Chapter 4
Current and Forthcoming Viewpoints to Generate and Manage Sustainable E-Waste

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ABSTRACT

This study examines the growing global challenge of electronic waste (e-waste), driven by shorter product life cycles and technological advancements. E-waste, a major source of contaminants and valuable materials, requires proper recycling and disposal. Despite efforts by developed nations, such as the Group of Seven (G7) countries' Reuse, Recycling, and Recovery (3Rs) program, the high cost of recycling has led to the transfer of e-waste to developing nations with inadequate

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recycling infrastructure and weak regulatory enforcement. This research focuses on identifying and analyzing the interactive barriers faced by local governments and e-waste recycling businesses in both industrialized and developing countries. It emphasizes the direct and indirect impacts of these barriers on sustainable e-waste management practices. While prior studies have addressed individual barriers, this study explores how they interact and the aggregate effect of these interactions on long-term sustainability.

INTRODUCTION

The waste streams with the fastest global growth is e-waste which is a result of shorter product life cycles and improving technology. Due to its status as one of the primary sources of contaminants in municipal waste and a secondary source of valuable metals and materials the e-waste is intended for proper recycling and disposal. Numerous nations and areas of the world have expressed interest in the e-waste issue(An et al. 2015). The developed world has worked very hard to manage e-waste. The Reuse, Recycling, and Recovery (3Rs) program aims to encourage sustainable production and consumption among the Group of Seven (G7) countries. The high expense of recycling e-waste is the reason that, despite laws and regulations, 80% of the world's e-waste is reportedly transferred to poor nations like China and India. The infrastructure for recycling is poor that's why the managerial resources are insufficient for good recycling and regulations are not properly enforced in many developing nations. There are many obstacles in the way of e-waste management practices meeting sustainability standards which include being socially, ecologically, and economically sustainable. To determine the difficulties and obstacles local governments and e-waste recycling businesses groups confronts numerous studies have been carried out to find the solutions. Previous works on the subject of obstacles to e-waste management practices has mostly looked at different areas to identify and analyse the causes of barriers. We specifically examined and contrasted the current state of the e-waste sector and the regulatory frameworks in industrialized and developing nations to pinpoint obstacles unique to each nation. These studies don't, however, specifically look at how the interconnections between the barriers would affect how long-term the e-waste management technique is sustainable. It is imperative that we not only ascertain the ways in which the barriers interact with one another to impact sustainable e-waste management practices but also evaluate the aggregate effect of these interactions (Awasthi et al. 2017; Bakhiyi et al. 2018). There are two components to a barrier's overall effect: direct and indirect. Because direct and indirect effects are measured or acquired differently, it is preferable to distinguish between them. This emphasizes the dual nature of the interaction be-

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