

Environmental Justice Struggle, Socio-spatial Segregation and Livelihood Issues of Marginalised Communities in India: The Study of Mumbai City

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Abstract: This study examines the livelihood challenges, discrimination, and housing socio-spatial segregation faced by Mumbai's marginalised communities. Every day, people migrate from rural to urban areas for employment, seeking better opportunities in the cities. However, marginalised communities, especially Dalits (Scheduled Caste) from the Matang, Mahar, Bhangi community, Vadar, and Pardhi (Denotified Tribes) from Maharashtra and other States, move to cities. In the city, they still struggle to access quality housing, water, and sanitation. Also, due to their caste-based identity, they continue to suffer from a lack of new job opportunities in Mumbai city. Through this study, a question has arisen: Due to caste-based stigma, Dalit communities have to suffer to access good-quality housing, continue to be relegated to menial jobs (sanitation work), and it further affects their health, livelihood and children's education. In this study, I have drawn the framework based on Environmental injustice and environmental racism, as black communities in the USA face racial discrimination, and people from the scheduled caste, Dalits in India, face caste discrimination. This study is based on two non-notified slum settlements in Mumbai. This study is qualitative; I used purposive sampling and grounded it in empirical findings from in-depth interviews and participant observation. I conducted 20 participant interviews. From the fieldwork, it has been observed that due to caste-based stigma, the living conditions of manual scavengers are deteriorating. Livelihood discrimination at work, lack of equipment, safety and a filthy environment, contractual work impacts on their health and the living beings, and further, on their children's education, have been consistently observed. At the end of this study, the author draws policy recommendations to abolish manual scavenging and enforce existing laws more rigorously. By focusing on SDG 8 and SDG 11, and on participatory bottom-up planning, the study addresses livelihood discrimination, housing, caste-based segregation, and their impacts on education and livelihoods.

Keywords: marginalised communities; discrimination; socio-spatial segregation; manual scavenging; environmental injustice; SDG8, SDG11

1 Introduction:

1.1 City Migration, Marginality, and Housing Crises in Mumbai City:

Migration plays a pivotal role in city development, planning, and, most importantly, in the city's economy. However, due to a lack of access to affordable housing and basic infrastructure like water and sanitation, the city's poor migrants are affected—slums form. Poor infrastructure and unaffordable housing create slums, and Mumbai is a clear example. Housing crises in Mumbai city push the urban poor into double poverty and form a vicious cycle. Because of high land prices in Mumbai and the large number of rural-to-urban migrants, state agencies and the government find it nearly impossible to provide housing for the urban poor (Gandhi, 2012). Mumbai's rural-to-urban labour migration is not new (Jha and Kumar, 2016). Migration plays

a vital role in increasing Mumbai's population (Singh, 2015). Migration is a form of mobility in which people change their residential location across defined administrative boundaries for various reasons, which may be involuntary, voluntary, or a mixture of both (Srivastava, 2011, p.2). Migration is a key livelihood strategy for diversifying incomes, reducing risks associated with rainfed agriculture and climate change, and meeting personal aspirations (Singh & Basu, 2020, p. 87). Decisions about whether to move, how, and where are complex and can involve many actors in different ways.

Several factors drive internal migration from rural to urban areas. Some are 1) social exclusion, caste discrimination, and poor treatment given to the Dalit (Scheduled caste) communities people, 2) Lack of income and employment opportunities, 3) change in climate, for instance, drought regions, people of Maharashtra's Marathwada regions mainly migrated to Mumbai city 4) Lack of finance for own manufactured products 5) Lack of educational facilities due to increased population loads on the urban infrastructure like housing shortage, slum formation due to lack of housing and high prices of the houses become unaffordable to buy homes in Mumbai city not only for lower income groups but also for middle-income groups (Gruber et al., 2005). Agrarian crises and ecological problems are also major factors in rural-to-urban migration (Dutta & Bhagat, 2017).

There is intense caste-based discrimination rooted in the Indian system, and in rural India, villages are often found in the worst condition. This is also a key reason people migrate from rural to urban India. However, caste-based discrimination and socio-spatial segregation continue in urban areas, and cities like Mumbai, Delhi, Bangalore, and Chennai's slums are real examples of socio-spatial segregation. In their article, Singh et al. (2019) discussed caste-based discrimination across different states in India. Caste interacts with gender, class, regional identities, religion, and migration histories to shape individual life opportunities and outcomes in the city. However, caste hierarchies and identities within cities are not fixed. Instead, they are reorganised and reproduced as new collective identities emerge along reformulated caste lines unique to the urban context (Singh et al., 2019, p. 618). Migrants belonging to the Scheduled Castes, Nomadic, DE-notified Tribes, and the Scheduled Tribes, people with a lack of skills and education, and many driven by distress, are hugely vulnerable and suffer from deprivation and exploitation in the places they migrate to (Bhagat, 2018, p.6).

As we live in the 21st century, an era of technology, artificial intelligence, and sustainable development, our lives are becoming easier and more sustainable. It makes people work more efficiently, but it also requires an equity-based framework. Are we living in a society where everyone lives with dignity? Then, obviously, the silent answer is no; we are still living in a society where caste-based stigma, caste-based discrimination, and its connected occupations are continuing not only in rural parts of India but also in urban parts of India. Every year, 15-20 sanitation workers who belong to the Dalit (lower castes), called untouchables, are categorised under the Scheduled castes, die due to a lack of safety equipment like gloves, masks, etc., during cleaning, and the lack of support and dignity they receive during the work. According to government data, it has been observed that a total of 377 people have died during the last five years, from 2019 to 2023, due to hazardous cleaning of sewers and septic tanks (The Hindu, 2025).

Vyas and Jha (2021) discussed the challenges migrant labourers faced, focusing on sanitation workers in Mumbai during the COVID-19 pandemic. Due to a lack of services and basic facilities, many sanitation workers died and lived in precarious conditions. Caste-based stigma, informal work, and lack of support and services make the lives of sanitation workers pathetic.

Furthermore, Kadam et al. (2023) argued that caste-based occupational segregation and the challenges faced by sanitation workers, such as a lack of safety and inadequate services from the government and municipalities, persisted into the 21st century, an era of technological advancements. Through this study, I gained an understanding of the current challenges, and health and safety issues sanitation workers face in Mumbai. It will also help clarify the nature of their work, the government's support for municipal corporations, and how the Swachh Bharat Mission Policy guidelines are implemented to ensure sanitation workers' safety and security.

Thatra (2022), in her article on Dalit Chembur and the spatialization of the caste question in Bombay from the 1920s to the 1970s, discussed socio-spatial segregation rooted in Mumbai's Chembur area, located in Mumbai's M ward. Surrounded by industrial areas, the biggest Deonar dumping ground is in Govandi Deonar. On that ground, only Dalits used to work for garbage collection. He further discussed that once, when Dr Babasaheb Ambedkar visited Chembur, he also visited the Deonar Dumping ground, and upon seeing the workers there in filth and the smell of dead animals like dogs and pigs, he was moved to tears. At that time, sanitation workers from Dalit communities also worked without safety gear, such as gloves and masks.

Therefore, Thatra (2022, p.77), while describing this scene in detail, mentioned that:

The next day, Babasaheb met the Governor of the State of Bombay and presented a written statement. In that statement, he asked the Governor to address the problems faced by the KD Railways contract workers involved in clearing waste sympathetically and from a humanitarian perspective, and to provide them with proper facilities, dispensaries, medicines, and first-aid services. The administration took immediate action, sympathetically considering the issues Babasaheb raised in his written statement. The administration issued immediate directives. The administration immediately directed the officers and the Parsi contractor to improve the situation and provide proper facilities. In response to his orders, workers received a hat-like leather cap. They were also given gumboots, bandages to protect their legs, and one blanket every year. A dispensary was started within the KD Railway office. Workers got these facilities and were reassured. A leader like Babasaheb, who could understand and feel his people's difficulties and pain, is like Mount Everest in humanity. That is why the story of his life of struggle is a beacon for all our marginalised people (emphasis added).

Based on Thatra's (2022) study, the conditions of sanitation workers and the challenges they face, including a lack of safety gear and vulnerability, remain unchanged. Still, over 90% of workers who died while cleaning sewers lacked any safety gear or personalised protective equipment (PPE) kits, according to a recent social audit commissioned by the Union Government to examine hazardous sewer and septic tank cleaning across the country. Even where they had safety gear, it was limited to gloves and gumboots. Government data shows that 150 people died across the country between 2022 and 2023 (The Hindu, 2025).

Research Question: How do rural-urban migration and Caste-based stigma affect the housing, health, and livelihood of marginalised communities in Mumbai City?

Table 1: Types of Manual Scavenging in India

Location	Type of work	Description
Urban areas	Sewer cleaning	Cleaning and maintenance of sewers Complaint-based works
Primary urban (mostly unplanned locations)	Faecal sludge	Emptying, collection, and transport of human waste from septic tanks De-sludging frequency ranges from 6 months to 10-15 years.
Railway network and railway stations	Railway cleaning	Cleaning of railway tracks, platform, and toilets
Primarily rural	Latrine cleaning	Daily disposal of faecal matter from dry/single pit latrines
Sewage treatment plant/faecal sludge treatment plant	Treatment plant work	Maintenance and operation of sewage and faecal sludge treatment plants
Community and public toilets (rural and urban)	Community/public toilet cleaning	Daily maintenance and cleaning of public/community toilets (often insanitary)
School toilets (rural and urban)	Cleaning	Daily maintenance and cleaning of school toilets
Urban drains alongside roads.	Sweeping/drain cleaning	Cleaning open drains and road sweeping, often encountering faecal matter due to open defecation and insanitary latrines connected to drains
Urban areas	Domestic toilets cleaning works	Cleaning toilets in middle-high income households/institutions, often encountering unsanitary conditions

Source: (Sreya and Pannner,2020,p.4).

1.2 Theoretical Framework:

Theoretical frameworks play a vital role in social science research. They help explain theories relevant to the research topic. Most social science research, including policy planning and urban issues, uses interdisciplinary or multidisciplinary approaches. Therefore, researchers also need to draw on theories from various fields, including public policy, environmental science, political science, geography, planning, and health.

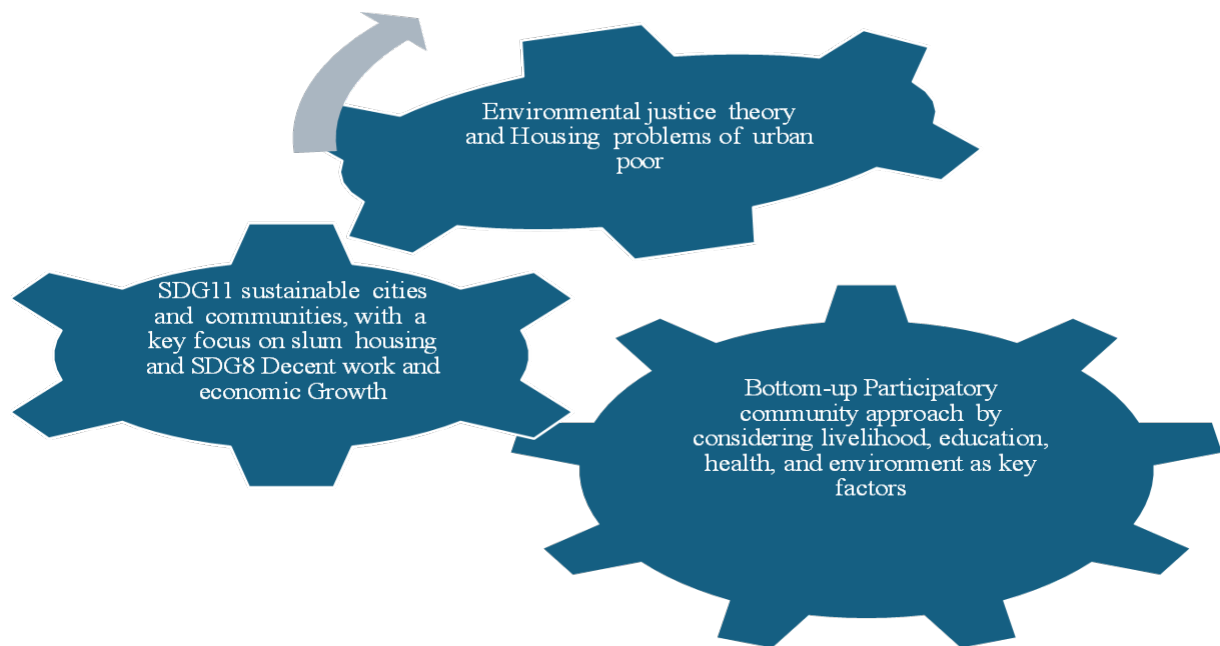
Given the interdisciplinary nature of my research, I have employed various theories to understand the realities of sanitation workers on the ground. I have also adopted a transdisciplinary and multidisciplinary approach, guided by my research objectives and questions. For instance, I have examined how marginalised communities are relocated to the

city's poorest wards and subsequently struggle in their daily lives to access adequate health care, well-being, and livelihoods. Through this lens, I understand these communities' everyday challenges as environmental injustice. To understand the roles and mechanisms of government officials, I then used an urban governance approach. However, to propose a solution to provide decent work, sustainable housing and living conditions for marginalised communities, I adopted a sustainability approach, with a primary focus on SDG 11: Sustainable Cities and Communities and SDG 8: Decent Work and Economic Growth, by considering the issues faced by manual scavengers and sanitation workers in the city.

In the United States, Environmental Justice is a movement against the disproportionate impacts of environmental hazards on people of colour. The term signifies justice in response to ecological discrimination (Bhimraj, 2020, p. 97). Furthermore, the US Environmental Protection Agency (EPA) defines Environmental Justice as “fair treatment and meaningful involvement of all people regardless of race, colour, national origin, or income, concerning the development, implementation, and enforcement of environmental laws, regulations, and policies” (Bhimraj, 2020, p.98). However, in the Indian context, it is defined as “Environmental Justice in the rural and natural resource context is the responsibility of the state and all citizens and requires equitable and fair access to and use of natural resources, participation in decision-making and the distribution of benefits without discrimination based on caste, gender, religion or economic status to guarantee the livelihood security of all citizens” (Bhimraj, 2020, p.100). The father of Environmental Justice, Robert Bullard, defined environmental justice as the principle that all communities are entitled to equal protection and enforcement, as well as access to housing, transportation, food security, water, health care, and clean energy. Everyone deserves to live in pollution-free neighbourhoods where children can play outside and on playgrounds that are not surrounded by chemical plants and landfills (TIME, 2024). What environmental casteism inflicts on its victims- from respiratory issues to the fear of a friend discovering your location, from chronic nausea to an inability to focus while studying- along with its effects on its beneficiaries, makes inhabitants of caste spaces agents in reproducing this intergenerational cycle. In its medical, physiological, psychological, and emotional impacts, the spatial-sensory order furthers the ideology it reflects (Lee, 2017, p. 488). The frameworks of biopolitics and necropolitics, developed by Foucault and Mbembe, respectively, have made significant contributions following the outbreak of the pandemic. These dual frameworks have helped us to understand how state power should ideally manage and promote life, ensuring the health and productivity of populations. However, currently, they push people into precarious living conditions and reduce them to the status of “living-dead” (Mbembe, 2019, cited in Chakraborty, 2021, p. 331). It highlights how poor governance and a lack of vision affect slum dwellers' lives, as shown by the state government's policy to upgrade slum communities.

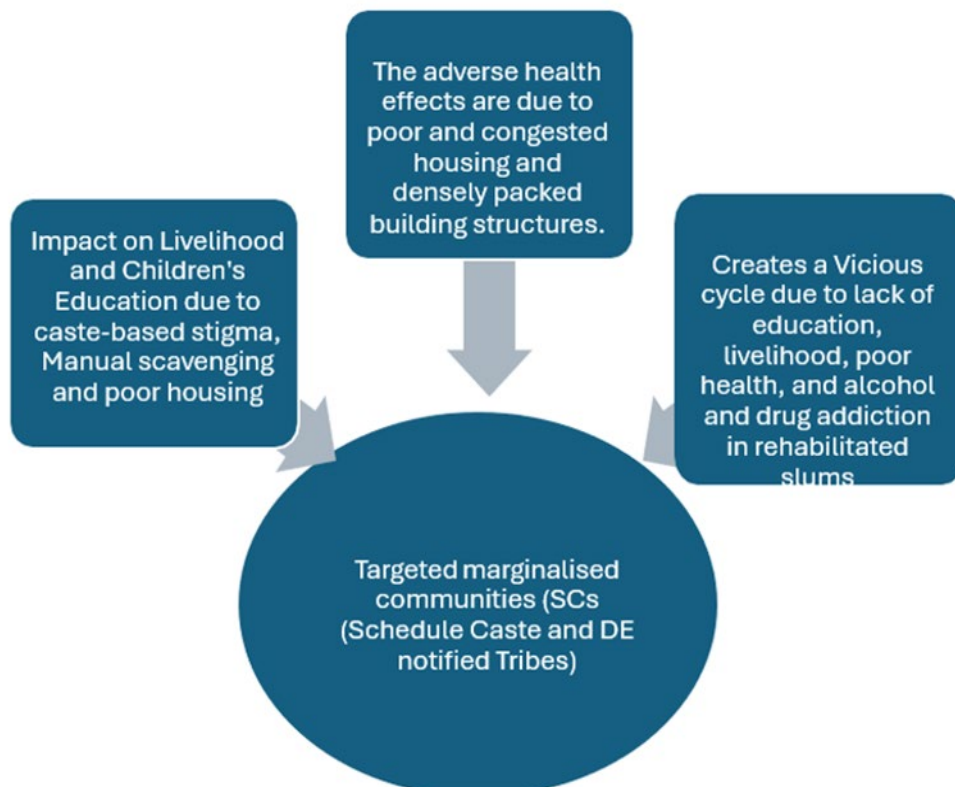
Ranganathan (2022b) argued that caste-based discrimination faced by Dalits and racial discrimination faced by black communities in the USA do not differ much. In the USA, Black African communities are denied housing rights and banned from buying property in the real estate market. They continue to perform menial tasks like cleaning toilets. In India, Dalits also suffer the same thing every day in their lives. Similarly, Sharma (2022) argued for Dalit and Black ecology through the Dalit and Black Panther movements in the Indian and US contexts. He contrasted and found similarities in racial segregation with that of Dalits and Muslims. Their homes near dumping grounds continue to face pollution, untouchability, and spatial segregation. Dalits in India have continuously faced displacement, land struggles, discrimination in jobs, and difficulty getting houses in the metropolitan cities. Due to a poorly built environment, the spatial and materialisation of caste, and the continued work as manual scavengers, labourers, and waste pickers, affect the physical health of slum dwellers.

Figure 1: Proposed Theoretical Framework



Source: Author

Figure 2: Targeted Communities and Issues due to Manual Scavenging



Source: Author

Figure 3: Everyday Challenges of Sanitation Workers: Leading to the Vicious Cycle



Source: Author

2 Review of Literature:

2.1 Migration, Identity Issues, and Poor Living Environment in the City:

Urbanisation has become a global phenomenon, with industrialisation and urban expansion accelerating due to rapid development. As a result, people migrate from rural areas to cities like Mumbai and Delhi, as well as from other states and cities in India, seeking employment. However, many members of these migrant populations belong to marginalised communities. Due to caste-based stigma and lack of education, they find it difficult to secure good jobs in urban areas. Consequently, most work as sanitation workers and daily wage labourers in hazardous factories (Waghmore and Contractor, 2015; Sharma, 2022; Chakraborty and Basu, 2022). Since they cannot afford high rent, they often reside on public land and in slums. These individuals form the backbone of the city's informal economy, working as street vendors, auto-rickshaw drivers, waste recyclers, sanitation workers, vegetable vendors, and more. Sadly, they live in informal settlements, sometimes declared non-notified slums, which are illegal under government rules and documentation (Subbaraman et al., 2014). Migration has historically involved moving from rural to urban areas, but many people in Mumbai have been denied housing rights under the slum rehabilitation scheme because they did not meet documentation criteria (Weinstein & Ren, 2009; Anand & Rademacher, 2011; Doshi, 2013).

Due to a lack of documents to prove legal residency in Mumbai city, many migrants and informal settlers face forced eviction and homelessness. Similarly, Bhan (2009) and Rao (2010) discussed urban citizenship and the denial of housing rights to informal settlers after eviction, citing Delhi High Court judgments that labelled them illegal settlers because they lived on public land. Bhan et al. (2014) therefore discussed citizenship, noting that citizens are declared

not only at the national level through constitutions and elections but also at the state and city levels. However, these city- or urban-based citizenship rules apply only to poor, vulnerable populations, not elites. Urban elites continue to enjoy their luxurious lifestyles in any Indian city.

Therefore, the question of the Right to the City arose following judgments by the Delhi High Court in 2006 after the eviction of Pushta settlers living on the Yamuna riverbank, which stated, “If they cannot afford to live in Delhi, let them not come to Delhi” (Bhan, 2009, p.135). In another case in Mumbai, Doshi (2019) and Zhang (2018) explained the eviction and displacement of slum dwellers during Mumbai’s urban transport projects. Only a few residents received housing because of the cut-off date criteria—“before 1995 photo pass and name in the voter list” — which was recently changed to 2000. This reflects urban politics carried out by so-called government authorities against slum dwellers to justify the city's infrastructure, housing policies, and citizenship criteria. As a result, many settlers become homeless. Hence, cities like Mumbai and Delhi, declared to be world-class, have been displacing the poor, with government authorities and high courts declaring them illegal residents instead of granting them protection of residence or residence rights.

2.2 Post-Eviction challenges:

Due to forced eviction and displacement, many settlers resettled in Mumbai’s M-East ward (Doshi, 2013). M-East, a ward ranked lowest on the Human Development Index, is surrounded by chemical factories, oil refineries, medical incinerators, hazardous areas, and a donor dumping ground. The ward's large population belongs to Muslim and Dalit communities (Nainan, 2008; Bhide, 2015; Burte et al., 2016; Bhide & Solanki, 2016; Chaskin et al., 2024).

The M ward of Mumbai had the highest number of both informal settlements and resettlement colonies. Resettlement occurred due to unplanned infrastructure projects such as pipeline expansions, highway construction, and metro line expansions; many slum dwellers' houses were demolished. In compensation, they received houses in the resettlement colonies without their consent. Mahulgaon, Vashi Naka, Natwar Parekh, and Lallubhai Compound are some of the resettlement colonies in the M-Ward (Bardhan et al., 2019; Jha, 2023; Chaskin et al., 2024). More than 13 resettlement colonies and over 65% of the city’s resettled tenants are in Mumbai’s M-Ward (Bhide, 2020). In large-scale resettlement projects, even when multiple sites are available for re-housing, project-affected people (PAPs) are often not given a choice of site (Vyas, 2012, p. 327).

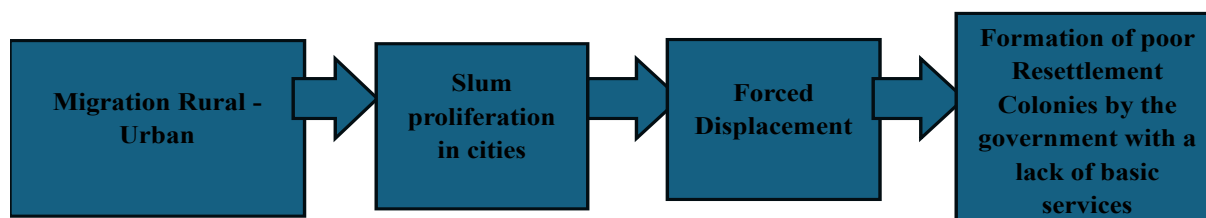
Most of the population of Mumbai, approximately 50%, lives in slum areas where there are issues such as a lack of water, sanitation, and poor waste management. Slum dwellers have been living there for generations. As a result, their cultural, social, economic, and livelihood aspects are closely linked to these areas. For example, areas such as Govandi, Chembur, Mahulgaon, Mankhurd, and Shivaji Nagar are located in Mumbai’s M ward, the poorest ward in Mumbai. In this region, the population mainly consists of marginalised groups such as scheduled caste migrants and Muslims. Their primary occupations include street vending, daily wage labour, kabadiwala, rickshaw pullers, and rickshaw drivers (Nainan, 2008; Gupte, 2010; Doshi, 2013; Bhide & Solanki, 2016; Shaban, 2019).

As Mumbai's migrant population grows—from rural areas to urban regions, from one state to another, and from one city to another—for work and business, the city’s infrastructure, especially housing, is under significant strain. Additionally, the skyrocketing housing prices in Mumbai are beyond the means of the middle class, commoners, and low-income individuals

who want to buy homes there. As a result, many have been forced to stay illegally, such as on land near railway lines and flyovers, or in slums. Mumbai's housing market is too expensive for ordinary people. The growth of slums and squatter settlements has increased because the government failed to plan for affordable housing, revealing its inability to address this issue effectively. Furthermore, problems also stem from a lack of coordination among various authorities responsible for economic development, urban planning, and land allocation. These coordination issues are also present between the city and state governments (OOi and Phua, 2007).

Due to high property prices, 94 per cent of Greater Mumbai's population (Island City and suburban Mumbai) cannot afford to buy a house (Gandhi, 2012), with 42 per cent living in slums that occupy only 6 per cent of the land (Municipal Corporation of Greater Mumbai, 2010). The shortage of affordable housing may result from policies that, while being implemented in the name of aiding low-income people, have worked effectively against them (Pethe and Sharma, 2019, p. 64).

Figure 4: Migration and housing crises



Source: Author

2.3 Caste-based system and occupation, and everyday Caste Discrimination:

Manual scavenging often involves hazardous working conditions, with the workers using their bare hands or basic tools to clean, handle, and dispose of untreated human waste. It is common for workers to be exposed to human waste, with some even losing their lives while cleaning septic tanks or clearing clogged sewers. Between 2017 and late 2018, there was an average of one death of a sanitation worker every five days in the country, according to official data (WaterAid, 2019, as cited in Raghavendra and Kumar, 2022, p.5). Due to caste-based stigma, manual scavengers face double discrimination and disadvantages like a lack of legal protection, financial security, and poor occupational and health safety (Raghavendra and Kumar, 2022).

Mohankumar and Srija (2023) discussed caste-based occupational discrimination and discrimination against manual scavengers in their everyday lives, both on the job and in accessing good housing. Women manual scavengers face double marginalisation in their everyday lives. Manual scavengers often struggle to access safe housing options, alternative livelihood opportunities, and quality education for their children. India is the only country where manual scavenging practices are conducted by marginalised communities, who belong to the lower caste communities of India. Despite the constitutional rights enshrined in Articles 14, 21, 39(a), and 42, which guarantee equality before the law, protection of life with dignity, adequate means of livelihood, and just and humane working conditions, these rights are not being upheld in practice. Still, these community people are facing humiliation and discrimination every day in their lives (Shanker and Bagdi, 2021). Das (2022), while discussing manual scavenging, stated that after 77 years of independence, some communities are still excluded from society due to caste-based stigma and inhumane livelihood practices, which involve cleaning human excreta and sewage.

2.4 Manual Scavenging in India:

Improvements in India are driven by technology, development, research, and monitoring. However, caste-based discrimination and occupations like manual scavenging continue in India. Manual scavenging in India has been declared illegal and an unlawful occupation and practice, as it fosters caste-based discrimination in society and treats human beings as animals. According to the Acts of 1993 and 2013, manual scavenging is banned in India. However, it is still practised regularly, especially in cities such as Mumbai, Delhi, and Chennai, where it remains evident (Shankar and Swaroop, 2021).

More shameful and cruel are the claims that blatantly deny the existence of manual scavenging and, in doing so, absolve themselves of responsibility and accountability for ending it. Official statistics from the Ministry of Social Justice and Empowerment (Government of India) for 2002–03 show that the number of manual scavengers (including those in public sector undertakings) in the country was 676,000. Uttar Pradesh had the highest number (149,202), followed by Madhya Pradesh (80,072) and Maharashtra (64,785) (GOI, 2003, cited in Shahid, 2015).

Manual Scavengers face violence and discrimination at every stage of their lives. While observing manual scavengers' daily lives, I noticed they live in very poor habitats near dumping areas, toilets, and major drain lines, lacking access to amenities like water, sanitation, and housing. It has been observed that around 95% of sanitation workers (Manual scavengers) in this field belong to Dalit communities, in which Dalit Muslims, Dalit Hindus, and Dalit Christians all find themselves in the same line and face the same discrimination in jobs, housing, etc.

In the book review by Pathak et al. (2024, p.2), they discuss Anwar's (2023) book *Sampoorna Dalit Andolan: Pasmanda Tasavvu*, which focuses on the everyday discrimination and challenges Dalit Muslims face:

The author categorically raises the assertive questions of the pasmanda community or Dalits present in Muslim society and concludes that, like Hindu society, there are also Muslim Dalits. The only difference is that, from time to time, the Hindus have accepted the existence of this evil practice, due to which continuous reforms have taken place within it. In contrast, there was a serious avoidance of public acceptance of this inhuman evil practice within the Muslim society, due to which the condition of Muslim Dalits continued to deteriorate. Further, the author discussed that the word pasmanda is religion- and caste-neutral. Historically, we are Pasmandas first, Muslims later....' Similar to Dalit Hindu, Buddhist, and Sikhs, Dalit Muslims also struggle to get a job and continue to face social exclusion. Furthermore, they are misused in India's vote-bank politics. Muslims cleaned toilets in the mansions of Mughal rulers. This was called *Lalbegi* or *Halalkhor* (Patahak, Satish and Darlianmawii, 2024, p. 2)

“Manual scavengers” are not just sanitation workers who handle human faecal matter without protective equipment; they are anyone who handles faecal matter and liquid waste. This includes tasks along the sanitation chain in urban and rural India, such as cleaning open defecation spots, latrines, drains, sewers, and septic tanks (Wankhede and Kahle, 2023, p.119).

Manual scavenging in India is officially defined as ‘lifting and removing human excreta manually’ from private homes and toilets maintained by municipal authorities. The practice involves gathering human excreta from individual or community dry latrines using bare hands, brooms, or metal scrapers, and placing it into woven baskets or buckets. Scavengers then carry

it on their heads, shoulders, or against their hips (and in wheelbarrows if they can afford them) to dumping sites or water bodies. Many scavengers are similarly employed to collect, carry, and dispose of excreta from sewers, septic tanks, drains, and railway tracks (Ramaswamy and Srinivasan, 2017, p.2). Manual Scavengers have different names across states, but are officially called Safai Karmacharis and Sweepers (Katiyar, 2017). Thatra (2022) discusses the history of Mumbai's Chembur area, the Dalit community, and the sanitation workers' strikes.

Thatra (2022, p. 22) continued the discussion by noting that in the 1970s, drought-induced Dalit migrants from Marathwada also occupied land in the Chembur M ward area. Despite efforts of the government to restrict "refugee" movement from creating "additional strain and stresses" via relief works on the "overcrowded city" of Bombay. An EPW (Economic and Political Weekly) correspondent in November 1974 reported that the stream of people coming to Bombay from the villages is unabated. Most of these migrants are from the districts of Aurangabad, Osmanabad, and Parbhani of the Marathwada region of Maharashtra. Many are from Buldhana, Sholapur, and Nagar. Some have even come from Gulbarga in Karnataka state. Most migrants are Buddhists; many belong to the Matang community (one of the scheduled castes in Maharashtra); and several others belong to backward castes/tribes such as Laman, Vanjari, Pardhi, or Dhor. A few belong to the upper castes. Some own four to five acres of land, but most are landless labourers or small farmers cum farm labourers.

In manual scavenging, women face double discrimination as caste and gender inequalities converge. Of the 1.2 million manual scavengers in India, about 95 per cent are women. While men are most likely to work on railway tracks and clean clogged pits, where wages are higher, women clean open pits in houses (Pais, 2021, p. 65). Manual scavenging is harmful not only because it harms health, but also because engaging with faecal matter is considered ritually polluting, leading to severe social exclusion, stereotyping, and stigmatisation of individuals (Wankhede and Kahle, 2023, p. 116).

2.5 Lack of Safety Issues in Work and Its Impacts on the Health of Manual Scavengers:

Because they are continuously exposed to filthy environments and lack protective gear, manual scavengers clean human excreta from dry pit latrines, toilets, and open drains. Additionally, the ongoing release of gases such as ammonia, hydrogen, and carbon dioxide severely affects their health. As a result, they often suffer from skin diseases, cancer, TB, eye irritation, and other health issues (Pradhan and Mittal, 2020). They also experience back pain, headaches, anxiety, chest pain, stomach disorders, sleeplessness, and, due to work-related stress, high alcohol consumption, which further affects their health (Mala et al., 2023). Moreover, a lack of safety equipment, poor living conditions, and limited access to basic services such as water, sanitation, and waste management lead to severe nutritional deficiencies among manual scavengers and waste pickers, making diseases like jaundice, skin conditions, and typhoid most prevalent. Furthermore, everyday discrimination at work from contractors leads to stress, financial burdens, and financial debt, which contribute to many sanitation workers living with mental disorders (Kadam et al., 2023).

Furthermore, sanitation workers frequently encounter toxic gases, including methane, carbon dioxide, hydrogen sulphide, and ammonia, while working. As a result, many workers have lost their lives, and many have been found to suffer from hepatitis, leptospirosis, and *Helicobacter pylori* (Pradhan and Mittal, 2020; Shanker and Bagdi, 2021). Not only sanitation workers but also waste pickers face health risks in their daily lives, such as skin diseases, musculoskeletal disorders, eye irritation, infectious diseases, and disability (Salve et al., 2020).

2.6 Impacts of Poor Housing and Built Environment on the Health of Marginalised Communities:

Furthermore, Tripathy and McFarlane (2022) examined the challenges of Mumbai's M-East ward, which has the lowest Human Development Index due to poor infrastructure and severe quality-of-life issues. Additionally, Deonar's most significant dumping ground is located near these slum dwellings, where numerous chemical factories are situated. Mostly, these slum dwellers continue to live and work on this dumping ground, often as waste collectors, recyclers, or sanitation workers. Hence, it severely affects these families due to a polluted environment, continuous smoky flames from garbage fires, toxic gases from chemical factories, and contaminated water, leading to various diseases like TB, cholera, respiratory diseases such as asthma and lung cancer, skin diseases, premature death, and low birth weights, which devastate the lives of slum dwellers. The same conditions also persist in slum resettlement colonies: poor water quality, inadequate infrastructure, crowded housing, and a lack of green spaces.

Indeed, the government has initiated slum rehabilitation and resettlement policies to improve slum residents' living conditions. However, it often only shifts slum dwellers from horizontal slums to vertical slum colonies (Doshi, 2019). In the resettlement colonies, the highest number of people belong to marginalised groups, who continue to work as manual scavengers, sanitation workers, etc. A clear example of this is the resettlement colony at Mahulgaon, Lallubhai Compound. Furthermore, Jha (2023) argued that the issues project-affected people face after resettlement can be understood through Foucault's theory of biopolitics. Jha discussed the problems faced by residents of the Mahul Gaon resettlement colony and how surrounding chemical factories, congested buildings, and drainage pipe leaks severely affect slum dwellers' health. Residents are found to be victims of water-borne diseases, Tuberculosis due to a lack of ventilation, and premature deaths due to the surrounding chemical factories. Mahul is described as a severely polluted area, unfit for human habitation; it is necessary to link people's health experiences to this toxic condition (Jha, 2025, p. 13).

Another study by Pardeshi et al. (2020) found that the rehabilitation building's congested, tightly packed structure affects residents in resettlement housing apartments because of poor ventilation. Asthma and TB affect people. Jana et al. (2022) found that, due to the lack of natural ventilation, tuberculosis was most prevalent among residents of the resettlement colony. Jana et al. (2022) further criticised the low-income housing conditions and their surroundings as pathetic and found no difference or improvement in these housing conditions; the situation is the same as in the slums. The built environment plays a vital role in people's lives, but Mumbai's rehabilitation and resettlement raise questions about whether it provides sustainable, high-quality housing. Urban poor residents have challenged environmental discrimination that takes the form of displacement and rehabilitation in degraded areas, or that deprives them of access to infrastructure and services (Wagh & Indoerwala, 2022, p. 172).

While discussing the migrant workers' health issues, Krishna and Raj (2022) elucidated that over one-fourth of migrant workers in Maharashtra suffered from infectious and parasitic diseases like malaria, gastroenteritis, amoebiasis, tuberculosis, measles, chickenpox, scabies, and sexually transmitted diseases. Poor personal hygiene, overcrowding, lack of access to potable drinking water, and poor, unsanitary surroundings, including a lack of toilets and bathing facilities, were potential causes (Somasundaram & Bangal, 2012, as cited in Krishna & Raj, 2022). Tripathi et al. (2024) reviewed D.R. Ambedkar's Vision in Public health policy and the marginalised community's challenges regarding public health. Due to poor infrastructure, environmental issues, and lack of access to water and sanitation, diseases like dysentery,

malaria, and diarrhoea are found in the highest numbers among the migrant workers of the marginalised communities. A crucial component of Ambedkar's vision was his focus on foundational public health necessities like sanitation and access to water. Recognising these basics as essential to health equity, Ambedkar's initiatives aimed to remove caste-based barriers to essential resources, highlighting the importance of achieving social justice (Tripathi et al., 2024, p. 14). Bhide (2017) critically evaluated the impacts of resettlement housing and state-market violence. She discussed the resettlement colonies' impact through Foucault's biopolitics theory, which shows how the government pushed the urban poor to die in precarious and filthy environments. Also, the relocation sites are located near industrial zones and dumping grounds, with minimal livelihood opportunities or no access to them. The interesting thing is that in all the resettlement colonies of Mumbai, most of the population is Muslims and Dalits (Lower Castes).

2.7 Research Gap:

Drawing on environmental injustice and political ecological crises in the two global cities of Mumbai and Philadelphia, Anand et al. (2022) stated that marginalised and racialised communities struggle daily to access better health, housing, water, and a pollution-free environment. One of the leading causes is poor urban governance and administrative injustice, which leads to the slow violence faced by these marginalised groups. Activist groups in both cities are working to support these communities by advocating for improved urban services and water rights. Furthermore, they claimed that marginalised bodies are both placed and trapped amidst toxic urban infrastructures (which are embedded in the city despite the harm they cause). They examined the dynamic processes that have produced and continue to produce events of lasting harm in Philadelphia and Mumbai (Anand et al., 2022, p. 656).

Various studies have examined climate change, poor physical environments, lack of sanitation, chemical factories, gas tragedies, and dumping ground fires in Mumbai and other metropolitan cities of India (Ramanathan, 2004; Broughton, 2005; Bardhan et al., 2015; Debnath, 2018; Sarkar & Bardhan, 2020; Wagh & Indoerwala, 2022; Anand et al., 2022; Sircar, 2024; Jha, 2023). However, from the perspective of caste-based marginalisation, issues faced by socially disadvantaged and marginalised communities, particularly those related to housing and environmental justice, remain under-researched (Basu & Chakraborty, 2016; Chakraborty & Basu, 2022; Sharma, 2022; Jatkar, 2024; Siddique, 2024).

Marginalised communities in India, mainly SCs, STs, and OBCs (Other Backwards Classes), are located near heavy industry locations and Major accident hazard areas. Prominent examples in the state include Gujarat's Ahmedabad city, Maharashtra's Mumbai City, Madhya Pradesh's Bhopal City, Karnataka's Bangalore, Tamil Nadu's Chennai, Telangana's Hyderabad city etc. (Ayyar, 2013; Jonnalagadda, 2014; Bhide, 2017; Chakraborty & Basu, 2019; Chu & Michael, 2019; Shaban, 2019; Konda, 2020; Shaban & Aboli, 2021; Bhimraj, 2020; Coelho & Sood, 2022; Bharthi et al., 2022; Thatra, 2022; Jha, 2023; Pathak et al., 2024; Sircar, 2024).

However, the caste hierarchies and identities migrants experience do not disappear in cities; instead, they are reorganised and reproduced as new collective identities emerge along reformulated caste lines unique to the urban context (Singh et al., 2019, p. 618). Furthermore, Singh et al. (2019) detailed how residential segregation by caste and religion varies across Indian cities. Mainly, the Scheduled Caste and Muslim communities face direct discrimination in accessing housing for rent, both for residential and commercial purposes. The article begins with an incident illustrating how caste discrimination persists in major metropolitan cities, such as Bangalore, during the rental process.

3 Research Methodology:

This study draws on secondary literature and the author's qualitative-ethnographic fieldwork. The study explores the daily struggles and challenges sanitation workers in marginalised communities face in the selected case study sites. Following displacement and resettlement, the author conducted in-depth, semi-structured interviews and participant observation.

3.1 Procedures and analysis:

Interviews explored the impact of living in slum housing, livelihoods such as manual scavenging and sanitation work, and their effects on families' health and well-being. I developed research questions in consultation with the supervisory team to ensure the research procedures were appropriate. Participants provided informed consent before the interview and provided oral consent during the interview. Given the sensitivity of the topic, I incorporated creative methods to support participant comfort and engagement (Prosser and Loxley, 2008; Vasquez-Vera et al., 2019). I structured interviews around participants' daily lives and work. Given the complexity of families' housing histories, I used timeline drawings (Bremner, 2020; Hurtubise and Joslin, 2023) during interviews to facilitate discussion of housing and job insecurity, lack of money and impacts on children's education, discrimination, and poor surrounding environment impacts on the health of the manual scavengers.

Data collection took place from January 2025 to April 2025. During the initial visits, the researcher visited the selected sites and conducted preliminary surveys, observations, and discussions with community members to build trust and understand their challenges.

3.2 Analysis:

The researcher thematically analysed interviews using the five stages of the Framework Method (Ritchie and Spencer, 1994; Gale et al., 2013). The researcher independently reviewed a selection of overlapping transcripts from each participant group to identify initial codes. The researcher thematically analysed interviews and written notes using the five stages of the Framework Method. 1) Phase 1: Organising the Data 2) Phase 2: Sorting Data into Relevant Topical Categories 3) Phase 3: Open/Initial Coding 4) Phase 4: Identifying Patterns, Themes, and Findings 5) Applying Theory and Explaining Findings. In inductive analysis, the researcher engages with and defines the data, thereby linking initial or open coding to emergent themes and theories. Overall, inductive analysis derives meaning from the data; develops codes, categories, themes, and findings; identifies representative data to support these findings; and explains them using theory and literature (Bingham and Witkowsky, 2022, as cited in Bingham, 2023, p. 4).

3.3 Researcher background and reflexivity.

The research student is a qualitative researcher with backgrounds in urban policy and governance and in human geography, and with expertise and experience working with vulnerable families and other underserved groups. This experience informed her approach to data collection. Interviews were designed to foster trust and agency by being conducted in participants' homes and allowing participants to guide the flow of discussion. Building familiarity and rapport helped elicit open, detailed accounts of everyday life in urban slums. Throughout the project, the researcher held regular meetings to discuss emerging findings and reflect on how their own perspectives, assumptions, and professional experiences could influence the analysis (Guillemin & Gillam, 2004). Reflexivity is "the constant awareness, assessment, and reassessment by the researcher of the researcher's own

contribution/influence/shaping of inter-subjective research and the consequent research finding (Patnaik,2013, p.100).

3.4 Ethics Approval:

The University of Birmingham's Department of Science and Technology granted ethical approval. After reviewing all documents, including the consent form and questionnaire, the study was approved for the marginalised group in Mumbai's slum housing, with a specific focus on marginalised communities, under Application number ERN_1743-Jan2025.

3.5 Purposive Sampling Technique:

For this study, I have used purposive sampling. This sampling will help researchers select slum dwellers or rehabilitated households (specifically women and men of a certain age from marginalised communities). Purposive sampling is a non-probability method in which researchers use their expertise to select specific participants to help the study achieve its goals. These subjects have characteristics that the researchers need to evaluate in their research question. In other words, the researchers pick the participants "on purpose.

Table 2: Sampling Table Distribution:

PMGP Colony Basti	Chedda Nagar Basti
Men: 5	Men: 5
Women: 5	Women: 5
Total: 10	Total: 10

3.6 Selected Case Study Sites:

To carry out this research in a systematic manner in Mumbai city, I have chosen two case study sites from Mumbai's M ward, where many sanitation workers, manual scavengers, and waste pickers live in very deplorable conditions near the dumping area and big nallah (drain), in houses made of plastic and iron sheds, with a lack of access to basic amenities like water, toilets, and electricity.

1. **Small informal settlement near PMGP:** This site is located in Mumbai's Mankhurd PMGP colony. Here, the people live beside the nallah and the garbage dumping area. Besides their kutchha houses, a big nallah (drain) flows, and garbage is scattered in front of their homes. They have been living in this place for the last 25 years. These people are migrants from a small village in Karnataka's Gulbarga district. All the families belong to the Matang (SC) lower caste community. In these families, men are continuously engaged in manual scavenging and garbage collection as waste pickers. There are around 40 houses, all belonging to the same community. To understand these communities' everyday struggles with access to sanitation, water, housing, occupation, health, and education, I conducted 10 interviews: 5 with women and 5 with men.
2. **Another site located in Mumbai's Chhedda Nagar:** At this site, people have been living for the last 25-30 years in the same condition, with a lack of access to water and sanitation, and living in katchha(Raw material) houses made of plastic, wood, iron, or sheds. These people's homes are near a larger drain, so they must endure foul odours and mosquito bites. All families in this place are from the lower caste, mainly the Denotified tribes, Pardhi, and

Vadar communities, and a few belong to the SCs and the Muslim community. They all have migrated from Maharashtra's Parbhani, Jalna, and Beed districts in search of livelihoods. Major occupations include nallah cleaning, drain cleaning, waste picking, and some construction work. I have conducted 10 interviews at this location, comprising five men and five women.

4 Empirical Findings.

This study's empirical findings are based on interviews with sanitation workers from the selected case-study sites in Mumbai. Additionally, drawing on their everyday struggles with access to poor habitats and occupational challenges, the author has divided the material into different themes. The themes in the empirical findings were drawn from the literature review and interview discussions with participants about their daily lives, livelihoods, health, and education. Based on coding livelihood-, health-, and education-based points, I derived these themes. Furthermore, the framework justifies the impacts of environmental injustice, ghettoisation, and poor civil infrastructure on the manual scavengers' lives. Livelihood discrimination is linked to a lack of policy awareness, community participation, a focus on a bottom-up approach, and, lastly, implementation of SDG 8 and SDG 11.

4.1 Ghettoisation and poor access to housing, water, and sanitation:

During my visit to the two sites where sanitation workers' families live, I realised how socio-spatial segregation, similar to that in villages, still exists in Mumbai. During the interviews, I discussed the daily routines and challenges of living in such a fragile environment with sanitation workers' families. Then, a woman who was around 45 years old said to me:

Our lives have become like those of animals; we don't have a good place to stay, and we don't have access to water or toilet facilities. Furthermore, government officials from the municipal corporation constantly threaten to make us vacate the house, and they have demolished our shed. In this fearful environment, we continue to stay here; we have lived here for the last 25 years, and we still haven't received any support from the government (PMGP_W1_22-04-2025).

While discussing the housing policies and their benefits to Sivaram, a 40-year-old sanitation worker, he said:

We don't have any problem if the government does not provide us a home under any scheme; but at least the government has to permit us to construct the houses in the same place where we are living right now. We will happily make permanent, good-quality houses (PMGP_M3_12-04-2025).

48-year-old Kisan, while discussing the housing condition and the surrounding environment, said that:

Do you see that there are 40 houses here, all made of plastic, bamboo, and wood. There is a big sewage drain behind our home, and a large waste dump yard in front of it. Also, we don't have a toilet, so we have to pay to use the bathroom located beside our home and buy water. During the rainy season, water enters our house, but we cannot do anything; we have to live in such a precarious condition (PMGP_M3_13-04-2025).

The above discussion shows that in poor surrounding environments, characterised by a lack of access to housing, sanitation, and waste management facilities, sanitation workers often live in precarious conditions. Socio-spatial segregation is also evident in cities like Mumbai.

Environmental injustice and discrimination against scheduled castes and nomadic tribal communities are continuously found in towns like Mumbai through habitat and living environment.

Like environmental racism in the USA, environmental casteism exists in India. India has a legal system to pursue justice, but *de jure* discrimination (as defined by law) may not be present; *de facto* discrimination (in reality) often exists. There are many instances through which it is observed that the Dalits, Adivasis, and Muslims in India have been discriminated against in enforcing their environmental rights, like the struggle for better living in slum areas, access to livelihood, better health, education, etc. (Bhimraj, 2020, p.109).

Bickerstaff, Bulkeley, and Painter (2009) discussed environmental justice theory from the perspective of Global North cities, noting that issues affecting marginalised communities, especially those living in poor, hazardous areas, remain absent from urban policy, governance, and housing. They focused mainly on the UK and US contexts. While discussing environmental injustice in housing, they noted that sociologist Robert Bullard was among the first academics to examine the relationship between the siting of hazardous facilities and the social characteristics of nearby communities. He found that nearly all landfills in Houston, Texas, were in or near African American neighbourhoods (Bickerstaff, Bulkeley, and Painter, 2009, p. 3). This situation highlights how socio-spatial inequalities and hazardous living environments contribute to environmental injustice. Furthermore, they emphasised that environmental justice research is evolving into activism in dangerous areas, addressing the discriminatory living conditions faced by marginalised communities and raising questions about social and ecological justice for these groups. Additionally, living in this hazardous environment poses challenges to these communities' physical environment and to their health and well-being, pushing them into poverty.

Photo 1: PMGP Sanitation Workers' Informal Housing reflects precariousness, informality, and struggle for access to basic amenities.



Source: Author

Photo 2: Chedda Nagar Sanitation Workers' Informal Housing reflects precariousness, informality, and struggle for access to basic amenities



Source: Author

Sihra (2025) vividly describes how odour factors reinforce caste boundaries, such as untouchables living in areas characterised by foul odours, dirt, and ghettoisation. Despite their homes' cleanliness, lower-caste families often live near dumping grounds, sewers, or drainage lines. The article states, "Kolis are located in flood-prone zones, next to open sewers; Valmikis, Jatavs, Sansis, Kanjars, Dhankas, Raigars, and Meghwals are on foothills, relegated to steep, difficult-to-access slopes; Bairwas are next to railway tracks; and public toilets and waste collection bins are located at the entrances of these ghettos" (Sihra, 2025, p.6). The author also discusses cities like Mumbai and Lucknow, where lower-caste homes are often situated near dumping grounds, latrines, drains, and night-soil depots. Jha Shahajan and Vyas (2013) describe the challenges and discrimination Muslim communities face in Mumbai, including access to jobs, housing entitlements, and other issues. They mentioned how biopolitics and governmentality, government policy and law, create housing discrimination and socio-spatial segregation issues in Mumbai. Citizenship issues fail to address the issues of the Muslim and Dalit communities. Muslim continued to live in informal settlements and poor habitats on the city's fringes, with a lack of amenities and toilet facilities.

This raises questions about whether caste, public infrastructure, and political ecology continue to persist in cities 78 years after independence (Desai et al., 2015; Ranganathan, 2022a, 2022b; Sircar, 2022, as cited in Sihra, 2025). Furthermore, Pow (2017) explains how the socio-metabolic environment excludes the urban poor from the city's elite communities. It examines how the urban poor suffer in the city by living in substandard housing and toxic, polluted areas, and by facing various infrastructure-related challenges. In a city like Mumbai, due to a lack of toilets, poor public toilet conditions cause urban slums to resort to open defecation. Exclusion and discrimination of migrants, as in Mumbai, are also common in Chinese cities. Therefore, urban political ecology and socio-metabolic processes (such as smell, taste, noise, and bodies) combine to shape the micro-politics of urban life, often excluding low-income people from urban spaces (Pow, 2017, p. 270).

4.2 Health Challenges of the sanitation workers and their families:

Poor housing and the surrounding environment, such as a dumping ground or a nallah (drain), contribute to these challenges. A lack of safety equipment, or its non-use during on-the-job

activities, also severely affects sanitation workers' health. In the given case study site, the highest number of patients with TB, skin diseases, and cancer, followed by dengue and malaria, was found, and this is due to a poor surrounding environment and a lack of safety equipment while working as a sanitation worker.

During the interview with the 49-year-old lady Kamla, she said:

Ma'am, because of the dirty surrounding environment, due to everyday waste collection, I feel weak and have body pain every time, but what should I do if I do not work? Then what will my family eat? (CNW3_05-03-2025).

While discussing, 32-year-old Ramu said:

In the last month, due to Malaria and TB, my brother has lost his life (CNW4_06-03-2025).

So, it has been observed that due to precarious habitat and lack of security in the occupation, slum dwellers severely face health issues. Health access challenges emerge from the surrounding environment and a lack of safety kits for livelihood. Due to this, these slum dwellers are found to be victims of diseases like cholera, dysentery, and skin diseases. In addition to that, not only physical health but also mental health challenges are found in the slum areas. The cause of mental health stress is the financial burden, low income, and working as a sanitation worker on a contractual basis, with no safety or security

35-year-old Ganga said during the interview that every day,

my husband gets drunk at night and then beats me. This is due to financial difficulties and work stress. He tried to find a new job but failed, so he continues working as a sewage cleaner. Because of this, the atmosphere at home is always tense. My 14-year-old daughter is facing mental trauma because of this stressful environment. She never felt normal; she was always fearful and stressed, and the school teacher also refused to take her to school (CNW4_04-03-2025).

38-year-old Kantaram said,

every day, I have to enter the maintenance hole to clean the sewage, so I feel it is extremely filthy. Also, we are sometimes not provided with gloves or safety equipment. Hence, it's severely affecting my health. I feel restless and am now suffering from a skin allergy, asthma, and itching in my throat and eyes, all of which started since I began working in the maintenance hole. I have complained several times to the supervisor, but he doesn't take it seriously (CNM3_05-04-2025).

Additionally, the surrounding living environment severely affects sanitation workers and their families. Both selected case study individuals, whose daily work involves collecting garbage and cleaning sewage, receive no safety measures from the state government or municipality. Additionally, because they lack access to essential infrastructure such as toilets, water, and decent housing, their health and their children's health are indirectly affected.

So, it has been observed that due to caste-based occupation, the sanitation workers are under a financial burden and stress; also, due to a lack of safety and security and continuous work in a filthy environment, these slum dwellers' health and well-being, their children's education, and a vicious cycle are forming.

This issue relates to Tripathy and McFarlane (2017), which discusses the lives of slum dwellers in Mumbai's M-East ward. Furthermore, housing conditions and the everyday work of Manu scavengers from the selected case study sites connect with the study conducted by Yadav and Bhagat (2017), which argues that in a city like Mumbai, poor infrastructure, lack of tenure security, and the poor condition of public toilets severely affect the lives of slum dwellers. Many survey studies have found that Mumbai's slum dwellers, due to inadequate and poor-quality access to water, toilets, and garbage facilities, are victims of several diseases like diarrhoea, dysentery, cholera, etc. Also, in a city like Mumbai, almost all non-notified slum dwellers rely on public toilets. Due to the high population, such as one toilet per 50 people, overuse, unhygienic conditions, and poor water supply and electricity, the public toilet conditions become deplorable, and lack of maintenance causes distress. This often leads to the highest percentage of open defecation cases in a city like Mumbai. Women, children, and older people suffer most.

4.3 Livelihood discrimination and Education Crisis:

Due to caste-based stigma, families of migrant workers in Chedda Nagar and PMGP colony's Basti are continuously engaged in manual scavenging. Additionally, caste-based stigma in schools causes children of sanitation workers to face discrimination from classmates and teachers.

While speaking to the 18-year-old girl, Seema, about her education and housing-related challenges, she said:

Ma'am, I don't go to school because my teacher didn't treat me well, and my classmates and other school children also make fun of me. They know that my parents work as sanitation workers, and I live in a small hut. Because of this humiliation, I stopped going to school. I did only household chores, such as washing clothes and utensils, preparing food, etc. (CNW5_12-04-2025).

Another boy, 20 years old, while discussing his schooling with him, said:

Ma'am, I used to go to school, and I used to like it a lot, but because of the expenses like school fees, uniform, and notebooks, along with poor conditions at home and daily violence and fights between my parents, I decided to leave school. Now, I collect garbage and sell it. From the money I earn, I give some to my mother and keep the rest for myself (PMGP_M5_04-04-2025).

Socio-economic poverty, lack of children's education due to insufficient resources, and poor housing conditions push the manual scavenger's family into double poverty. Even if the children enrol in school, they face intense discrimination, leading them to drop out and continue working in the same field as their parents (Katiyar, 2014).

Financial burdens, a lack of willingness and motivation, and poor housing conditions make life precarious for sanitation workers' families.

30-year-old Asha said:

Ma'am, due to a lack of financial stability and poverty, poor living conditions, humiliation at work by my supervisor, and my husband's daily alcohol consumption, I am facing difficulties. Additionally, to ease the financial burden, my husband married another woman from our community (PMGP_05-04-2025).

However, after observing and comparing the two sites, along with other issues related to education and housing, it was noted that the educational status of the children of Chedda Nagar sanitation workers is significantly better than in the PMGP colony.

It's a great example shared by Vanita's 21-year-old son, who has graduated and was selected for the Army. She proudly said, 'Ma'am, my husband and I are illiterate and are engaged in waste collection and manual scavenging.' However, we came to Mumbai with one dream: to educate our children, no matter the circumstances. She stated that education is the only weapon that can transform lives like ours (CNW5_11-04-2025).

While discussing occupational stability and safety with the municipal corporation supervisor, Sadhabhau, a 48-year-old, said:

We hadn't received proper safety equipment while working in the field, cleaning sewage, and entering maintenance holes. Additionally, it felt extremely filthy, and the smell permeated the entire body. As a result, while travelling by public transport, people keep their distance from us and give us very bad looks. The supervisor also shouts at us, speaks disrespectfully, and doesn't pay us on time. Regarding job stability, people in my area and I are in an 8-person group that works on a contract basis from March to June to clean sewage. We receive weekly payments, and we work from 8:00 a.m. to 5:00 p.m., Monday to Friday (PMGP_06-04-2025).

During the discussion with the Mukadam (Supervisor of the sanitation workers), he stated that the sanitation workers (manual scavengers) under him all belong to lower-caste (Dalit) communities and work with him on a contractual basis. While discussing facilities, they said they haven't received any travel allowance, health insurance, or bonus. Hence, due to low salaries and a lack of safety, many of the sanitation workers are addicted to alcohol and often drunk. They used to feel stress-free during work, such as when cleaning a sewage maintenance hole without any safety equipment.

Manual scavengers are often very poorly paid; sometimes, they cannot even afford their daily bread. Consequently, they take on other menial jobs, such as cleaning public toilets, working around temple areas, and helping at weddings in marriage halls. The reason they do these jobs is due to caste-based discrimination and social stigma, which prevent them from finding alternative employment (Katiyar, 2017).

5 Discussion and Way Forward:

This study reveals that sanitation workers and their families continuously face discrimination in their daily lives. Caste-based stigma makes them vulnerable to poor living conditions, housing issues, and employment challenges, which directly affect their children's education. It also pushes them into double poverty and societal discrimination, especially in cities like Mumbai, where these issues are even more pronounced.

Awareness campaigns to abolish manual scavenging can only succeed locally if the government takes significant steps to address the issue. India has laws and policies to abolish manual scavenging and impose strict punishment on those who force people to do it. However, these exist only on paper; in practice, they are not implemented. Still, manual scavenging continues among marginalised communities, people from lower castes, Dalits, and notified tribes.

In the 21st century, when we discuss scientific innovation, technology, and research and development, people from lower castes continue to be engaged in caste-based occupations,

mainly as manual scavengers. The government of India has taken various initiatives to abolish manual scavenging through policies and acts. However, these efforts have not yielded positive outcomes. Still, manual scavenging persists at the ground level, and deaths occur due to a lack of safety and concerns.

Key limitations and challenges include the abolition of Manual scavenging:

1. Social and Cultural Challenges

- **Entrenched Caste System:** Manual scavenging is closely linked to caste-based occupational hierarchies, with over 97% of workers belonging to Dalit communities, often regarded as "untouchables".
- **Social Stigma and Exclusion:** Stigma prevents workers from leaving the profession, as they are often ostracised and denied access to other, more dignified jobs, perpetuating a cycle of poverty and social marginalisation.
- **Forced Continuity:** Due to a lack of economic alternatives and social pressure, families are forced to continue the practice across generations.

2. Legal and Administrative Loopholes

- **Definitional Ambiguities & Evasion:** The 2013 Act defines "manual scavenger" restrictively, allowing states to mislabel workers as "hazardous cleaning workers" or contract cleaners to avoid legal accountability.
- **Denial by Authorities:** Municipalities and government agencies frequently deny the existence of manual scavenging in their jurisdictions, leading to severe undercounting.
- **Poor Enforcement:** Negligible conviction rates under the Act exist, and compensation promised to the families of deceased workers is often delayed or never paid.
- **Non-Recognition of Hazardous Work:** While cleaning septic tanks or sewers is hazardous, it is sometimes classified differently from traditional manual scavenging, restricting access to specific rehabilitation benefits for workers.

3. Infrastructural and Technical Hurdles

- **Persistence of Dry Latrines:** Millions of households and public spaces still have insanitary dry latrines that require human cleaning.
- **Unplanned Sewer Designs:** Many sewer systems are designed in a way that machinery cannot be used for cleaning, forcing reliance on human labour.
- **Low Mechanisation:** While technology like the 'Bandicoot' robot exists, it is not widely available, or municipalities fail to invest in it.

4. Economic and Rehabilitation Challenges

- **Failure of Rehabilitation Schemes:** Failure of Rehabilitation Schemes: Rehabilitation programs (like SRMS/NAMASTE), **Self-Employment Scheme for**

Rehabilitation of Manual Scavengers/National Action for Mechanised Sanitation Ecosystem suffer from poor execution, including inadequate funding and training for alternative, sustainable livelihoods.

- **Lack of Awareness:** Due to low literacy, many workers are unaware of their rights or the rehabilitation schemes designed for them.
- **Debt Traps:** Many workers are trapped in cycles of debt to employers or local moneylenders, forcing them back into dangerous work to repay loans.

5. Specific Sector Challenges

- **Governmental Involvement:** The Indian Railways continues to be a major employer of manual labourers, despite being a state institution, showcasing a gap in top-down enforcement.
- **Privatisation/Contractualization:** Outsourcing sanitation to private contractors allows authorities to circumvent legal responsibilities regarding safety gear and employee safety.

In essence, the persistence of manual scavenging is not merely a technical sanitation issue but a human rights crisis that demands urgent social reform, better implementation of laws, and complete rehabilitation of the workers. Existing literature and fieldwork case studies show that manual scavengers' housing in Mumbai is precarious. Also, the caste-based discrimination and stigma due to caste-based identity have continued in Mumbai's housing. Furthermore, caste-based work and exploitation of the marginalised communities have continued in Mumbai's slum housing (Waghmore and Contractor, 2015).

Therefore, to transform the lives of sanitation workers, special provisions should support their children's education and help them build a better future. Additionally, government-provided housing for sanitation workers and their families is essential, as it will positively impact their children's lives. The housing environment matters greatly to the overall well-being of every human being, and the same applies to slum dwellers. However, current housing policy implementation in Mumbai, such as the Slum Rehabilitation Policy, is implemented top-down, with bureaucrats, developers, and politicians involved. Still, slum dwellers are largely absent from the process. Therefore, involving slum dwellers is equally important; for that reason, a bottom-up participatory approach is essential to make housing in Mumbai community-oriented, affordable, and sustainable (Bardhan et al., 2015). The bottom-up approach and community participation are essential for successful and sustainable slum rehabilitation (Cronin, 2013; Narayanan et al., 2015). The participatory model and involvement of communities, CBOs (Community-based Organisations), NGOs (Non-Governmental Organisations), and Gender neutral/Gender Sensitive participation will be helpful to the successful implementation of the slum rehabilitation policy model (Sharma 2003; Das & Takhashi 2009; Jagdale 2014; Kamath & Joseph 2015; Purwanto et al. 2017; Williams et al. 2018).

Furthermore, as Sreya and Panneer (2020) discuss, Sustainable Development Goal 8 (SDG 8) aims to promote decent work and economic growth, which manual scavenging directly undermines—the forced manual cleaning of human waste, primarily in India. Eradicating this practice is essential to ensure safe, secure work environments (Target 8.8) and to protect human dignity.

SDG 11, Sustainable cities and communities, aims to make cities inclusive, safe, resilient, and sustainable by 2030, specifically targeting access to safe, affordable housing and basic services for all, including marginalised groups. For manual scavengers, this entails eliminating hazardous working conditions and providing safe, dignified, and permanent housing solutions, aligning with Target 11.1.

SDG 11 and Safe Housing for Manual Scavengers

- **Target 11.1 - Safe Housing:** Ensures access for all to adequate, safe, and affordable housing and basic services, particularly focusing on upgrading slums where marginalised communities often reside.
- **Elimination of Hazardous Work:** Proper housing and sanitation infrastructure under SDG 11 removes the need for manual scavenging by providing proper sewage systems.
- **Marginalised Inclusion:** The goal aims to reduce the adverse per capita environmental impact of cities, focusing on vulnerable populations, providing safe, secure, and adequate basic services.
- **Target 11.b - Policies for Inclusion:** Promotes the adoption of policies towards inclusion and resilience, which are necessary for rehabilitating those in informal, hazardous labour.

6 Conclusion:

Selvaraj (2024), through the LSE blog, critically argued about the abolition of manual scavenging in India. In a country that has achieved technological milestones such as launching rockets into space and inventing machines to automate complex tasks, the lack of technological solutions to eliminate manual scavenging is ironic. Surely, a country capable of exploring distant planets can devise a solution to end this inhuman practice. The eradication of manual scavenging in India is not merely a task of implementing laws or introducing new technologies; it's deeply intertwined with addressing the systemic caste and class divisions that perpetuate this practice. It requires strategic investments in impoverished urban and rural areas where this practice is most prevalent. The government and civil society organisations have been working on several fronts to combat this issue. Ongoing social campaigns in India, such as the Safai Karmachari Andolan, advocate for the rights and rehabilitation of manual scavengers. The government has enacted legislation, such as the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013. It has launched projects and innovative solutions, such as mechanised sewer-cleaning systems, to phase out manual scavenging. However, the challenge lies in implementing these measures effectively and ensuring they reach the grassroots level. Manual scavenging affects marginalised communities in both urban and rural India. Therefore, the strategy to eliminate manual scavenging must be comprehensive, involving legal action, economic empowerment, technological innovations, and, most importantly, societal change to break down caste-based discrimination. As India moves toward becoming a modern nation, eradicating manual scavenging is essential and reflects the values of social justice and equality. The real measure of a nation's progress is how it treats its most vulnerable citizens. India must meet this challenge and guarantee dignity and respect for all its people. India's path to modernity and growth will be judged by its success in ending this inhumane practice and uplifting its most marginalised communities.

Key actions needed for the total eradication of manual scavenging include a multifaceted and humanitarian-based approach:

1. Technological & Infrastructure Upgrades

- **Complete Mechanisation:** Shift to automated sewer cleaning machines, suction pumps, and robotics (e.g., Bandicoot robots) for cleaning sewers and septic tanks, removing the need for human intervention.
- **Upgrading Sanitation Infrastructure:** Convert all remaining dry latrines into sanitary latrines. Redesign sewage systems to support mechanical cleaning, as current designs often require manual intervention.
- **Providing Safety Equipment:** In cases where human cleaning is absolutely unavoidable, strict, non-negotiable enforcement of scientifically validated protective gear that eliminates exposure to hazards must be provided.

2. Legal Enforcement and Accountability

- **Stricter Penalties:** Impose stricter punitive measures, including criminal liability for officials, contractors, and local authorities who employ manual scavengers.
- **Strengthening Local Accountability:** Make municipal bodies and municipalities directly liable for any engagement of manual scavenging within their jurisdiction.
- **Accurate Data Collection:** Conduct independent, comprehensive, and timely surveys to identify manual scavengers, as current data often undercounts them due to social stigma.
- **Independent Oversight:** Establish stronger, independent monitoring committees at the district and state levels to oversee the enforcement of the 2013 Act.

3. Rehabilitation and Economic Empowerment

- **Meaningful Rehabilitation:** Ensure comprehensive rehabilitation, including financial aid, dignified alternative employment, and skill development training, rather than just one-time compensation.
- **Empowerment of Women:** Since many manual scavengers are women, rehabilitation programs must focus on gender-sensitive, sustainable income options.
- **Education and Housing:** Provide education and scholarships for children of sanitation workers to break the cycle of occupational inheritance.

4. Societal and Structural Change

- **Awareness Campaigns:** Run mass media campaigns to sensitise the public about the human rights abuses, health risks, and illegal nature of manual scavenging.

- **Dismantling Caste-Based Discrimination:** Address the root cause of caste discrimination by promoting social mobility and creating jobs that allow marginalised communities to exit this occupation.

5. Specific Sector Actions

- **Railways Reform:** As the largest employer, the Indian Railways must immediately eliminate the manual cleaning of tracks and toilets in trains.
- **Direct Funds Transfer:** The Ministry of Social Justice and Empowerment should directly transfer funds to sanitation workers to purchase cleaning machines, ensuring they own the equipment rather than contractors.

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