



**IRS 2022**

"TOWARDS A RESILIENT FUTURE - OPPORTUNITIES AND INNOVATIONS"

# PROCEEDINGS

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UNIVERSITY OF VOCATIONAL TECHNOLOGY, SRI LANKA

# INTERNATIONAL RESEARCH SYMPOSIUM 2022

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"TOWARDS A RESILIENT FUTURE - OPPORTUNITIES AND INNOVATIONS"

**Towards a Resilient Future –  
Opportunities and Innovations**

**INTERNATIONAL RESEARCH SYMPOSIUM 2022**

**NOVEMBER 24, 2022**

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# **EXTENDED ABSTRACTS**

## **INTERNATIONAL RESEARCH SYMPOSIUM 2022**

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**ADVANCED MECHATRONICS APPLICATIONS  
FOR A RESILIENT FUTURE**



## A STAKEHOLDER PERSPECTIVE ON CAREER OPPORTUNITIES IN THE WASTE MANAGEMENT INDUSTRY: EVIDENCE FROM SRI LANKA

T.R. Vidanapathirana<sup>\*1</sup>, Chamara Kuruppu<sup>2</sup>, N.L.B. Oshadie<sup>1</sup>, K.G.N.P. Rajapaksha<sup>1</sup>,  
B.M.T.D. Jayasekera<sup>1</sup>, U. Sivachelvy<sup>1</sup>

<sup>1</sup>Department of Management Studies, University of Vocational Technology, Sri Lanka

<sup>2</sup>Department of Business, History and Social Sciences, University of South-Eastern, Norway

### ABSTRACT

*Stakeholders' views on dealing with waste management are very important, as our sustainable existence could impede because of ineffective waste management practices. This study aims to explore career opportunities in the waste management system in Sri Lanka. In addition to collecting official documents, stakeholders in the waste management industry were interviewed to collect data for this study. There were four categories of stakeholders recognized as a result of a desk study namely Government, NGO, Private sector, and the community. Data were collected from eight (8) key informants, representing four stakeholder categories. Our findings reveal that a range of stakeholders could assume different roles and responsibilities in managing waste and considering the emerging career opportunities in the waste management industry, universities should offer educational and training programs to meet the expectation of stakeholders and to prepare graduates to take up emerging job opportunities, which are financially attractive. Findings further unveiled that career opportunities in the job categories of Researchers, Policy development officers, Directors, Waste centers controllers/officers, Environmental Consultants, Waste audit, and Environment design & Management Trainees produced by the waste management industry in Sri Lanka.*

**Keywords:** Waste Management; Stakeholders; Career Opportunities

### 1. INTRODUCTION

Global warming and environmental pollution underscore the necessity of managing domestic and industrial waste effectively and efficiently. The United Nations' Sustainable Development Goal (SDG)-12/13 states that conserving natural resources is a basic requirement for improving the quality of human life (UN – Progress Report 2022). Similarly, the nascent literature envisages how waste management systems render financial and non-financial benefits to stakeholders (Kulkarni, 2000; Sharratt & Choong, 2002). In Europe, there were 0.8 million employees (Full-time equivalents) in waste management in 2000 (EPSU, 2017). In Sri Lanka, the local authorities, which consist of 15 Municipal Councils, 37 Urban Councils and 257 Pradeshiya Sabhas, are primarily bestowed with the task of managing waste. Based on the estimation by the Waste Management Authority of Western Province (WAM of WP), 7000 tons of Municipal Solid Waste (MSW) are generated daily and systematically collected by around 60% by the municipalities and the private sector waste management institutions, whilst only about 30% of such waste is systematically disposed of (WMA of WP report, 2019). All in all, such a scenario could contribute to triggering health issues and undermining the decent lifestyle of inhabitants and the ecological system's existence. Drawing on stakeholder theory, our study explores career opportunities in the waste management industry in Sri Lanka.

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\* Corresponding author: E mail - thanuja.vidanapathirane@uovt.ac.lk

## **2. BACKGROUND STUDY**

The International Labour Organization (ILO) has identified the waste management sector as an intervention area for technical assistance to foster job creation and the promotion of decent work through enterprise development. As a result of the increased concerns on sustainable environment conservation and mitigating the risk caused to the environment due to human activity, most countries attempt to upgrade their waste management system. As such, the waste management sector is becoming a symbol of the green economy. Dumping of unsorted waste at landfills is gradually giving way to improving recycling and reusing of waste. As such, a large number of job roles emerge starting from segregating and collecting waste to the research and development level while the opportunities for entrepreneurs in the waste sector are open to taking up challenges in re-engineering to better respond to environmental concerns and incorporate innovations in recycling processes. Literature confirms that increasing the waste management plants will create opportunities of employment to several unemployed, skilled, semi-skilled and un-skilled manpower in society. Sharma I.S. et.al coined that the waste management industry produce job opportunities in HRM, Research & Development Person, Engineers, Executive Staff, Labours, Entrepreneurs and Sales & Marketing persons. Further, the municipal waste generation is expected to increase to 2.2 billion tons by 2025, accordingly each person generates approximately 0.65kg per day in Sri Lanka with an estimated 4.8 billion MT of waste collected per annum in the country (Dharmasiri, 2020). This increasingly articulates that the waste management sector has the potential to create jobs specifically in recycling. However, the recent literature is lacking evidence of empirical studies on employment opportunities in the emerging waste management sector. This paper attempts to examine the employment opportunities in the waste management industry in Sri Lanka from the stakeholders' perspective.

### **2.1. STAKEHOLDER THEORY**

Stakeholder theory is frequently used in business management and sustainability research (Rambaree et al., 2021). States stakeholders are “all of those groups and individuals that can affect, or are affected by, the accomplishment of organizational purpose” (Freeman, 1984) and can be defined as anybody or any group, to some extent or through certain linkage, can be a stakeholder of a given organization. Stakeholder theory promotes a practical, efficient, effective, and ethical way to manage organizations in a highly complex and turbulent environment (Freeman, 1984; Freeman et al., 2007; Garvare & Johansson, 2010).

## **3. METHODOLOGY**

We relied upon a qualitative research approach to collect data for this study. Semi-structured and focus group interviews were conducted with 16 key informants, representing 4 stakeholder groups, namely government, NGO, Private, and Community. These groups were identified through a desk study. The duration of each interview was 1 to 3 hours. Open-ended questions were posed in the order to obtain unbiased comments from respondents on the existing and potential employment categories in the waste management industry and the roles and responsibilities, incorporated with each category. The data was

analyzed using the stakeholder analysis template adapted from the World Bank report (2010), which interprets the job opportunities available, attributes expected from graduates and roles and responsibilities incorporated. The secondary data were collected from the World Bank report, Waste Management Authority (WMA) reports of the Western Province, Data Collection Survey report on Solid Waste Management in the Democratic Socialist Republic of Sri Lanka and Road map for sustainable waste management and resource circulation in south Asia, 2019-2030.

#### 4. EMPIRICAL FINDINGS

Stakeholders possess the means of pinpointing their needs and can adversely respond when their needs and concerns are not addressed (Garvare & Johansson, 2010). The identification of relevant stakeholders is a process that requires a substantial amount of work and care (Hemmati, 2002; Harrison (2003). Normally, the government is the main stakeholder in the waste management industry in Sri Lanka. Nevertheless, the private sector, NGOs and the community also appear to be powerful stakeholders, playing a vital role in disposing of waste in the country. Table 1 demonstrates the main groups of stakeholders, and their roles and responsibilities. Based on the stakeholder analysis, there are more opportunities for collaborating institutions and individuals to contribute to the sustainable waste management process.

Table 1: Role and responsibilities of stakeholders

Stakeholders	Roles and Responsibilities
Government	Representing government sectors: Waste Management Authority, Central Environmental Authority, Municipal Council, Universities. Policy making and activating rules and regulations are monitored towards sustainable waste management, according to the United Nations, The European Union, and the world bank, and encouraging public-private partnerships to waste management.
Private	Integrating with manufacturing industries and promoting reverse logistics and recycling, upcycle for sustainable industrial waste management, and providing environmental service towards a circular economy.
NGO	Consultation, Environmental Impact Assessment, Waste Reduction, Waste Management, Comply with Regulatory Requirements, Troubleshooting.
Community	Reduce waste generation, dispose of domestic waste as appropriately, follow 3R, and Properly segregate waste before dumping.

The UN particularly encourages establishing new partnerships in addressing issues and challenges that could undermine the sustainable existence of human beings. As envisaged in Table 2, a diverse group of individuals and institutions are involved in the process of collecting and disposing of waste.

Table 2: Career opportunities in the waste industry

Stakeholders	Career Opportunities
Government	<p>Career Opportunities for graduates with sound knowledge and practical exposure in waste management as Researchers, Policy development officers, and Directors.</p> <p>Waste centers controllers – officers: there are many vacancies for Graduates with knowledge of sustainable holistic Waste management and Practical exposure as project managers of waste projects.</p>
Private	<p>There is a high demand for graduates with Hands-on experience and who specialized in waste treatment, and renewable energy. But the country is lacking graduates in those demanding areas. There are opportunities in all aspects of the career path from front supervisor to operation manager and quality manager etc., in the waste management industry. In the present context, graduates with the knowledge in handling contingencies, leadership and the existing inefficiencies in the waste management sector have financially attractive career opportunities.</p>
NGO	<p>There is no basic degree such as Environment Engineering in Sri Lanka.</p> <p>No qualified graduates for career opportunities at Environment related institutions Offices (Sustainability, Brand image, and CSR, Officers Environment, Labour and Health, and Safety), Environmental Consultant, Waste audit, and Environment design &amp; Management Training</p>
Community	<p>Can promote entrepreneurial culture to introduce new products using waste as raw materials such as compost, toys and educational equipment, and colored coconut dust. Number and letter cubes, papers/fabric for Arts and handicrafts. Can generate extra income and provide more employment opportunities basically for women.</p>

They mainly play the roles of resource recovery-based waste solution providers, waste collectors, reducing and recycling waste, and research and education amongst others. However, there are untapped opportunities, as there is no degree program that specifically aims at waste management education in the island.

## 5. CONCLUSIONS AND RECOMMENDATIONS

It is necessary to consider global sustainability, which is involving the interest of future generations and the natural habitat in addition to organizational sustainability (Garvare & Johansson, 2010). Every human activity creates waste and the amount of waste depends on the number of people, homes, institutions, and industries in the relevant area. Individuals, homes, and organizations are a source of waste. The different stakeholders have different roles and responsibilities which are ultimately linked to a better waste management system in Sri Lanka. Further, it revealed that highly demanding and financially attractive career opportunities are available for university graduates with specialized knowledge and hands-on experience in waste management and waste treatment areas. However, many organizations should contribute to managing waste with a well-established system from sewage treatment to MSW

collection. Based on emerging career opportunities in the waste management industry, universities should offer educational and training programs to meet the expectation of stakeholders and to prepare graduates to take up emerging job opportunities, which are financially attractive. Any organization must satisfy a range of stakeholders' needs and expectations to sustain its operational activities in a turbulent and uncertain context. We urge scholars to explore how various organizations cooperate and adopt sustainable waste management practices to minimize negative consequences on the ecological system and the interest of future generations from their operational activities.

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