

Chapter 16

Sustainable Methods for Solid Waste Management in High- Altitude Tourist Regions

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ABSTRACT

The research paper examines the issues of waste disposal and disposal management of solid waste, mainly in the hitherto sensitive mountainous regions experiencing an upsurge in tourist activities. Out of all these disputed areas, the impact of environmental degradation resulting from wastes generated by tourism and urbanization, especially in the Hindu Kush Karakoram Himalaya (HKH) and other high-altitude regions of the world, is depicted in this study. The paper also reveals the problem of extreme geographical conditions, harsh ground, impassable roads, and an insufficient number of dumpsites in these areas.

Other green waste management strategies include prohibiting single-use plastics, preventing cold-acclimatized bacteria from composting waste, and preventing UAVs from transporting waste. The specific focus is on the need to engage the NGOs in

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community-based waste management programs and approaches based on the experience from IHR and Nepal. The study also includes a model to predict the pattern of waste generation about waste management capacity over time and to assess the impact of future improvements in recycling and composting.

The cross-sectional study on tourist awareness and practices on waste disposal indicates that different categories of tourists have various levels of understanding and practices and, therefore, a need to embark on campaigns that target domestic tourists and other tourists from other countries. Finally, it underscores the need for sustainable solid waste management practices in such environments with long-lasting bit technical and practical approaches that will involve the populace of the regions and the development of appropriate technologies for the ecological balance of mountainous areas.

INTRODUCTION

The UN Sustainable Development Goals—public health (SDG 3), hygiene (SDG 6), sustainability (SDG 11), and climate change (SDG 13)—are linked to the universal issue of Solid Waste Management (SWM). Global interconnectivity and ease of travel have spurred tourism, leading to anthropogenic pressure on ecologically sensitive hill-altitude tourist regions. Exploration travel has driven local economies for several decades and created significant social and conservation challenges. The increase in tourism and rapid urbanization has led to an uncontrolled rise in unsightly and unhealthy solid waste. Solid waste contributes to drinking water contamination, which causes the transmission of diseases. Solid Waste Management (SWM) is essential to reduce ill effects on human health and create an aesthetic environment to sustain life on earth.

Mountains cover roughly a quarter of the world. The mountain ecosystems support biological, cultural, and physical diversity and are pivotal for the existence of a significant proportion of humanity. Lowlands and the national economy owe their fresh water, wood, minerals, and hydropower to mountains. Exceptional species inhabit these areas. However, the population explosion in the last few decades has resulted in devastating impacts from over-exploiting our natural resources and an exponential increase in solid waste.

Mountainous regions have delicate ecological systems and limited waste disposal capacity, making them most prone to poor solid waste management. Inadequate waste collection and processing infrastructure worsens mountainous areas, accumulating garbage in rivers, forests, and other natural habitats. Consequently, it damages the immediate environment and endangers the welfare of people who use such ecosystems

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