

Chapter 5

Environmental Governance in Bangladesh: Challenges and Opportunities of Solid Waste Management in Semi-Urban Areas

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ABSTRACT

This study explores the challenges and opportunities of solid waste management in semi-urban areas in Bangladesh, focusing on understanding the roles and experiences of various stakeholder groups using the Power Interest Matrix as a framework. Field investigations reveal significant disparities in waste management practices, particularly in semi-urban municipalities where institutional incapacity, resource constraints, and governance failures exacerbate waste accumulation and environmental degradation. The findings highlight a lack of comprehensive solid waste management policies for semi-urban areas, inadequate financial and human resources, and limited technological innovation, all of which contribute to the inef-

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iciency of current solid waste management systems. Local elites often resist waste management reforms due to personal interests. In contrast, informal waste workers remain marginalized despite their significant role in waste collection, lacking formal recognition and proper safety measures. The absence of data systems within municipal authorities impedes effective planning.

INTRODUCTION

Solid waste management (SWM) has become an increasingly critical global issue due to rapid urbanization, population growth, and changing consumption patterns (Awin & Apitz, 2023; Adhikari, 2022; Arteaga, Silva, & Yarasca-Aybar, 2023). In 2012, the world generated 1.3 billion tons of waste, and this figure is projected to reach 2.2 billion tons by 2025 and 3.4 billion tons by 2050, with developing countries facing the brunt of this challenge (Singh & Misra, 2022; Awino & Apitz, 2023). Waste production in developing nations ranges from 0.25 to 1.38 kg per capita per day, with prevalent waste management practices including open dumping, landfilling, composting, and incineration (Javed & Malik, 2022; Bamunuarachchige & de Zoysa, 2022; Hossain et al., 2024a). As a result, unsustainable and mismanagement of solid waste in the Global South contribute to air and water pollution, land degradation, and climate change, negatively impacting public health and the environment (Kumar & Sarangi, 2023). In Bangladesh, the common practices of open dumping, landfilling, and open burning of waste further exacerbate these environmental issues, as waste management infrastructure remains underdeveloped and regulatory enforcement is weak (Roy et al., 2022). These practices are particularly concerning due to the increased release of methane and other greenhouse gases (GHGs), which contribute to climate change. Studies have shown that methane emissions from landfills can be 25 times more impactful on the environment than carbon dioxide (Ferronato & Torretta, 2019).

The environmental burden is compounded by the pollution of surface and groundwater through leachate from unmanaged waste sites, with detrimental impacts on public health, particularly in low- and middle-income countries where informal waste management is prevalent (UNEP, 2015). In many cases, the absence of proper waste management infrastructure leaves communities exposed to hazardous conditions, leading to increased cases of infectious diseases such as cholera and dengue fever due to accumulated waste and blocked drains (UNEP, 2015). Multilateral organizations like the United Nations (UN) and World Health Organization (WHO) have played key roles in advancing waste management and environmental governance. The UN has addressed issues such as ocean pollution, biodiversity loss, air pollution, and toxic waste through international agreements (Weiss & Wilkinson, 2023). In line

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