



# Putting Climate Justice on the Agenda

Deteriorating ecosystems in  
cities and their impact on the  
health of marginalised  
communities

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Written for  
**Lung Care Foundation**

The authors are students of the Young Researchers for Social Impact (YRSI) Program conducted by Young Leaders for Active Citizenship (YLAC). YRSI identifies promising high schoolers and builds their capacity as critical thinkers and problem solvers to produce thought-provoking solutions to pressing issues that affect our societies today. This study was undertaken as part of the July 2021 edition of the program.

*Disclaimer: The views expressed in this study are solely those of the authors, and do not represent the views of YLAC as an organization.*

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## 1. Introduction

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Climate change is a cyclic phenomenon. For centuries, humans have been exposed to global temperature fluctuations without it being much of a cause for perturbation. However, since the Industrial Revolution<sup>1</sup>, we are experiencing a drastic rise in temperature that has metamorphosed this seemingly innocuous issue into a critical one. Today, society is facing deleterious results, and with our environment becoming increasingly damaged every day, climate change is a more prevalent concern than ever. However, a significant concern that is often overlooked when people speak about climate change is its impact on marginalised communities.

This project aims to bring attention to the disproportionate impact of climate change on vulnerable groups, especially those who work in landfills in India. Our aim is to find data that will help ameliorate the lives of these groups through amendments in policies and adaptations of better practices. As enshrined in the Indian Constitution, equality and justice are pivotal for the growth of the nation. Thus, it is imperative to highlight the intersection between social inequality and climate change to the public, as well as government authorities, and bring it on the climate agenda.

## 2. Facets of Climate Change

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### 2.1 The Global Impact of Climate Change

As one of the most pressing global issues today, climate change plagues nations worldwide with its detrimental consequences, imposing new challenges for survival. The effects of climate change are becoming increasingly observable globally, with millions of people already suffering from the repercussions of the rapidly increasing temperature.

### 2.2 The Social Impact of Climate Change: Climate Justice

Perhaps the area in which the most substantial research has been conducted is the widespread impact of climate change on the environment. However, the dichotomy between the effects of climate change suffered by the rich and the poor is worth noting. “*Climate change is deeply intertwined with global patterns of inequality*”<sup>2</sup>. People in marginalised communities, especially those living in deplorable conditions, bear the worst reverberations of the global climate crisis. These disproportionate effects on marginalised groups bring light to the term ‘climate justice’ - the idea that climate change is an ethical, social, and political concern, not simply an environmental matter.

The primary reason this increase in temperature so heavily impacts vulnerable groups lies in the fact that they are deprived of the services, resources, and information they need to mitigate and overcome crises.<sup>3</sup> In impoverished communities, the reason why people are marginalised cannot be attributed to a sole reason. People are more susceptible to pollution and environmental damage due to their marginalisation in different ways: for some people, caste determines their occupation; for others, economic class pushes them to live near landfills which prevents them from accessing community safety resources, housing, and healthcare. All these social disparities intersect, making some people more vulnerable than others. This leads to them having a higher exposure to climate hazards, a greater predisposition to damage caused by climate hazards, as well as it being more challenging for them to recover from this damage. As a result, marginalised groups suffer from an excessive loss of assets and thus have greater income inequality. This idea will be addressed in greater detail further on in the paper. An example of this can be seen with the case of the Amphan cyclone in Sunderbans, in which hundreds of people belonging to low-income communities had their houses torn apart and their crops destroyed, causing grave economic distress and reducing their standard of living. Additionally, these people were unable to access healthcare facilities, and many were separated from their children. This portrays how sudden, drastic changes in climate affects disempowered individuals.

Furthermore, the inequity of this situation is exacerbated by the fact that vulnerable groups have contributed the least to the climate crisis, and yet are forced to suffer the most from the ramifications. A recent report showed that the richest 10% of the world’s population are responsible for 50% of global carbon emissions, while the poorest 50% – 3.5 billion people – are responsible for 10% of the emissions.<sup>4</sup> The same report states how “*climate change and economic inequality are inextricably linked*”, implying the very idea that those who are the most responsible will ultimately suffer the least. This social predicament is precisely why the entire concept of “*climate justice*” must be brought to light, in order to avoid the situation of these minority groups from deteriorating further and broaden the responsibilities of those addressing climate change.

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<sup>1</sup>Fox, J. (2021). Climate Change: Impacts of the Industrial Revolution - Landmark Academy. Retrieved 24 July 2021, from <https://www.landmarkacademyhub.co.uk/climate-change-impacts-of-the-industrial-revolution/#:~:text=However%2C%20since%20the%20industrial%20revolution,during%20the%20Last%20Glacial%20Maximum.>

<sup>2</sup>Basaninyenzi, U. Social Dimensions of Climate Change. Retrieved 19 July 2021, from <https://www.worldbank.org/en/topic/social-dimensions-of-climate-change>

<sup>3</sup>Basaninyenzi, U. Social Dimensions of Climate Change. Retrieved 19 July 2021, from <https://www.worldbank.org/en/topic/social-dimensions-of-climate-change>

<sup>4</sup>Extreme Carbon Inequality. (2015). Retrieved 19 July 2021, from <https://www.oxfam.de/system/files/oxfam-extreme-carbon-inequality-20151202-engl.pdf>

### 2.3 The Marginalised Side of India: An Introduction

A vast majority of India's population continue to live in abject poverty. “Two-thirds of people in India live in poverty: 68.8% of the Indian population lives on less than \$2 a day. Over 30% even have less than \$1.25 per day available - they are considered extremely poor. This makes the Indian subcontinent one of the poorest countries in the world; women and children, the weakest members of Indian society, suffer most.”<sup>5</sup> Additionally, millions of urban residents are “slipping below the poverty line” every day<sup>6</sup>. As vulnerable groups are more severely affected by the increasing global temperature, this alarming escalation requires immediate attention.

Nevertheless, the marginalisation of communities in India does not lie solely in the form of poverty. In our society, inequalities are both “horizontal as well as vertical”.<sup>7</sup> This means that minority groups in India are not only based on class differentiation but also on caste, ethnicity, religion, and gender. For example, caste-based marginalisation affects over 260 million people in India today.<sup>8</sup> However, irrespective of the kind of intersections of marginalisation people face in modern society, they are all excluded in diverse ways.

### 3. Introduction to Landfills and Subsequent Deteriorating Environmental Conditions

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Climate action has become a pivotal part of any government policy since the late 1980s, more so after the Paris Agreement.<sup>9</sup> However, an issue that is generally neglected is waste management. Landfills across the world produce methane which contributes to greenhouse gases 25 times more than carbon dioxide. The study of the waste hierarchy provides the optimum way to dispose of waste. It is a set of priorities for the efficient use of resources.<sup>10</sup> Avoiding waste generation is most favoured, while disposal of waste is least favoured. However, not all countries are economically stable enough to mitigate waste generation and must resort to the 3 Rs: *Recycle, Reuse, and Recover*. The option of disposal should be exclusively used for items that are harmful to nature and humans. Unfortunately, due to a lack of resources and poor implementation of laws, most of the countries in the Global South resort to dumping their waste in one place as it is cost-effective and less time-consuming.<sup>11</sup> This leads to the creation of vicious landfills.

Landfills are the main source of toxic gas emissions, which pose a threat to humans as well as the environment. They produce a toxic soup called leachate, which percolates in the groundwater and contaminates it. While the purpose of a landfill is to protect people from exposure to toxic gases, instead, the unchecked and non-engineered landfills of India have become a reason for major lung ailments. Most landfills in India have crossed their saturation point but are still in use. There are three main reasons for this:

- i) Land is a finite resource, thus acquiring new land for waste disposal has become exceedingly difficult for municipalities.
- ii) Lack of fund allocation for sophisticated methods/ systems for waste disposal.
- iii) Ignorance in society and reluctance to shift to a zero-waste generation mindset

The highest waste generators of India are Delhi, Mumbai, Kolkata and Bangalore.<sup>12</sup> Each city produces diverse types of wastes, which can be categorised as plastic, e-waste and biomedical waste. According to former Environment Minister Shri Prakash Javadekar, India produced 62 million tonnes of waste of which 43 million tonnes is collected annually and only 28% is treated.<sup>13</sup> In such deteriorating environmental conditions, India needs more innovative and feasible methods to handle waste generation to mitigate dire impacts, especially the disproportionate impacts faced by marginalised communities.

### 3.1 Waste management in the context of caste hierarchy.

The waste management system relies on the back of sanitation workers and waste pickers. The section of people chosen to do such work is inextricably linked with the caste system. The caste system is the oldest surviving social stratification in the world.<sup>14</sup> It is based on the notion of purity and pollution. The upper castes are considered noble and pure while the lower castes are considered to be dishonorable and impure. The Dalits are considered as outcasts. What is interesting to observe

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<sup>5</sup>Poverty in India: Facts and Figures on the Daily Struggle for Survival. Retrieved 19 July 2021, from <https://www.soschildrensvillages.ca/news/poverty-in-india-602>

<sup>6</sup>Mahapatra, R. (2021). Mass poverty is back in India. Retrieved 19 July 2021, from <https://www.downtoearth.org.in/blog/governance/mass-poverty-is-back-in-india-76348#:~:text=Contrast%20this%20with%20the%20situation,per%20cent%20of%20the%20population>

<sup>7</sup>OXFAM MEDIA BRIEFING. (2015). EXTREME CARBON INEQUALITY Why the Paris climate deal must put the poorest, lowest emitting and most vulnerable people first [Ebook] (p.5). Retrieved from [https://www-cdn.oxfam.org/s3fs-public/file\\_attachments/mb-extreme-carbon-inequality-021215-en.pdf](https://www-cdn.oxfam.org/s3fs-public/file_attachments/mb-extreme-carbon-inequality-021215-en.pdf)

<sup>8</sup>Saksena, D. (2014). The Problems of Marginalized Groups in India - Academike. Retrieved 19 July 2021, from <https://www.lawctopus.com/academike/problems-marginalized-groups-india/>

<sup>9</sup>The Paris Agreement. Retrieved 26 July 2021, from <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

<sup>10</sup>EPA, N. (2017). The Waste Hierarchy. Retrieved 19 July 2021, from <https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/warr-strategy/the-waste-hierarchy>

<sup>11</sup>Garbage Challenges in Developing Countries - Waste Management. (2021). Retrieved 26 July 2021, from <https://www.climate-policy-watcher.org/waste-management/garbage-challenges-in-developing-countries.html>

<sup>12</sup>Wanwari, S., Thakur, I., Vijay, V., & Ghosh, P. (2018). Scenario of Landfilling in India: Problems, Challenges, and Recommendations. Research Gate. Retrieved 28 July 2021, from [https://www.researchgate.net/publication/325966193\\_Scenario\\_of\\_Landfilling\\_in\\_India\\_Problems\\_Challenges\\_and\\_Recommendations](https://www.researchgate.net/publication/325966193_Scenario_of_Landfilling_in_India_Problems_Challenges_and_Recommendations).

<sup>13</sup>Wanwari, S., Thakur, I., Vijay, V., & Ghosh, P. (2018). Scenario of Landfilling in India: Problems, Challenges, and Recommendations. Pg.3 Retrieved 19 July 2021, from [https://www.researchgate.net/publication/325966193\\_Scenario\\_of\\_Landfilling\\_in\\_India\\_Problems\\_Challenges\\_and\\_Recommendations](https://www.researchgate.net/publication/325966193_Scenario_of_Landfilling_in_India_Problems_Challenges_and_Recommendations)

<sup>14</sup>What is India's caste system?. (2019). Retrieved 24 July 2021, from <https://www.bbc.com/news/world-asia-india-35650616>

is the dualism of the system- upper castes repelled Dalits and ostracized them from society yet were dependent on them for *essential* tasks. Although the Indian Constitution denies discrimination on the basis of caste, it still continues. Thus, there is an unsaid acceptance of Dalits, especially women and children, to perform subservient roles like waste picking and manual scavenging. Today there are an estimated 5 million informal waste workers and 90% of them are either Dalits or scheduled tribes.<sup>15</sup>

The caste system is a closed social stratification; thus, caste is ascribed at birth and cannot change. This has led to the passing down of the same occupation from generation to generation. Due to this rigid social hierarchy, Dalits have always been stigmatized and because of their vulnerability in this system, they have been systematically pushed into doing menial and unsafe work. Even after being responsible for keeping our surroundings clean, they receive no respect and are harassed by police and municipal authorities. Furthermore, they are not even mentioned in the Swachh Bharat Initiatives, which is a sanitation and cleanliness drive of India, despite their pivotal role in waste management. Examples of their ill-treatment waste pickers work in precarious conditions without any protective measures.<sup>16</sup> They are prone to fall ill and hospitals turn them away on the basis of their identity and occupation, meaning they receive no medical care.<sup>17</sup>

To attenuate feelings of neglect, waste pickers have formed unions, such as The Global Alliance of Waste Pickers and Kagad Kach Patra Kashtakari Panchayat. These communities have given them a collective, 'bolder' voice to fight oppression. Additionally, they have provided waste picking families with the opportunity to send their children to school, ultimately working towards breaking the cycle of waste picking in families.

The following 2 case studies aim to take a closer look at the lives of people living near the landfills and their health ailments.

### 3.1.1 Closer Look: Bhalswa Landfill, New Delhi

New Delhi, the capital of India, home to 1.2 crore people, generates 10,500 metric tonnes of waste every day, of which only 5,775 metric tonnes are treated.<sup>18</sup> From this, a whopping 2,400 metric tonnes of waste is dumped daily to the infamous Bhalswa Landfill. Bhalswa Jahangir Pur is a census town in the northwest of Delhi. The 1.2 Lakh slum dwellers living here wake up to the sight of a massive landfill of ~62 m, close to that of the Qutub Minar.<sup>19</sup> This ill-famed landfill, commissioned in 1984, sprawls over 70 acres today. The area has a lake that was once used for kayaking and canoeing, but today, the acrid smell deters people from walking beside it.

The area is mainly composed of Dalits and Muslims who have migrated from West Bengal or Uttar Pradesh.<sup>20</sup> While the population had initially migrated in search of job prospects and a better standard of living, they have instead ended up as waste pickers in Bhalswa. The reason for this may lie in invisible caste hegemony as discussed earlier. Furthermore, their caste identity and religion takes precedence over skill, as they are forced to take up waste picking jobs, and are excluded from the formal sector. These waste pickers are subject to various forms of discrimination daily. They are coerced by private companies to get inside the dump and get scrap material, but publicly they are threatened by punishment for trivial reasons. For instance, waste pickers are often termed as thieves and to be safe from any implication private companies act as mentioned earlier.

The injustice of waste workers in Bhalswa does not stop here. These disempowered people have no choice but to work in dangerous conditions in the landfill, collecting materials suitable for recycling and earning a living out of the little money earned. Moreover, they are susceptible to various ailments caused by the toxic gases discharged from the collection of waste and leachate. Gases like methane, hydrogen sulphide and carbon dioxide cause asthma, tuberculosis and eye irritations<sup>21</sup>. Due to the open garbage system, the area is swarming with mosquitoes and flies carrying Dengue, Malaria, Japanese Encephalitis and Kala Azar. The waste pickers have to bend their backs while sifting through the waste constantly, and thus they fall prey to musculoskeletal disorders and have hunched backs. Children have weak immune systems and are malnourished after prolonged exposure to unhygienic conditions.<sup>22</sup> Their living conditions, consisting of small, one-room houses of 10 by 10 feet, inhabit more than five members, and expedite the spread of these infections. Last but not least,

<sup>15</sup> Sur, P. (2020). Under India's caste system, Dalits are considered untouchable. The coronavirus is intensifying that slur. Retrieved 24 July 2021, from <https://edition.cnn.com/2020/04/15/asia/india-coronavirus-lower-castes-hnk-intl/index.html>

<sup>16</sup> Revathy, D., & Suganya, P. (2020). SWACHH BHARAT INITIATIVES. Sercs.org. Retrieved 2 August 2021, from <http://sercs.org/journals/index.php/IJAST/article/view/12273#:~:text=The%20paper%20is%20an%20attempt,cleanliness%20drive%20across%20our%20country>.

<sup>17</sup> Dandapani, S. (2017). Unpaid and undervalued, how India's waste pickers fight apathy to keep our cities clean. Retrieved 24 July 2021, from <https://www.thenewsminute.com/article/oppressed-and-unrecognised-life-waste-pickers-crucial-india-s-sanitation-72426>

<sup>18</sup> Delhi Produces 10,500 Metric Tonnes Of Waste Everyday. (2019). Retrieved 24 July 2021, from <https://www.ndtv.com/delhi-news/centre-said-delhi-produces-10-500-metric-tonnes-of-waste-everyday-in-parliament-2136425>

<sup>19</sup> Ramesan, R. (2021). In Pics: Delhi's Bhalswa Landfill; A Symbol of Bureaucratic Incompetence. Retrieved 17 July 2021, from <https://edtimes.in/in-pics-delhis-bhalswa-landfill-a-symbol-of-bureaucratic-incompetence/>

<sup>20</sup> Akhilesh, P. (2020). The Collapse of Delhi's Bhalswa Landfill and the Ensuing Crisis · Dalit Camera. Retrieved 24 July 2021, from <https://www.dalitcamera.com/the-collapse-of-delhis-bhalswa-landfill-and-the-ensuing-crisis/>

<sup>21</sup> Lalwani, V. (2018). Children choke on toxic air in the shadow of Delhi's burning mountain of garbage. Scroll.in. Retrieved 30 July 2021, from <https://scroll.in/article/900417/children-choke-on-toxic-air-in-the-shadow-of-delhis-burning-mountain-of-garbage>.

<sup>22</sup> Mohan, S. (2015). Growing up in Delhi's slums, why children aren't growing up much. Retrieved 24 July 2021, from <https://scroll.in/article/728918/growing-up-in-delhis-slums-why-children-arent-growing-up-much>

there is a lack of use of existing toilets as one time usage is Rs 5, therefore in a family of 5 it adds up to Rs 1000 per month. This adds pressure on their daily expenditure, thus waste pickers resort to open defecation.<sup>23</sup>

Reports have shown Bhalswa records around 50-100 deaths per year.<sup>24</sup> Despite this, primary health care hospitals are not well maintained or accessible. The workers are not included in any pension scheme or vaccination scheme, even though they regularly get cuts and bruises from collecting e-waste. The leachate from the landfill percolates and contaminates the groundwater, compelling waste pickers to buy bottled water (Rs 55) which further puts a strain on their finances.<sup>25</sup> It is essential to understand that while a daily water tanker visits the slum, waste pickers are termed as *kabadivalas*, and other slum dwellers deny them access to water. This further emphasises the injustice that waste pickers face and pronounces the caste dominance even more.

### 3.1.2 Closer Look: Deonar Landfill, Mumbai

Mumbai is home to 12.5 million people and generates 6256 tonnes of waste every day.<sup>26</sup> Out of this, 10,500 metric tonnes are treated, and 25% travels to The Deonar Landfill, the largest landfill in India. It was commissioned in 1927 and sprawls over 132 hectares in the Eastern side of the city. It has also earned the title of the 'biggest slum in Asia', surpassing Dharavi. Deonar showcases the colossal mismanagement of a landfill and the incompetence of government administration to make sustainable policies.

The Deonar slum has around 200,000 waste workers, who either belong to the Dalit community, or come under scheduled castes.<sup>27</sup> These people are referred to as the '*unsung heroes of Mumbai*' for segregating the waste and recycling suitable materials.<sup>28</sup> Today, their license to enter the landfill has been revoked by the municipal corporation, exacerbating their poor financial condition. The dump has seen 3 major, consecutive fires (2016, 2017, 2018) and the waste workers have been put under the guillotine by the administration. The most significant point to take notice of is how waste pickers face injustice not only from the municipality, but also from small businesses who illegally sell scrap material for recycling to wholesalers. The barricade around the landfill has abruptly cut the daily income of around 3000 waste pickers, who are left to bribe guards or business people to enter the landfill in order to earn a daily meal. Many waste pickers argue that the business people, better known as *The Mafia*, set fire to the vehicles to obtain metal (high value in exchange) which causes a conflagration on the dump.<sup>29</sup> Activists argue that fire breakouts happen because of high concentrations of methane and hydrogen sulphide in the dump over the years.<sup>30</sup> Nevertheless, these disenfranchised waste pickers have to bear the brunt, as their identity has become an obstacle to earning job opportunities in the formal sector.

Once again, the proximity to the landfill becomes a source of various ailments for the waste pickers. The average lifespan of a Deonar slum-dweller is 39 as compared to the national average of 73.5 years.<sup>31</sup> The open burning of solid waste is a significant source of carbon monoxide, particulate matter and nitric oxide. These cause chronic respiratory illnesses like asthma and tuberculosis. Eye irritations and infections are common during fire breakouts. The waste pickers live in very precarious and unhygienic conditions and eat substandard food, which causes gastrointestinal infections. Like Bhalswa, multiple waste pickers live in small rooms of about 6 by 6 feet, thus becoming more susceptible to illnesses. Substance abuse is not uncommon in Deonar, with teenagers sucked into these addictions as well. Most health schemes have been unsuccessful in Deonar because of a lack of awareness and bureaucratic rules making it difficult for waste pickers to access health care.<sup>32</sup> Municipality mandates waste pickers must show an identity card to avail these services, but most of them are not even enrolled on the electoral list. Payment for the cure of these ailments, especially those with comorbidities, drains their pockets and makes everyday life a fight for sustenance.

<sup>23</sup> Mohan, S. (2015). Growing up in Delhi's slums, why children aren't growing up much. Retrieved 24 July 2021, from <https://scroll.in/article/728918/growing-up-in-delhis-slums-why-children-arent-growing-up-much>

<sup>24</sup> Mujibi, T. (2021). Coronavirus Fears Grip Bhalswa Village, Delhi's Largest Slum. Retrieved 24 July 2021, from <https://www.thecitizen.in/index.php/en/newsdetail/index/15/18682/coronavirus-fears-grip-bhalswa-village-delhis-largest-slum?openLinerExtension=true>

<sup>25</sup> Lakhani, S. (2018). Public Hearing: Men and women who pick up your garbage have something to say. Retrieved 24 July 2021, from <https://indianexpress.com/article/cities/delhi/public-hearing-men-and-women-who-pick-up-your-garbage-have-something-to-say-5132261/>

<sup>26</sup> Singh, S., Chokandare, P., Salve, P., & Rajak, R. (2020). Clinical Epidemiology and Global Health. Retrieved 19 July 2021, from [https://cegh.net/article/S2213-3984\(20\)30165-2/pdf](https://cegh.net/article/S2213-3984(20)30165-2/pdf)

<sup>27</sup> Don't blame ragpickers for toxic fires at Mumbai landfill: Activists. (2016). Retrieved 24 July 2021, from <https://www.hindustantimes.com/mumbai/don-t-blame-ragpickers-for-toxic-fires-at-mumbai-landfill-activists/story-Srzt3zjztaNblBV66bRITL.html>

<sup>28</sup> Nighoskar, D. (2019). Ragpickers at Mumbai's Deonar, despite being 'unsung heroes of sustainability', battle garbage mafia and state apathy-India News , Firstpost. Retrieved 24 July 2021, from <https://www.firstpost.com/india/ragpickers-at-mumbais-deonar-despite-being-unsung-heroes-of-sustainability-battle-garbage-mafia-and-state-apathy-6309531.html>

<sup>29</sup> Sinha, A. (2018). Garbage Gangs of Deonar: The Kingpins and Their Multi-Crore Trade. Retrieved 24 July 2021, from <https://www.thequint.com/explainers/garbage-business-in-deonar-dumping-ground-rag-pickers-businessmen-and-mafia#read-more>

<sup>30</sup> Don't blame ragpickers for toxic fires at Mumbai landfill: Activists. (2016). Retrieved 24 July 2021, from <https://www.hindustantimes.com/mumbai/don-t-blame-ragpickers-for-toxic-fires-at-mumbai-landfill-activists/story-Srzt3zjztaNblBV66bRITL.html>

<sup>31</sup> Varshney, A. (2019). In a slum near Mumbai's Deonar dumping ground, life is a constant health battle. Retrieved 19 July 2021, from <https://scroll.in/article/921138/in-a-slum-near-mumbais-deonar-dumping-ground-life-is-a-constant-health-battle>

<sup>32</sup> Nighoskar, D. (2019). Ragpickers at Mumbai's Deonar, despite being 'unsung heroes of sustainability', battle garbage mafia and state apathy-India News , Firstpost. Retrieved 24 July 2021, from <https://www.firstpost.com/india/ragpickers-at-mumbais-deonar-despite-being-unsung-heroes-of-sustainability-battle-garbage-mafia-and-state-apathy-6309531.html>

### 3.2 Why is India so Impacted?

India is considered to be one of the fastest-growing economies in the world, and a significant power in the Asia Pacific region. It aims to achieve a 3 trillion dollars economic growth, but it remains miles away from the goal. The issue of climate justice is sometimes lost amongst the numerous other socio-political issues. As showcased so far, we must realise that climate justice is inextricably linked to all other socio-economic inequalities. Today, India lacks the sustainable policies needed to curb the ever-growing landfills around the country that disproportionately impact communities based on their caste, class, and religion.

A concoction of weak policies, along with bureaucratic rules and the growing urbanization, have led to such egregious conditions. As discussed in detail, the values of the caste system condition our socio-political and economic relations. Even today, most urban households carry the *Not In My Backyard* (NIMBY) attitude. Privileged classes assume that only waste pickers, often belonging to lower castes, are responsible for clearing up the mess of society. Even so, most households are reluctant to adopt new lifestyles to reduce waste production. The disempowered people are coerced to do such menial tasks without any welfare and social security system and are not respected. It is imperative for privileged social classes and the government to understand that these waste pickers recycle 20% of India's waste, and it is because of them that cities are still afloat.

The apathy of the central and state administrations is the prime reason why India is so impacted. Most landfills crossed their saturation points years ago. For instance, Deonar crossed its saturation point in the year 2007. Yet, the High Court has ordered the use of land to continue till 2023.<sup>33</sup> Even though funds are allocated for waste management, only 43% is used.<sup>34</sup> Only with the help of better policy implementation can this be solved. The disrespect that waste pickers face and the lack of recognition of their work delays the movement towards achieving a zero-waste society. Thus, restoring the dignity of waste pickers is the first step towards solving this issue.

## 4. Comparative Analysis

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In recognition that *"no single waste management approach is suitable for managing all materials and waste streams in all circumstances,"*<sup>35</sup> The United States Environmental Protection Agency (EPA) developed the non-hazardous materials and waste management hierarchy. This hierarchy provides a ranking system for the various Solid Waste Management (SWM) strategies from most to least environmentally preferred. The waste hierarchy aims to achieve the maximum practical benefits from products while generating the minimum amount of waste. This section briefly describes each management strategy found in the SWM hierarchy.

### 4.1 Elements of the Solid Waste Management Hierarchy

In order from most to least preferred, first is source reduction, defined by the EPA as *"the design, manufacture, purchase, or use of materials to reduce their quantity or toxicity before they reach the waste stream"*<sup>36</sup>. Next is recycling, carried out when materials from which items are made can be reprocessed into new products. Energy Recovery occurs where further recycling is not feasible, and involves non-recyclable materials into usable heat, electricity, or fuel. This, in turn, generates an energy source and reduces carbon emissions by offsetting the need for energy from fossil fuel sources.<sup>37</sup> Finally, treatment and disposal range from physical (e.g., shredding), chemical (e.g., incineration), and biological (e.g., anaerobic digester).<sup>38</sup>

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<sup>33</sup> Thakkar, M. (2020). Let us dump waste at Deonar ground till 2023, BMC tells HC. Hindustan Times. Retrieved 28 July 2021, from <https://www.hindustantimes.com/cities/let-us-dump-waste-at-deonar-ground-till-2023-bmc-tells-hc/story-3TBmYFjbxr0d7aQFEsczNJ.html>.

<sup>34</sup> Pinto, R. (2017). 43% of funds for waste management projects unused | Mumbai News - Times of India. Retrieved 26 July 2021, from <https://timesofindia.indiatimes.com/city/mumbai/43-of-funds-for-waste-management-projects-unused/articleshow/57949899.cms>

<sup>35</sup> Sustainable Materials Management: Non-Hazardous Materials and Waste Management Hierarchy | US EPA. (2021). Retrieved 17 July 2021 <https://www.epa.gov/smm/sustainable-materials-management-non-hazardous-materials-and-waste-management-hierarchy>

<sup>36</sup> Philip O'Leary and Patrick Walsh: Decision-Makers' Guide to Solid Waste Management, Volume II, EPA530-R-95-023, U.S. Environmental Protection Agency, August 1995

<sup>37</sup> Bayou Verdine. Superfund Sites in Reuse in Louisiana. | US EPA (2017). Retrieved 17 July 2021 <https://www.epa.gov/superfundredevelopment-initiative/superfund-sites-reuse-louisiana#verdine>

<sup>38</sup> Sustainable Materials Management: Non-Hazardous Materials and Waste Management Hierarchy | US EPA. (2021). Retrieved 17 July 2021, from <https://www.epa.gov/smm/sustainable-materials-management-non-hazardous-materials-and-waste-management-hierarchy>



**Figure 1. EPA Waste Management Hierarchy (Source: EPA)**

While the EPA places emphasis on reducing, reusing and recycling, a bird’s eye view of the waste management chain in India, as detailed above, exposes the current system as currently replete with perverse incentives that encourage waste dumping and burning<sup>39</sup>. Additionally, due to India’s increasing population, more than 1.50 lakh metric tonne (MT) of solid waste is produced on a daily basis, leading to overflowing landfills.<sup>40</sup> While landfills are an important component of an integrated SWM system, EPA emphasises the importance of well-engineered facilities located, designed, operated, and monitored to ensure compliance with federal regulations for waste that cannot be prevented or recycled.<sup>41</sup> The huge reliance on landfills and composting, both the least preferred treatment and disposal methods of waste management, make it hard for EPA’s model for waste management to be implemented into an Indian context. When delving into the recycling system of low-income countries like India (of which communities are marginalised), the informal sector is generally a key participant for waste segregation, disposal and recycling, working on outdated technology.<sup>42</sup> Thus, the limited involvement of the private sector and communities means that this least preferred method of SWM cannot be carried out efficiently. “*Waste Management is becoming a major bottleneck in clean civic society due to the lack of finances, outdated technologies, and the callous attitude of the society as a whole.*”<sup>43</sup>

In order to adhere to EPA’s guidelines for SWM, it is vital that the following issues be addressed:

1. *Less awareness about reducing waste at source.*
2. *Lack of segregation, poor collection, illegal dumping, open dumping and burning of waste*
3. *Limited involvement of the private sector and communities.*
4. *Relying on Landfills & Composting.*
5. *Generation of the Greenhouse Gases.*<sup>44</sup>

When devising policies or making reforms to address these issues, it is thus important to consider the factors encouraging waste dumping and burning, that go against EPA’s guidelines in order to reduce the reliance on landfills. This will make it easier to monitor and operate existing landfills and locate and design better engineered landfill facilities in the future. However, through the implementation of Private Public Partnerships to involve the private sector and communities into waste segregation, disposal, and recycling, modernised technology may be employed, and more preferred methods of waste management like source reduction, reuse, recycling, and composting can be utilised to carry out SWM efficiently. The SWM hierarchy serves as a guiding post for India to better waste management. If this is followed, the reduction of waste in landfills will, in turn, benefit the waste pickers under consideration.

## 4.2 International Best Practices Case Studies

It is safe to say that the marginalised communities with the best methods of waste management all implement some degree of the more sustainable methods of the Waste Management Hierarchy. In line with the EPA, local governments globally have ensured that all plans meet their area’s specific needs and conditions. Our team has filtered out these global models of waste management by applying our own strenuous criteria\* in accordance with EPA’s guidelines in order to select the best international case studies. Following this, we have narrowed this list down further to those practices which can be applied

<sup>39</sup>How Can India’s Waste Problem See a Systemic Change? (2021). Retrieved 17 July 2021

<https://www.epw.in/engage/article/institutional-framework-implementing-solid-waste-management-india-macro-analysis>

<sup>40</sup>Shrivastava, R. (2019). India’s Trash Bomb: 80% of 1.5 lakh metric tonne daily garbage remains exposed, untreated. India Today. Retrieved 26 July 2021, from <https://www.indiatoday.in/india/story/india-s-trash-bomb-80-of-1-5-lakh-metric-tonne-daily-garbage-remains-exposed-untreated-1571769-2019-07-21>

<sup>41</sup>Jagath Dickella GAMARALALAGE, P. (2020). Best Practices for Solid Waste Management: A Guide for Decision-Makers in Developing Countries. Epa.gov. Retrieved 26 July 2021, from [https://www.epa.gov/sites/default/files/2020-10/documents/master\\_swmg\\_10-20-20\\_0.pdf](https://www.epa.gov/sites/default/files/2020-10/documents/master_swmg_10-20-20_0.pdf)

<sup>42</sup>Kendra, S. (2016). Solid Waste Management - How to bring best out of waste?. Cbseacademic.nic.in. Retrieved 26 July 2021, from [http://cbseacademic.nic.in/web\\_material/Circulars/2016/47\\_Science\\_Theme\\_1\\_2\\_Class\\_IX.pdf](http://cbseacademic.nic.in/web_material/Circulars/2016/47_Science_Theme_1_2_Class_IX.pdf)

<sup>43</sup>Kendra, S. (2016). Solid Waste Management - How to bring best out of waste?. Cbseacademic.nic.in. Retrieved 26 July 2021, from [http://cbseacademic.nic.in/web\\_material/Circulars/2016/47\\_Science\\_Theme\\_1\\_2\\_Class\\_IX.pdf](http://cbseacademic.nic.in/web_material/Circulars/2016/47_Science_Theme_1_2_Class_IX.pdf)

<sup>44</sup>Kendra, S. (2016). Solid Waste Management - How to bring best out of waste?. Cbseacademic.nic.in. Retrieved 26 July 2021, from [http://cbseacademic.nic.in/web\\_material/Circulars/2016/47\\_Science\\_Theme\\_1\\_2\\_Class\\_IX.pdf](http://cbseacademic.nic.in/web_material/Circulars/2016/47_Science_Theme_1_2_Class_IX.pdf)



to India. We believe the following countries set clear benchmarks, which India can adopt to help facilitate the necessary change.

## 1) **Brazil**

In Brazil, waste-picking activities are now supported by the government. Waste picking is now recognised as an occupation, and organised waste pickers are seen as legitimate stakeholders who can voice their opinions at the local, state, and national levels.<sup>45</sup> Additionally, waste picker organisations may enter into informal agreements or formal contracts with businesses, industry, and neighbourhood associations to gain access to recyclable materials or to sell materials or manufactured items.<sup>46</sup> Moreover, recovering materials are separated at source. This will raise the productivity and incomes of waste pickers by freeing them from having to walk several miles a day in search of materials. Additionally, this will allow waste pickers to take their work out of toxic dumpsites. This will greatly reduce the many health risks seen to arise from contact with waste. It also offers fewer tangible benefits. Working as part of a cooperative in a formalised workforce and wearing a uniform boosts waste pickers' self-esteem and gives them more bargaining power.<sup>47</sup> A survey in six Latin American countries found that more than 90% of waste pickers reported that they liked what they did and considered it decent work.<sup>48</sup>

Indian governments can strive to support this process of formalization. While legalizing waste-picking operations on a nationwide scale is already supported by the Global Alliance of Waste Pickers, this may be followed by a series of initiatives, such as a rigorous examination of garbage pickers' activities to offer accurate estimates of the number of individuals involved in waste picking, and their effect on the economy. A consultation mechanism that includes both waste pickers communities and other important stakeholders might aid in the development of waste management systems that are *“inclusive, socially desirable, economically viable, and environmentally sound.”*<sup>49</sup>

The support of a Public-Private Partnership may be requested for *“developing (these) new contractual models that will include obligations for concessionaires with respect to waste pickers.”*<sup>50</sup> When partnering with the public sector, PPPs can offer access to private capital, giving the government an opportunity to reallocate resources that would otherwise be devoted elsewhere in the economy, possibly in areas that take a lower priority level compared to the detrimental effects on the health of marginalised communities detailed above.<sup>51</sup> Additionally, a well-designed and supported PPP will have *“potentially increased transparency”* and *“reduce opportunities for corrupt practices through the release of information to the public domain”* by following international best practice procedures. However, the success of the PPP from the public perspective to mitigate the potential misalignment of incentives will depend on the *“ability of the sponsor to monitor performance against standards and to enforce the terms of the contract.”*<sup>52</sup>

## 2) **South Sudan**

UNEP recognises the various serious risks to the health and safety of South Sudan's waste picking population. Therefore, several guidelines have been suggested, with a few of them put forward for implementation.

### 1) **Controls at the Landfill Entrance**

A record of entry and exit should be established and maintained, with waste pickers registered and provided with identity cards.

### 2) **Protection Against Injuries**

Items like needles and contaminated bandages from hospitals and municipal garbage expose waste pickers to a variety of diseases, including HIV/AIDS and hepatitis. Waste pickers should thus be provided and required to wear PPE: shoes or boots that are appropriate in size, shape, material, and condition to protect their feet and lower legs, and gloves of the right size, to protect the hand and lower arm and prevent wrist and lower arm injuries.

<sup>45</sup>Medina, M. (2008). The Informal recycling Sector in Developing Countries : Organizing Waste Pickers to Enhance their Impact. Openknowledge.worldbank.org. Retrieved 26 July 2021, from <https://openknowledge.worldbank.org/handle/10986/10586>

<sup>46</sup>Medina, M. (2008). The Informal recycling Sector in Developing Countries : Organizing Waste Pickers to Enhance their Impact. Openknowledge.worldbank.org. Retrieved 26 July 2021, from <https://openknowledge.worldbank.org/handle/10986/10586>

<sup>47</sup>Medina, M. (2008). The Informal recycling Sector in Developing Countries : Organizing Waste Pickers to Enhance their Impact. Openknowledge.worldbank.org. Retrieved 26 July 2021, from <https://openknowledge.worldbank.org/handle/10986/10586>

<sup>48</sup>Medina, M. 2008b. Waste pickers without frontiers. In Conference proceedings from the first international and third Latin American conference of waste-pickers. Page 16. Retrieved 18 July 2021 <http://www.wiego.org/reports/WastePickers-2008.pdf>

<sup>49</sup>Medina, M. (2008). The Informal recycling Sector in Developing Countries : Organizing Waste Pickers to Enhance their Impact. Openknowledge.worldbank.org. Retrieved 26 July 2021, from <https://openknowledge.worldbank.org/handle/10986/10586>

<sup>50</sup>Medina, M. (2008). The Informal recycling Sector in Developing Countries : Organizing Waste Pickers to Enhance their Impact. Openknowledge.worldbank.org. Retrieved 26 July 2021, from <https://openknowledge.worldbank.org/handle/10986/10586>

<sup>51</sup>The five key advantages of public-private partnerships - Strategic Partnering. Strategic Partnering. (2015). Retrieved 2 August 2021, from <http://strategic-partnering.net/the-five-key-advantages-of-public-private-partnerships/>

<sup>52</sup>PPP TOOLKIT for Improving PPP Decision-Making Processes - Overview of PPP in Infrastructure. Pppinindia.gov.in. (2010). Retrieved 2 August 2021, from <https://www.pppinindia.gov.in/toolkit/solid-waste-management/module1-oopi-infra-wup.php?links=oopii1b>

1. \*These countries had to be socio-economically similar to India, as replicating practices from countries with a lot of resources would not have been applicable
2. We consulted our stakeholders who provided a further insight towards what countries they deemed suitable for these Best Practice Case Studies
3. As we wished to emphasise practices like formalisation and healthcare, we found countries closer to what resonated with India as well

### 3) Protection of Body and Clothes

Most garbage pickers wear the same clothes at work and at home. Thus, any contamination of clothes with germs and possibly hazardous substances at work may also endanger those with whom the waste pickers cross paths outside the work environment. All waste pickers should, therefore, always wear some type of protective overall of proper sizes and materials once inside the perimeter of any landfill. These clothes should be removed and cleaned before leaving the site.

### 4) Respiratory Tract Protection

Not only are bacteria at and near waste sites extremely mobile, but the occurrence of fires at landfills too cause risk to waste pickers and site personnel, such as coughing, breathing difficulties, headaches, and tiredness. Protective masks should be employed to mitigate these risks. In addition, an educational initiative could promote their use.

### 5) Immunisation

Waste pickers should be vaccinated against potentially fatal illnesses such as tetanus, meningitis, and hepatitis that may be caught while working at landfills. In addition to vaccination, frequent health exams should be performed at least once a year.<sup>53</sup>

The Self-Employed Women's Association (SEWA), Ahmedabad, India, has successfully improved the living conditions of women paper pickers by organising them into cooperatives.<sup>54</sup> However, further measures, like the ones stated above, should be taken to show an overall improvement in the living conditions of those waste pickers in marginalised communities. For example, it is crucial that every city retains health records on its solid waste workers and guarantees that they all engage in regular immunisation and health check-up programs. Because genuine epidemiological data are lacking in this field, local medical schools and occupational health institutes should be encouraged to research the health of solid waste employees in comparison to adequate baseline control groups. Cities that hire private businesses to collect, process, or dispose of their solid waste, must add specific terms in each contract mandating worker health and safety safeguards, such as yearly medical check-ups and vaccinations. Payment to these private firms and contract renewal will consider whether these conditions are satisfied.<sup>55</sup>

### 3) Seoul

Seoul's challenges were not unlike the problems confronting Delhi today: *“reviving the Yamuna, cleaning the Najafgarh drain and its tributary nullahs that crisscross the city, and dealing with the mountains of waste at the Ghazipur, Bhalswa and Okhla open landfills.”*<sup>56</sup>

Seoul's Nanjido was an island on a branch of the Han River of Korea. In the late 1970s, Nanjido was constructed as a dyke to serve as Seoul's official dumpsite. Around 3,000 truckloads of garbage were deposited each day, and the site eventually grew to reach 34 times the size of the Great Pyramid of Giza, thus earning the title of the world's tallest garbage dump.<sup>57</sup> Nanjido, like Ghazipur, Bhalswa, and Okhla, reached its saturation point. After 15 years of use, the area had amassed layers of dump.

Over the course of two and a half decades, the Seoul Metropolitan Government embarked on several ground-breaking initiatives in river and waste management, examples from which India's marginalised communities may undoubtedly benefit.

With Seoul beginning to expand with a rising population (much like Delhi), the local government was prompted to close the open landfill in 1993, with the incentive of freeing up room to accommodate the additional population. Furthermore, after Seoul was designated as one of the venues for the 2002 FIFA World Cup, the government finally commenced the 'Nanjido clean-up project'.<sup>58</sup> A significant success of this project was that a majority of the methane produced by the waste was converted into electricity. This was used to heat the stadium and the neighbouring residential areas. Residents there still use methane for central heating fourteen years later, paying half the prices as the rest of Seoul.<sup>59</sup>

It must be mentioned that while Delhi's government, for one, has considered generating energy from the accumulated methane, and thus following EPA's Waste Management Hierarchy; *“16 megawatts of electricity is produced at the Okhla landfill, and*

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<sup>53</sup>Health and Safety Guidelines for Waste Pickers in South Sudan. Postconflict.unep.ch. (2013). Retrieved 26 July 2021, from [https://postconflict.unep.ch/publications/UNEP\\_South\\_Sudan\\_Health&Safety\\_Waste\\_Pickers.pdf](https://postconflict.unep.ch/publications/UNEP_South_Sudan_Health&Safety_Waste_Pickers.pdf)

<sup>54</sup>Cortés, M., de Luca, L., Sahy, H., & Joshi, S. (2014). Learning from Catalysts of Rural Transformation. Ilo.org. Retrieved 24 July 2021, from [https://www.ilo.org/wcmsp5/groups/public/---ed\\_emp/---emp\\_policy/documents/publication/wcms\\_234890.pdf](https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_policy/documents/publication/wcms_234890.pdf).

<sup>55</sup>Cointreau, S. (2006). Occupational and Environmental Health Issues of Solid Waste Management Special Emphasis on Middle- and Lower-Income Countries. Ircwash.org. Retrieved 26 July 2021, from <https://www.ircwash.org/sites/default/files/Cointreau-2006-Occupational.pdf>

<sup>56</sup>Barooah Pisharoty, S. (2016). Lessons from Seoul: How to Revive a River and Manage a Landfill. The Wire. Retrieved 26 July 2021, from <https://thewire.in/environment/lessons-from-seoul-how-to-revive-a-river-and-manage-a-landfill>.

<sup>57</sup>Barooah Pisharoty, S. (2016). Lessons from Seoul: How to Revive a River and Manage a Landfill. The Wire. Retrieved 26 July 2021, from <https://thewire.in/environment/lessons-from-seoul-how-to-revive-a-river-and-manage-a-landfill>

<sup>58</sup>Barooah Pisharoty, S. (2016). Lessons from Seoul: How to Revive a River and Manage a Landfill. The Wire. Retrieved 26 July 2021, from <https://thewire.in/environment/lessons-from-seoul-how-to-revive-a-river-and-manage-a-landfill>

<sup>59</sup>Barooah Pisharoty, S. (2016). Lessons from Seoul: How to Revive a River and Manage a Landfill. The Wire. Retrieved 26 July 2021, from <https://thewire.in/environment/lessons-from-seoul-how-to-revive-a-river-and-manage-a-landfill>

*the Ghazipur and Narela energy plants are expected to produce 12 and 24 MWS, respectively,” a permanent solution to making these locations both “healthy and habitable” is yet to be planned.*

Compared to South Korea, which reportedly has the highest rate of per capita garbage production in the world, at 2.3 kg per person, Delhi has comparatively less work at hand; the 50-foot tall Ghazipur landfill covers only 70 acres.<sup>60</sup>

With strong political will of India’s governmental bodies, Delhi can certainly achieve the feat of waster-area restoration, using Seoul as a demonstration on how to employ restoration as a tool for urban growth.

In order to put climate justice on the agenda in India, the Indian government must place a higher priority on the marginalised communities of waste pickers. By utilising these aforementioned best practices as a template, India will be able to successfully address the disproportionate impact of climate change on these vulnerable groups who work in areas such as landfills. Brazil serves as a role model for the formalisation of the waste picker occupation, facilitating the opportunity for them to voice their needs and concerns at local, state, and national levels. India can work towards this model of formalisation with the help of a Public-Private Partnership to promote a consultation mechanism that protects the livelihoods, health, and wellbeing of these marginalised communities. Similarly, South Sudan has been apt in recognising the dire risks posed to their waste picking population. If India follows the guidelines suggested, including the provision of identity cards to waste pickers, PPE to ensure the protection against injuries, protective masks, and immunisation, the living conditions of these waste pickers will be fortified. Reforms in affordable housing for the waste pickers that often inhabit informal housing like slum areas would help move these marginalised communities away from poverty and reduce the adverse effects to their financial condition, reducing their high rent burden.<sup>61</sup> Instead, they will be able to allocate a larger proportion of their income to medicine and routine medical checkups, giving them the financial freedom to access better forms of healthcare. This will thus have a positive impact on their livelihoods and wellbeing and improve the living condition of these workers. Additionally, this will reduce the negative health implications brought about by overcrowding, and substandard housing detailed above. Finally, Seoul provides direct parallels with Delhi to show that through the right initiatives and strong political will, Delhi can overcome its waste problems to make its landfill locations both ‘healthy and habitable’ for the long term. Through the adaptations of better practices like the international case studies identified, we will be able to enhance the lives of these communities.

## 5. Existing Indian Policies and Government Schemes

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### 5.1 An Introduction to Indian Policies and Government Schemes Relating to Waste Management

India is currently facing an unprecedented solid waste management crisis, with the amount of waste generated only following an upward trend due to numerous factors such as, but not limited to, a larger proclivity for capitalist consumption and increasing industrialisation. The country has managed to handle this excessive amount of waste due to the waste pickers in India, who are responsible for recycling almost 20% of this waste. To further their vitality in the industry, over 76% of these waste pickers sell their waste to formal buyers.<sup>62</sup> Despite their significant role in reducing the waste management problem in the country, waste pickers operate informally and experience several risks relating to health and occupational safety. Hence, in response to this concern, this section aims to provide an overview of the policies that govern solid waste management in India and map the extent to which waste pickers are integrated into these policies and related government schemes.

#### 5.1.1 NAPCC (National Action Plan on Climate Change)

The core of the NAPCC approach is the creation of eight national missions “*representing multi-pronged, long-term and integrated strategies for achieving key goals in the context of climate change*”.<sup>63</sup> Under the National Action Plan on Climate Change, the National Mission on Sustainable Habitat recognises that due to the absence of a potent Municipal Solid Waste (MSW) management system, there is unmethodical dumping of waste into landfills. The mission also notes that the unsanitary conditions in these landfills are overly problematic for the waste pickers frequenting these sites.

GoP’s Ministry of Environment, Forest and Climate Change urges that the states refer to the NAPCC to develop their own action plans that are adapted to state contexts. To this end, states are at varying stages of developing and implementing their own state action plans on climate change (SAPCC). The SAPCC for Delhi acknowledges the revised Solid Waste Management Rules 2016, MoEF&CC, GoI. Further, the definition of “*Solid Waste*” as presented in these rules is adopted. In accordance with this definition, the State Action Plan on Climate Change specialised for Delhi understands the indiscriminate dumping of municipal solid waste in three main landfills: Okhla, Gazipur and Bhalswa GT Road. The latter has been studied in-depth in the previous sections.

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<sup>60</sup>Barooah Pisharoty, S. (2016). Lessons from Seoul: How to Revive a River and Manage a Landfill. The Wire. Retrieved 26 July 2021, from <https://thewire.in/environment/lessons-from-seoul-how-to-revive-a-river-and-manage-a-landfill>.

<sup>61</sup>National Coalition for the Homeless. Nationalhomeless.org. (2009). Retrieved 2 August 2021, from <https://www.nationalhomeless.org/factsheets/why.html>

<sup>62</sup>Reddy, A. (2018). A law for waste pickers. Retrieved 19 July 2021, from <https://www.downtoearth.org.in/news/waste/a-law-for-waste-pickers-60103>

<sup>63</sup>India: National action plan on climate change (NAPCC) - Policy, Plans & Statements - PreventionWeb.net. Preventionweb.net. (2008). Retrieved 2 August 2021, from <https://www.preventionweb.net/english/policies/v.php?id=28137>.

After an in-depth analysis of the NAPCC, we have found numerous loopholes that explain the poor implementation of the policy. To begin with, the primary drawback of this policy is that it was first established in 2008 and has since not been revisited and adapted to the current context. There have been drastic changes in India over the past decade, with an exponential increase in urbanisation. Therefore, it is imperative that we re-evaluate the NAPCC to address these gaps and allow for better execution. This policy operates in a “*fragmented sectoral fashion*”, meaning that it is not uniformly distributed across the country. Moreover, the gaps in this policy are furthered by the fact that there is a lack of communication between different levels of government, consequently reducing awareness among certain sections of the population. With reference to waste management issues specific to our study, the policy does note that developing sanitary landfilling facilities is among the main challenges India is currently facing with respect to the issue at hand. That said, while the policy comprehends the concerns faced by the waste pickers in India, it does not offer any concrete solutions for eradicating said concerns.

### **5.1.2 MSWMM (Municipal Solid Waste Management Manual)**

The Municipal Solid Waste Management Manual issued by the Central Public Health and Environmental Engineering Organisation (CPHEEO) mentions that while the onus of implementation of MSWM services in urban areas lies with ULBs (Urban Local Bodies), the preparation of a state policy and solid waste management strategy should include consultative practices with relevant stakeholders like waste pickers. The manual has important recommendations on how waste pickers can be integrated into the waste management system in a more formal manner. It also calls for the provision of social security and welfare benefits to waste pickers, including access to health check-ups and healthcare treatment facilities. However, these recommendations have not yet been adopted in state-level policies and practices.

While this manual is rather detailed in terms of the fact that it outlines the key steps towards waste management and is also insightful towards its suggestions for improving the healthcare of marginalised workers, the sheer absence of its execution is rather concerning. The principal factor for this seems to be once again a lack of political will within the government and the creation of a manual that is successful in terms of knowledge but ineffective in terms of implementation. Furthermore, there is a paucity of resources, and a lack of transparency with regards to funding allocations. In addition, there is also a dearth of incentives from both parties and the presence of informalities.

### **5.1.3 SWM Rules, 2016**

Government of India’s (GoI) latest Solid Waste (Management and Handling) Rules, 2016 (GoI, 2016), published under India’s Environment Protection Act, 1986, direct how solid waste should be handled and disposed of. Service responsibility per these rules is entrusted with local government bodies. The 2016 SWM rules offer upgraded terms in the areas of waste management. \*

However, there could be possible challenges in implementing these rules. Primarily, a major concern involves effective segregation in urban households, as this could reduce the amount of waste being transferred to landfills, which is vital for environmental sustainability. There is variation in the ability to implement segregation at the source. In most cities, segregation typically occurs at the processing stage of the SWM chain. Lack of public awareness around the benefits and upgraded practices of source segregation is recurrently cited as a blockade for progress.

In view of these challenges in implementing effective waste segregation at the source and promoting recycling among the general population, waste pickers are clearly an integral part of the SWM chain as they perform the necessary task of segregation and recycling; in so doing minimising waste being disposed of at landfills. The necessity of their role is recognised in the SWM Rules.

## **5.2 Gaps in Policies Targeting Marginalised Communities and Issues in Implementation**

Among the primary challenges the waste picker communities face, not being recognised as a legal worker under the law is a prime one. The cost of non-recognition is major, as it results in the waste picker communities having to face numerous forms of discrimination and harassment, with repeated violation of their basic, fundamental rights. They are often seen and labelled as vagrants. State municipalities do not legally permit waste pickers to segregate and sell waste from garbage dumps across the country, and they are deemed to be committing theft under the Indian Penal Code, 1860. Most waste pickers have been taken into police custody at least once in their lives and have been booked for petty cases.<sup>64</sup> The deaths of countless manual scavengers go unnoticed and there is inherent discrimination in the policymaking itself to boot.

Moreover, constant exposure to hazardous wastes leaves waste pickers vulnerable and prone to skin diseases, musculoskeletal ailments, respiratory disorders, and needle wounds. Non-recognition amplifies this problem because of the plain fact that waste pickers are often excluded from government health schemes.

Additionally, their jobs are highly insecure. A 2011 study by Chintan, a non-profit advocating for the rights of waste pickers in Delhi, found that after the Municipal Corporation of Delhi privatised waste collection, roughly 50% of waste pickers

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<sup>64</sup> Routh, S. (2014). Enhancing Capabilities through Labour Law: Informal Workers in India. Retrieved 26 July 2021, from [https://www.researchgate.net/publication/286658858\\_Enhancing\\_Capabilities\\_through\\_Labour\\_Law\\_Informal\\_Workers\\_in\\_India](https://www.researchgate.net/publication/286658858_Enhancing_Capabilities_through_Labour_Law_Informal_Workers_in_India).

either faced job losses or drastic income deterioration.<sup>65</sup> Prior to privatisation, waste pickers had an informal sharing system that allowed mutual waste collection within the same area. However, post this, fewer people were able to earn a living from the same volume of waste. A study conducted in Punjab in 2016 found similar results, showcasing that privatisation had a negative impact on their access to wastes as well as their capacity to earn a livelihood.<sup>66</sup>

The government is beginning to address the issue through recognition, but that should only serve as a stepping stone to action, as there are not any policies or schemes in place that protect the waste picker communities despite the amplified risks to their livelihood, health, and occupational well-being.

## **6. Actions and Recommendations for Improvement**

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The more obvious policy benefits for these communities would be admittance to secure livelihoods and social security benefits. Additionally, as these communities face major health risks, the formulation of policies with health as the primary driver would increase both awareness and enable access to healthcare. Progress has been made in various national and state-level policies, as the government has begun to recognise, identify, and integrate informal sector workers into formal waste management initiatives and schemes. Social acceptance, coupled with the regularisation of the recycling sector, could also be added benefits of integrating the informal sector into existing policies. With these considerations in mind, we have framed a list of prudent policies that have been substantiated by our interviews with stakeholders ranging from healthcare professionals to experts and civil society organisations.

### **i) Adopting consultation practices for participatory decision-making**

Typically, the members of the marginalised communities under consideration have experiences and irrefutable expertise in terms of the challenges they face in their day to day. Therefore, consultations with these groups are important to develop policies that better address their concerns. This will also help in opening policies to new perspectives within the waste picker communities themselves. Adopting consultative services will eliminate their exclusion from planning processes, which will further help these communities feel like they're a part of the course of formulating policies that impact them and therefore, they will be more willing to contribute baseline data and data over time about themselves. This will also help integrate PRA (Participatory Rural Appraisal), an approach used to converse with the rural locals and which aims to incorporate the knowledge and opinions of these rural groups in the planning and organisation of developmental missions, as suggested by one of our stakeholders, Professor Nehul Shashikant.

To ensure that the policies are credible, consultative services should be extended to academic experts, social scientists and existing policymakers for verification and to ensure a holistic approach in terms of effectuating them. By obtaining various inputs, this collaborative and democratic exercise will enable us to improve policies regarding their relevance and effectiveness as consultations and participatory decision-making is an important aspect of policy reform. This approach can help modernise policies and restructure them with the help of academic experts while prioritising the interests of marginalised communities.

### **ii) Integration into electoral rolls**

There is still a large section of individuals within the waste picker community who are not enlisted in the electoral rolls, thus making it difficult to bring about changes among authorities. The reason for this lies in the migratory nature of the waste pickers, which makes permanent documentation very difficult. In the spirit of democracy, a consensus is a major factor to make good policies. Thus, amendments are required to mitigate this issue as the lack of representation of waste pickers in local self-governments creates generalised policies which do not cater to their specific needs. We suggest providing common identity cards to all waste pickers, which can be validated at the local administrative office when they migrate to other cities.

### **iii) Incentivising policies**

In a market economy, profit motive drives people to achieve goals, which is why policies must be formulated in a way that incentivises the relevant stakeholders. The existence of a profit motive has been substantiated by one of the stakeholders we interviewed, Anjani Anand from rePurpose Global. Drawing inspiration from the ideology of the 'Food for Work' programme, which provides food to labourers in exchange for their work, we recommend a similar policy for waste pickers wherein they receive basic healthcare provisions in exchange for their waste segregation services. To make it actionable at the ground level, social enterprises are the best candidates through transfer and adoption of these policies. Private sector firms are large and less likely to close, and thus they could provide funding and could ensure better and more consistent

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<sup>65</sup> Misra, N. (2011). Activists question privatization in Delhi as Pune shows the way. Mint. Retrieved 26 July 2021, from <https://www.livemint.com/Politics/xringBheTz2fPKDQR22S8I/Activists-question-privatization-in-Delhi-as-Pune-shows-the.html>.

<sup>66</sup> Sandhu, K., Burton, P., & Dedekorkut-Howes, A. (2017). Between hype and veracity: privatization of municipal solid waste management and its impacts on the informal waste sector. Science Direct. Retrieved 26 July 2021, from <https://www.sciencedirect.com/science/article/abs/pii/S0956053X16305670>.

\*These rules are mentioned in detail in the Appendix

healthcare for marginalised workers in general. These enterprises can have tie-ups with government think tanks and can conduct programmes to help the waste pickers communities.

#### iv) Health and awareness camps

We believe it is necessary to conduct health camps for these waste pickers as they allow early detection of chronic illnesses, which consequently allows them to seek necessary treatment in time. Through our stakeholder interview with Matrushi Shetty from LCF, our implementing partner, we found that NGOs conduct health camps merely twice a year, and this should be amended. Further, even when these health camps are conducted, waste pickers often opt out of attending them because they are daily wage or migrant workers from lower castes who need to be at the landfills for long hours to earn their wages. So, their opportunity cost of attending health camps and receiving treatment is their wages for the day. This is a clear indication of climate injustice and how socio-economic class intersects with climate change. So, the government and organisations need to be cognizant of this intersection of inequalities and take this as a guiding principle when devising reforms, policies, and healthcare schemes. Moreover, we are of the strong belief that organisations conducting health camps must have tie-ups with hospitals as well as corporates to help fund the treatment of these communities once diagnosed with an illness seeing as they may not be able to afford treatment themselves. Subsidised or free treatment should be offered.

Finally, to increase awareness around government healthcare policies and schemes, one of our stakeholders, Anjani Anand from rePurpose Global suggested awareness camps. Local NGOs should be empowered with information to a) spread awareness and b) work with civil society organisations to better policymaking. This can occur through contribution of data found through research projects at different levels.

#### v) Waste-to-Energy Plants

The concept of waste-to-energy plants was first introduced in India in 1987, and today, there are 15 waste-to-energy plants across the country.<sup>67</sup> These waste management facilities combust municipal solid waste (MSW) and through its incineration, they generate electricity. An integral component of a sustainable waste management chain, these plants are “an economically and ecologically sound way to provide a renewable source for energy while diverting waste from landfills.”<sup>68</sup> The advantages of these plants are copious as they avoid methane emissions from landfills which contribute largely to the climate crisis. Moreover, it recycles valuable resources and produces clean, reliable energy while destroying chemical waste.<sup>69</sup>

Unfortunately, these plants have received substantial criticism in India. This is attributed to the fact that the waste is not segregated prior to entering the plants. This causes lower rates of decomposition because of the presence of inert waste, leading to air pollution. For instance, the Okhla dump in New Delhi has more than 1 million people living in residential colonies that surround the plant, and according to an article published by DTE, “the number of asthma patients admitted to emergency and intensive care units has gone up since the plant was set up”. This is due to the plant’s toxic fumes. This resulted in large open-chain rallies to protest against the Okhla dump, and several others across India, ultimately leading to the closure of half of India’s WTE plants.<sup>70</sup>

In order to improve the utility of the WTE plants, the waste segregation process needs to be more efficient. This can be done by employing the waste workers formally to segregate waste. Not only will this ameliorate the standard of living of waste pickers, but it will also make the waste management chain more efficient and productive, as well as reducing the amount of inert waste generated, thereby decreasing air pollution. Finally, while certain advancements have evidently been made in this area, we believe that further research must be conducted in order to make these plants more efficient and publicly acceptable.

Lastly, while formulating these policies, the negative impacts of the caste system, as discussed in detail previously, should be taken into consideration.

## 7. Conclusion and Way Forward

Through this paper, we have explored a plethora of topics, ranging from the intersection of climate change and social inequality to an in-depth analysis of the declining environmental conditions of landfills. We have looked at existing policies to combat climate injustice in India, as well as best and most innovative international practices. Identifying climate change as a matter of *justice* is the need of the hour. Recognising its disproportionate impact and incorporating those insights into policy-making is the first step to climate action.

<sup>67</sup> Koshy, J. (2021). Wasted effort: half of India’s waste-to-energy plants defunct. Retrieved 26 July 2021, from <https://www.thehindu.com/news/national/wasted-effort-half-of-indias-waste-to-energy-plants-defunct/article26273068.ece>

<sup>68</sup> Waste to Energy. (2021). Retrieved 26 July 2021, from <https://www.babcock.com/en/industry/waste-to-energy>

<sup>69</sup> Waste to Energy. (2021). Retrieved 26 July 2021, from <https://www.babcock.com/en/industry/waste-to-energy>

<sup>70</sup> Sambyal, S., Agarwal, R., & Shrivastav, R. (2021). Trash-fired power plants wasted in India. Retrieved 26 July 2021, from <https://www.downtoearth.org.in/news/waste/trash-fired-power-plants-wasted-in-india-63984>

We believe that India's vision forward has to incorporate existing policies with new perspectives, while studying successful outcomes from international practices in order to revamp our policies. This involves rectifying the currently fragmented government legislation. Additionally, it involves devising a multi-pronged and collaborative approach that broadens responsibility for climate action by consulting civil society, social enterprises, corporates, governments, relevant grassroots communities, and experts. This is so our nation can put climate justice on the agenda in a just, equitable, sustainable, and systematic manner.

## APPENDIX

- SWM Rules, 2016:

Clause 15: Duties and responsibilities of local authorities:

*(b) arrange for door-to-door collection of segregated solid waste from all households including slums and informal settlements, commercial, institutional and other non-residential premises. From multi-storage buildings, large commercial complexes, malls, housing complexes, etc., this may be collected from the entry gate or any other designated location*

*(f) prescribe from time-to-time user fee as deemed appropriate and collect the fee from the waste generators on its own or through an authorised agency*

*(h) setup material recovery facilities or secondary storage facilities with sufficient space for sorting of recyclable materials to enable informal or authorised waste pickers and waste collectors to separate recyclables from the waste and provide easy access to waste pickers and recyclers for collection of segregated recyclable waste such as paper, plastic, metal, glass, textile from the source of generation or from material recovery facilities; Bins for storage of biodegradable wastes shall be painted green, those for storage of recyclable wastes shall be printed white and those for storage of other wastes shall be printed black<sup>71</sup>*

- In-depth interview outline: Questions asked to stakeholders.

### **1. Healthcare Professionals:**

- i) Based on your health camps for the communities occupied in landfills, have you diagnosed illnesses among a majority of these members?
- ii) What are the common types of health issues found among them? Do they vary between children and adults?
- iii) Are these communities aware of the daily potential health risks they face?
- iv) Do these communities have easy access to healthcare?
- v) Are there any means through which these communities can self-diagnose potential diseases so as to later seek professional help?
- vi) Do you have any recommendations for government policies in terms of better healthcare for these communities?

### **2. Policymakers:**

- i) Considering that these communities may not be able to afford treatment in case of an illness, are there any government schemes in place through which the members of these marginalised communities can access free or subsidised treatment?
- ii) How efficient are these schemes in terms of application and reach?
- iii) How does the government gather health data on these communities occupied in landfills?
- iv) What are policy measures to ensure their health and occupational safety?
- v) Once these policies have been formulated, are there any issues or loopholes in implementation?
- vi) Are climate and public health policies specifically considering the experience of marginalised communities or do they broadly focus on the overall climate change issue without recognition of disproportionate impact?

### **3. Experts:**

- i) How effective and appropriate are government policies targeting waste picker communities working in landfills?
- ii) Are these policies designed to address the health needs of specific groups like children and adults? Is there any discrimination based on class/caste/gender?
- iii) What are potential policy solutions to counter the health risks faced by these communities?
- iv) Is it feasible for the government to systematically gather health data on these marginalised communities to better assist them with policymaking?

### **4. Implementing partners:**

- i) What are the different programs you run to support the health needs of these marginalised communities?
- ii) How frequently are these programs conducted?

<sup>71</sup>EEO, C. (2016) P.Municipal Solid Waste Management Manual. Retrieved 19 July 2021, from <http://mohua.gov.in/upload/uploadfiles/files/Part2.pdf>



- iii) Do your health camps operate only out of Delhi or is your reach wider?
- iv) How are these health camps funded?
- v) Do you share the data that you gather through these programs with the government to assist them with policymaking?
- vi) Do you have any tie-ups with hospitals to help fund the treatment of these communities once diagnosed with an illness seeing as they may not be able to afford treatment themselves?
- vii) Do some members of marginalised communities experience these challenges differently? For example, do women and non-binary folk have difficulty accessing healthcare and services as compared to men?
- viii) What are some challenges you face as climate activists and civil society organisations while working in this space?

**5. *Marginalised communities:***

- i) Where do you go to treat your illnesses?
- ii) Do you feel that your health issues have increased after you started working in landfills?
- iii) Are these illnesses common among other waste pickers working in these landfills?
- iv) What are specific health and related challenges experienced by children of waste picker families?
- v) Are you aware of government schemes for your health treatments? How accessible and affordable are these schemes?
- vi) What schemes do you believe should be implemented for the betterment of your community?

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# WORKING IN WASTE

## A CLOSER LOOK INTO THE LIVES OF WASTE PICKERS IN INDIA

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By Pratham Mehrotra, Khwaab Kapoor, Akshata Kalyanaraman, Kinnori Mukherjee, and Dhruv Roy

August 2, 2021

The plumes of black suffused his debilitated lungs and the fetid stench stung his weary eyes. Ravi trudged through the *colossal* mountains of garbage, his feet lacerated by the jagged shards of glass that littered the trash-filled path. He was fatigued: hours of back-breaking labour had yielded only a few meagre pieces of bread, and his effort to bargain for enough to feed his family had been but a futile endeavour.

*While Ravi's story may be a work of fiction, it is very much a reality for the 5 million waste pickers of India today.*



*Separating waste atop a mound of garbage at a landfill in Delhi  
Saumya Khandelwal, The New York Times*

The consequences of deteriorating environmental conditions on marginalised groups is a significant concern. While substantial research has been conducted in terms of the widespread impact of climate change on the environment, the dichotomy between the effects of climate change suffered by the rich and the poor is often overlooked. People in marginalised communities, especially those living in deplorable conditions, bear the worst reverberations of the global climate crisis. These disproportionate effects on marginalised groups bring light to the term ‘climate justice’ - the idea that climate change is an ethical, social, and political concern, not simply an environmental matter.

The repercussions of climate change being suffered by disenfranchised individuals can already be seen in various places across India. However, one of the more conspicuous areas where this is observed is through the growing dependence on landfills to manage India’s waste. According to former Environment Minister Shri Prakash Javadekar, India generates 62 million tonnes of waste of which 43 million tonnes is collected annually and only 28% is treated. Due to these abysmal rates of garbage produced, combined with the fact that there is a lack of resources and poor implementation of regulations, the country is forced to dump its waste in one place. This leads to the creation of landfills like in Deonar and Bhalswa, in the biggest metropolitan cities of Mumbai and New Delhi respectively.

But who are the invisible warriors behind India’s “waste management system”? The backbone of this system is formed by waste pickers. The selection of people for such a job is inextricably linked to the caste system even though discrimination on the basis of caste has been forbidden by the Indian Constitution. Today, 90% of the waste pickers are Dalits or belong to scheduled caste or scheduled tribe communities. Denied formal job opportunities, these people are systematically forced into working in landfills and are subjected to a plethora of ailments caused by the toxic gases discharged from the collection of waste and leachate. This can vary from asthma, tuberculosis and eye irritations, to potentially fatal diseases like Dengue, Malaria, Japanese Encephalitis, and Kala Azar. Additionally, the waste pickers have to bend their backs while sifting through the waste constantly, and thus fall prey to musculoskeletal disorders. However, despite this, hospitals exclude them from government health schemes on the basis of their identity and occupation.

Among the primary challenges the waste picker communities face, not being recognised as a legal worker under the law is a prime one. The cost of non-recognition is major, as it results in the waste picker communities having to face numerous forms of discrimination and harassment, with repeated violation of their basic, fundamental rights. They are often seen and labelled as vagrants. State municipalities do not legally permit waste pickers to segregate and sell waste from garbage dumps across the country, and they are deemed to be committing theft under the Indian Penal Code, 1860.

After an in-depth analysis of the three main policies that govern solid waste management in India (NAPCC-National Action Plan on Climate Change, MSWMM-Municipal Solid Waste Management Manual issued by the Central Public Health and Environmental Engineering Organisation, and the Solid Waste (Management and Handling) Rules, 2016, that aim to target the marginalised communities under consideration; a common theme can be observed. This is that while these policies recognise waste pickers and their concerns and acknowledge that the unsanitary conditions in these landfills are overly problematic for the waste pickers frequenting these sites, there are no actionable elements to these policies.

While the government is beginning to address the issue through recognition, that should only serve as a stepping stone to action, as there aren't any policies or schemes in place that protect the waste picker communities despite the exponential risks to their health and occupational welfare.

Some international best practices that target these communities are:

- a) Seoul, South Korea: This country is socio-economically similar to India and was facing similar challenges to the country in the past. However, with strong political will, they were able to embark on numerous restoration projects and waste management initiatives that bettered the situation of the marginalised communities. One main idea that can be implemented in Delhi is the conversion of waste to electricity.
- b) South Sudan: Here, there has been a lot of implementations in terms of healthcare. To name a few, workers are guaranteed occupational safety through provision of gloves, masks, and immunisation.
- c) Brazil: In Brazil, waste picking is now supported by the government and is recognized as an occupation. Organized waste pickers are seen as legitimate stakeholders who can voice their opinions at the local, state, and national levels, and it's been reported that waste pickers enjoy their job and consider it to be decent work.

The more obvious policy benefits for these communities would be admittance to secure livelihoods and social security benefits. Additionally, as these communities face major health risks, the formulation of policies with health as the primary driver would increase both awareness and enable access to healthcare. Progress has been made in various national and state-level policies, as the government has begun to recognise, identify, and integrate informal sector workers into formal waste management initiatives and schemes. Social acceptance, coupled with the regularisation of the recycling sector, could also be added benefits of integrating the informal sector into existing policies. With these considerations in mind, we have framed a list of prudent policies that have been substantiated by our interviews with stakeholders ranging from healthcare professionals to experts and civil society organisations which can be referred to in our research paper. Hopefully, through our research, people like Ravi will one day be able to enjoy a life devoid of their constant daily struggles in the colossal mountains of garbage that are drowning our country.