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Plastic Waste Crisis in Indian Himalayan Region: An Overview

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Abstract

Rapid population growth, urbanization and industrialization had led to severe waste management problem around the world. Sustainable development has become the key element in the work of national and international companies. From this perspective along with production the focus is more and more on protecting the environment and society. Thus, Plastic waste management is a sensitive area for organizations. Plastic waste management is the process of controlling and reducing the volume and toxicity of plastic wastes through the proper collection, treatment, and disposal. Sustainability is environmentalism that seeks to use natural resources while minimizing negative impact on the environment. Plastic waste management is a growing problem around the Indian Himalayan Region. The size of the problem and the lack of sustainable solutions are causing pollution, energy shortages and health problems. The key to sustainable development is finding ways to reduce the amount of plastic waste that is produced. This can be done by changing how people use resources, encouraging reduction, reusing, recycling and composting, or developing new technologies. Sustainable plastic waste management can save municipalities money, reduce greenhouse gas emissions, improve public health, and create job opportunities. There is a need to develop strategies to reduce, recycle and reuse it. Waste can be turned in to a resource with proper management.

Key words: Sustainable development, Plastic waste, management, Resources, IHR.

Introduction

Plastic is found everywhere, from the top of the highest mountain to the deepest of trenches in the ocean. It is found even inside the human lungs, mother's milk and placenta. The micro plastic is formed by the fragmentation and degradation and large plastic pieces that are not properly disposed of, and start their deposition and accumulation in the Himalayan mountains, rivers, lakes and streams. The Indian Himalayan Region (IHR), a critical source of water in the subcontinent, feeding a number of major rivers of India that include the Indus, Ganges and Brahmaputra river systems. Unscientific plastic disposal is causing soil and water pollution in the IHR and impacting its biodiversity, which is having an adverse impact on the fresh water sources that communities downstream depend on. It refers to the mountainous area in India that encompasses the entire Himalayan range within the country. It stretches from the northwestern part of India in Jammu and Kashmir to the northeastern states along the border with countries like Bhutan, Nepal, and Tibet (China).It covers 11 states (Himachal Pradesh, Uttarakhand, Sikkim, all northeast states, and West Bengal) and 2 UTs (Jammu & Kashmir and Ladakh). National Green Tribunal (NGT) issued notices to the Ministry of Environment, Forest and Climate Change, the Central Pollution Control Board (CPCB), the Himachal Pradesh State Pollution Control Board, on waste dumping in eco-sensitive areas by tourists and commercial establishments. This brings the issues of plastic waste dumping with impunity and without any significant deterrence by tourists and commercial establishments in limelight.

Major reason for Plastic waste crisis in IHR

1 Poor Waste Collection Infrastructure:

Reports from NITI Aayog and the World Bank estimate that the IHR generates more than five to eight million metric tons of waste annually. Himachal Pradesh and Uttarakhand have witnessed more than 400 million tourists since 2010 and are the worst-performing states in regards to plastic waste management. Poor waste collection and infrastructure leads to more than 60% of waste being dumped, burned, or swept downstream into key rivers like the Ganga, Yamuna, Beas and Sutlej.Waste dumping has an adverse effect on the more than 30,000 species of local flora and fauna, some of which become rare and on the verge of extinction.

2 Changing Consumption Patterns in Rural Areas:

In recent decades, both durables and consumables—especially Fast-Moving Consumer Goods (FMCGs) in multilayered plastic packaging—have reached most villages in the Himalayas. Household products made of cloth, wood, leaves, bamboo, and other local materials are being rapidly replaced with cheaper plastic products at a large scale. It contributed towards plastic waste to a large extend. The households inside the Govind Wildlife Sanctuary (a snow leopard conservation area) in Uttarkashi and the thousands of tourists who visit it every year generate more than 15 metric tons of dry waste per month most of which is either dumped in the forest/river/hillside or burnt.

3. **Heavy Influx of Tourists and Single-Use Products:**

As thetravelling options via road, train, and air, tourists are increasingly flocking to Himalayan states and visit to more remote rural destinations and trekking routes. The urban consumption patterns of tourists influence local residents to procure and sell packaged Fast-moving Consumer Goods (FMCGs), Polyethylene Terephthalate (PET) bottles, and single-use plastics to meet the large demand generated by the tourism, food, and hospitality sectors. This leads to widespread littering, dumping, and burning of waste in and around tourist areas especially remote areas.

4. **Difficult Terrain for Logistics Etc:**

The difficult Himalayan territory increases the costs of daily operations, complicates transportation logistic sand increasing the distance from the nearest recycling factories. The IHR has a dearth of dry waste processing (material recovery facilities), and wet waste processing (composting or biogas units). The designated informal dumping points are typically near riverbanks so that the waste can get washed away during the monsoon.

5. **Lack of Reach of Extended Producer Responsibility (EPR):**

The Ministry of Environment, Forest and Climate Change has mandated FMCG brands to set up and support reverse logistics for their plastic waste as a part of their Extended Producer Responsibility (EPR) mandate under the Plastic Waste Management Rules 2016, most brands do not invest in reverse logistics in hilly areas due to the high cost of collection.The products available in these villages are produced by local brands, which do not have the capacity to invest in reverse logistics. Tourists carry products by the more popular brands with them, and the waste they leave behind does not get collected or recycled.

6. **Lack of Policy Enforcement and Convergence:**

Waste collection in the IHR is sporadic and waste is immediately dumped either at designated sites that lack environmental clearance or directly downhill and in rivers. Informal waste pickers and scrap dealers play a major role in material recovery, but only for high-value materials such as PET plastic, metals, cardboard, and glass. The waste picking remains limited to urban and tourist areas. Most gram panchayats and village and block

development officers are ill-equipped to handle the exponentially increasing waste generation by local and floating populations.

7. Ineffective Collaboration among Government Departments:

One major challenge is the lack of effective collaboration among various government departments. For instance, the Ministry of Drinking Water and Sanitation oversees the Swachh Bharat Mission-Gramin, which provides Rs 16 lakh per block for building a plastic waste management unit. The responsibility of ensuring the optimal use of these funds lies with the Panchayati Raj Department. SWAJAL's role is limited to constructing the facility, and there is uncertainty about the management of its operations. Gram Pradhans hesitates to use grants for day-to-day operation, as it require proof through geo-tagging.

8 Social Stigma and Informal Livelihoods:

There is social stigma attached to working with waste as a means of livelihood. In most urban areas, informal migrant workers are involved in waste collection and segregation. The rural areas do not attract these migrant workers, further exacerbating the crisis which calls for urgent redressal on war footing.

9 Inadequate Funds: The per capita amount provided by the central government to gram panchayats under the **Swachh Bharat Mission-Gramin** guidelines is insufficient to meet the expenses in hilly areas due to the widely spread-out population and difficult territory as compared to villages in the plains, which have a much higher population density.

Various Steps to ensure the Mitigate the Crisis of Plastic in IHR

1 Ensuring Sufficient Investments:

The systemic nature of the problem implies that no particular institution or stakeholder can be held responsible for it. There is certainly an urgent need to solve the waste management problem in the IHR, but the current efforts are not commensurate with the scale of the issue.

2. Coordination with Rural Residents:

To tackle the environmental challenges caused by waste pollution, gram panchayats, village development officers, and national entities such as the National Rural Livelihoods Mission must coordinate and work with rural residents to overcome this stigma and support efforts to generate livelihood opportunities for them in waste collection operations, material recovery, and market linkages for alternative products.

3. World Bank Study with KGGTF:

The World Bank, in collaboration with Korean Green Growth Trust Fund (KGGTF), embarked on a regional study to close the data gap and analyze the current Plastic Waste Management (PWM) situation in the mountainous regions of India, Nepal, and Pakistan. A key recommendation from the present study is a systematic and phased approach aimed to improve PWM services in the mountainous regions of India, Nepal, and Pakistan. A multi-tiered process ensures that the government and other partners are able to manage all of the moving pieces in waste management cycle, which includes institutional capacity, policy making, and enforcement, influencing behaviors of the waste producers, and improving technologies.

4. Need For Adopting State Specific Initiatives:

States across the IHR have been taking various initiatives including enacting laws to curb this menace which need to be adopted by other States

A) Himachal Pradesh and Sikkim have special State laws banning the use of plastics:

B) Himachal Pradesh has a buy back policy for non-recyclable and single-use plastic waste since 2019.

C) Sikkim banned packaged mineral water use from January 2022 and has a fairly robust regulatory system.

D) Mizoram has been proactive on the regulatory front — the Aizawal Municipal Corporation made by-laws under the PWM in 2019.

E) Tripura has made policy changes, enacted municipal by-laws and has a State-level task force to eliminate Single Use Plastic.

5 Segregating Different Types of Plastics:

The collective mandate of SWM/PWM/EPR requires waste segregation at source. Segregation of not only plastic from other waste but also different types of plastics is a prerequisite for any strategy to dispose of plastic waste in a scientific and sustainable manner. Segregation of waste and the participation of the people in this activity with the help of sustained public education campaigns are a sine qua non.

6. Devolving Powers to Local Bodies:

Under the SWM, PWM and EPR, the task of waste management from collection to its scientific disposal is the duty of local bodies. They can take help from PIBOs for the setting up and making it operationalization is mandated under the EPR. Though local bodies are the pivot of the waste management system in the country, a commensurate devolution of power to them is still work in progress. The value of the EPR certificate which is earned by a PIBO in the IHR could be higher than one earned in the rest of the country for every ton of plastic waste processed.

7. Role of Traditional Institutions:

The States have enacted model by-laws and few local bodies themselves have made by-laws to operationalise the mandate. There is no clarity regarding the mandate to ensure collaboration between local bodies and PIBOs. There is a need to include traditional institutions within the definition of local bodies when it comes to the IHR (prevalent in many States in the northeast). It is important to mention that under Swachh Bharat Mission (SBM) and the Fifteenth Finance Commission, money was allocated to these traditional institutions.

8. Augmenting Resources on Expedited Basis:

The Swachh Bharat Kosh Trust set up to facilitate the channelization of philanthropic contributions and corporate social responsibility funds towards this cause could also be used to augment resources. The Atal Mission for Rejuvenation and Urban Transformation (AMRUT) and Smart Cities Scheme under which many cities in the Indian Himalayan Region are selected, work in convergence on the issue of scientific waste management and making cities in the Indian Himalayan Region free of plastic.

Conclusion

The pervasive presence of plastic, from the highest mountain peaks to the deepest ocean trenches and even within the human body, underscores the urgent need for action. Improper disposal leads to the formation of micro plastics, which are now found in the Himalayas, rivers, lakes, and streams of the Indian subcontinent. There is a pressing need for better data collection and resource allocation, particularly in the ecologically sensitive Himalayan region. Public education and community participation are crucial for successful waste segregation and management. Collaboration between local bodies and producers is essential, with the potential for higher value EPR certificates in mountainous regions.

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