte Ltd
BNL Services Pte Ltd	Infocus Integrated Engineering Pte Ltd
Boon Poh Refuse Disposal Pte Ltd	IS Cleaning Services Pte Ltd
BR Metals Pte Ltd	ISS Facility Services Pte Ltd
CBM Pte Ltd	ISS Pest Management Pte Ltd
Chang Seng Services Pte Ltd	J Cleaning & Maintenance Services Pte Ltd
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Clean Solutions Pte Ltd	Max-Value Building Services Pte Ltd
Colex Environmental Pte Ltd	Nafa System Services Pte Ltd
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Primech Services & Engrg Pte Ltd

Q-Vector Pest Management Pte Ltd

Ramky Cleantech Services Pte Ltd

Recycling Partners Pte Ltd

Rentokil Initial Singapore Pte Ltd

Resource Cleaning Services

Right Service Pte Ltd

RS Facilities Services Pte Ltd

Samgreen Pte Ltd

Sembwaste Pte Ltd

Sembcorp Environment Pte Ltd

Sembcorp Tay Paper Recycling Pte Ltd

Shiners Facilities Pte Ltd

SMC Industrial Pte Ltd

TES-AMM (Singapore) Pte Ltd

The Pestman Pte Ltd

UEMS Solutions Pte Ltd

V8 Environmental Pte Ltd

Vans Chemistry Pte Ltd

Veolia ES Singapore Industrial Pte Ltd

Verminator Pte Ltd

Victor Pest Management

Wah & Hua Pte Ltd

**Waste Management & Recycling Association
Of Singapore**

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Wong Fong Industries Ltd

YS Yong Services Pte Ltd

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- The Industry Associations and Professional Bodies for sharing their business and members' perspectives
- Various Government and Government-Linked Agencies for their assistance
- Education and Training Providers for the inputs on the skills and competencies development

Wage Information

Job Role	Indicative Monthly Starting Salary Range** (\$)
Operations Director/General Manager	From 8,000
Pest Control Manager	3,500 - 4,000
Pest Control Supervisor	2,200 - 2,400
Pest Control Worker/Pest Control Technician	1,600 - 1,800
Cleaning Operations Manager	3,500 - 6,000
Cleaning Operations Executive	2,000 - 3,000
Cleaning Supervisor	1,401 - 1,800
Multi-Skilled Cleaner/Team Leader	1,200 - 1,400
General Cleaner	1,000 - 1,200
Waste and Recyclables Collection Manager	4,000 - 6,100
Waste and Recyclables Collection Executive	2,100 - 2,500
Weighbridge Supervisor	1,900 - 3,200
Waste and Recyclables Collection Supervisor	2,500 - 3,200
Weighbridge Operator	1,000 - 1,900
Mechanical Operator/Waste and Recyclables Collection Truck Driver	1,800 - 2,200
Waste and Recyclables Collection Attendant	900 - 1,400
Waste Recycling Manager/Waste Recovery Manager	4,000 - 6,100
Waste Recycling Executive/Waste Recovery Executive	2,100 - 2,500
Waste Recycling Supervisor/Waste Recovery Supervisor	1,800 - 2,500
Waste Recycling Machine Operator	1,000 - 1,700
Waste Recycling Sorter	800 - 1,000
Waste Treatment Manager/Waste Disposal Manager	4,000 - 6,100
Waste Treatment Executive/Waste Disposal Executive	2,200 - 2,750
Waste Treatment Supervisor/Waste Disposal Supervisor	1,900 - 2,500
Waste Treatment Worker/Waste Disposal Worker	800 - 1,900
Environment, Health and Safety Manager	3,400 - 7,000
Environment, Health and Safety Specialist	2,500 - 3,000

Source: Wage data compiled from manpower surveys conducted by KPMG Services Pte. Ltd. in 2015 for the Cleaning sector and 2019 for the Pest Management sector, and Mercer (Singapore) Pte. Ltd. for the Waste Management sector in 2016 as commissioned by National Environment Agency, as well as from industry consultations.

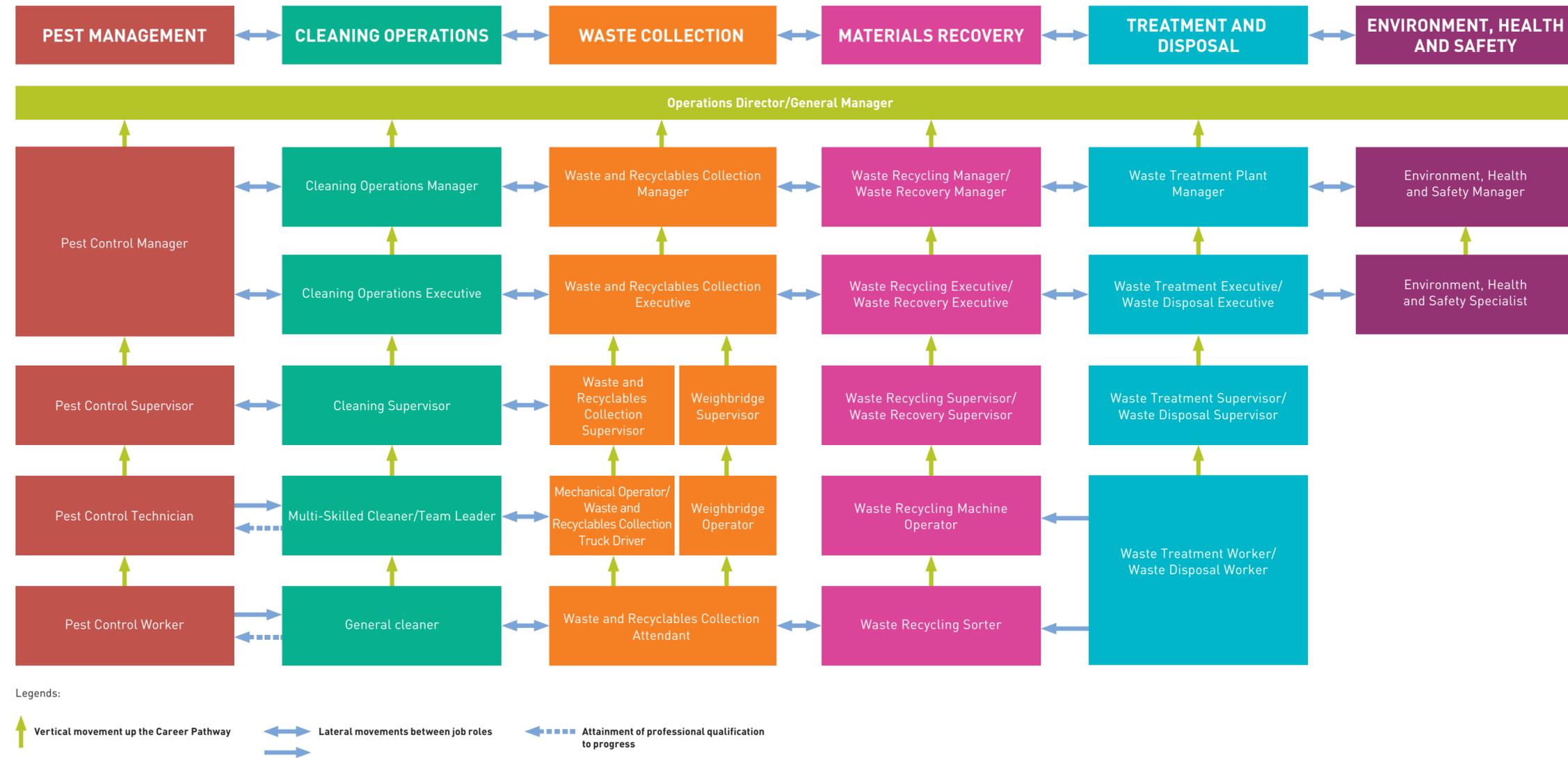
From 1 September 2015, cleaning companies must meet the Progressive Wage Model wage and training requirements for cleaners who are Singapore citizens or permanent residents.

Please refer to the detailed scope and requirements at the Ministry of Manpower website.

**The above data reflects the indicative monthly basic pay and excludes fixed bonuses, variable bonuses, overtime pay and allowances. Actual salaries may differ due to market conditions and organisation policies.

SKILLS FRAMEWORK FOR ENVIRONMENTAL SERVICES

Career Pathways



The Career Map serves as a reference to **reflect the available job roles and possible career pathways** in the Environmental Services industry, which may vary depending on **organisation's structure and business context**. The Career Pathways would depend on **individual aspiration, performance, capability, experience and organisation's needs**.

Please refer to the National Environment Agency website at <https://www.nea.gov.sg/our-services/pest-control/pest-control-operators> for Pest Control Workers' and Pest Control Technicians' application requirements.

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