

Statistically Invisible and Systemically Exploited: Caste, Migrant Labour, and Manual Scavenging Deaths in Kerala, India

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Abstract: This paper critically examines the persistence of hazardous sanitation work in Kerala, India, a state often lauded for its progressive social development and high human development indices. The national government maintains a narrative that "manual scavenging" has been eradicated, a position that allows states like Kerala to project an image of being free from this practice. This study reveals a stark discrepancy between this official narrative of denial and the reality on the ground. Through a qualitative analysis of government documents, media reports, and case studies from 2014 to 2024, this paper argues that the state's progressive image masks a grim reality of ongoing deaths and systemic exploitation. The research documents 17 fatalities across eight separate incidents during this period. It identifies key patterns of systemic failure, including the misclassification of deaths through legal loopholes, the exploitation of migrant labour, the lack of contractor accountability, and the symbolic use of technology. The paper concludes that the invisibility of these deaths is not a mere statistical error but a political failure rooted in caste erasure and the systemic devaluation of marginalized lives.

Keywords: manual scavengers; caste-based occupation; migrant labour; exploitation; invisible people

Introduction

The persistence of manual scavenging in India presents a deeply unsettling paradox that destabilizes the narrative of modern development. Despite decades of legislative prohibition and judicial condemnation, the practice endures not merely as an occupational hazard but as a deeply entrenched form of structural violence and modern slavery (Shankar & Swaroop, 2021). Scholarly inquiry has consistently demonstrated that its continuation is not a simple failure of implementation but a complex crisis rooted in the enduring power of the caste system. To frame it as a mere "occupation" is to fundamentally misdiagnose the issue; it is a violent imposition of hereditary labour, inextricably linked to Brahmanical ideologies of purity and pollution that construct a rigid social hierarchy. In this hierarchy, specific Dalit sub-castes, such as the Valmiki, Arunthathiyar, Madiga, and Mehtar communities, are deemed inherently "impure" and are therefore compelled to handle the polluting excreta of "purer," higher-caste groups, thereby reinforcing the social order.

This is not just hazardous labour but a deeply stigmatized and hereditary role. This reality is substantiated by data showing the work is performed almost exclusively by Dalits, with one Human Rights Watch report from 2014 noting that 95% of those cleaning private and village toilets are women from these communities (Bhattacharjee, 2014). This gives form to B.R. Ambedkar's seminal critique that the caste system is not a "division of labour" but a "division of labourers"—a system that preordains and traps individuals in occupations based on birth.

The harm inflicted by manual scavenging transcends the immense physical and health risks; it constitutes a form of social death. The stigma associated with the work is not contingent upon the act itself but is a permanent, hereditary stain tied to birth. As Ambedkar (1936) poignantly noted, "In India, a man is not a scavenger because of his work. He is a scavenger because of his birth irrespective of the question whether he does scavenging or not." This distinction is critical for understanding the resilience of the practice; it survives because the individuals performing it are socially designated for it, regardless of the technological or legal interventions attempted by the state.

The contemporary crisis of manual scavenging is not an ancient relic that has stubbornly survived into the modern era. Rather, it is a system that was formalized, scaled, and institutionalized during the British colonial period. The introduction of new urban infrastructure by the British, including underground sewerage systems, dry latrines for administrative and residential enclaves, and an expansive network of railway lines created an unprecedented demand for sanitation labour. Rather than creating a new, caste-neutral workforce, colonial officials and the nascent municipal authorities found it economically expedient and administratively efficient to draw upon the existing edifice of caste hierarchy to recruit a captive labour force. They systematically brought Dalit workers, many of whom were agricultural labourers in the countryside, into the rapidly growing cities specifically for these tasks (Prashad, 2000). This process transformed what was a localized, ritualized caste duty into a waged, bureaucratized, and state-sanctioned municipal "occupation," cementing caste oppression into the formal structures of urban governance. The modern municipality, therefore, was built on the back of the "institutionalized scavenger," a legacy that persists in the contracting systems of the twenty-first century.

In this context, we seek to locate how this particular practice continues in the 21st century within a state that claims to have transcended such feudal vestiges. Even after independence, the age-old practice that was continued by the British colonial administration in modern infrastructure development still persists. Even with significant technological development, no respite has been brought to the lives of the people engaged in scavenging work. The specific focus on Kerala is deliberate; the state represents the "best-case scenario" in the Indian developmental imagination. If manual scavenging persists here, amidst high literacy, strong unions, and a "left-democratic" political culture, it suggests that the practice is more resilient than the standard developmental interventions of education and economic growth can address.

We challenge the official narrative by investigating the mechanism of its construction. This paper specifically investigates the fatal intersections among caste-based occupational roles, the precarity of migrant labour, and systemic state negligence in Kerala. The paper's central thesis is that the state exploits the legal distinction between "manual scavenging" and "hazardous cleaning" to politically and statistically erase the deaths of sanitation workers. This act of narrative control allows the state to protect its "model" image, minimize its legal and financial responsibilities under the PEMSAR Act, and ultimately perpetuate a cycle of exploitation and death for its most vulnerable workers. The statistical invisibility of these fatalities is not a mere data discrepancy; it is a calculated political act of caste and migrant erasure.

Method

While the study was initially conceived as a primary ethnographic field study aimed at collecting firsthand accounts from sanitation workers and their families, the research design was fundamentally adapted in response to ethical considerations encountered during the

preliminary phase. Fieldwork revealed a pervasive sense of 'data fatigue' among the sanitation worker community, who expressed exhaustion with extractive research practices that yielded no tangible policy outcomes. Potential respondents were often recalcitrant, expressing exhaustion from being the subject of numerous official surveys, journalistic inquiries, and academic dissertations, none of which had led to tangible improvements in their living or working conditions. This widespread sentiment—that they were 'studied enough already' with no resultant action—made it ethically and practically difficult to proceed with primary data collection. Consequently, to respect the community's refusal and prevent further retraumatization, the methodology was reoriented towards a comprehensive forensic analysis of secondary data. This shift leverages the 'public record'—specifically government documents, police reports, and media archives—to construct a dataset that holds the state accountable using its own generated (or omitted) evidence, thereby shifting the burden of proof from the victim to the system.

This study employs a qualitative research methodology to investigate the discrepancy between official data and the reality of manual scavenging deaths in Kerala. The research focuses on the period between 2014 and 2024, a decade following the enactment of the Prohibition of Employment as Manual Scavengers and their Rehabilitation (PEMSR) Act, 2013. This timeframe allows for a critical assessment of the Act's implementation and its impact on the lives of sanitation workers. The 2013 Act was a watershed moment, theoretically expanding the definition of manual scavenging to include the cleaning of septic tanks and sewers, yet the efficacy of this expansion remains the subject of this inquiry. Data for this study was collected and analysed from three primary domains: official government documents, extensive media reports, and scholarly research.

The official state narrative was primarily reconstructed through an analysis of a range of government documents. These included state submissions to central bodies, answers provided in the Lok Sabha and Rajya Sabha regarding manual scavenging fatalities, and annual reports from the National Commission for Safai Karamcharis (NCSK). These documents consistently report "zero" manual scavenging deaths in Kerala for the study period, forming the basis of the official claim this paper investigates. They were crucial for establishing the statistical baseline against which ground-level data was compared. This "official archive" functions as a site of active erasure, where the specific categories of the state are deployed to filter out the reality of caste-based death.

The core empirical evidence of this study was compiled through a systematic and exhaustive review of news reports published between 2014 and 2024. A wide range of digital and print media archives were scanned, including national English-language newspapers (*The Hindu*, *The New Indian Express*, *The Times of India*, *Deccan Chronicle*) and prominent Malayalam-language publications (*Mathrubhumi*, *Madhyamam*, *Onmanorama*, *Deshabhimani*). This multi-source approach allowed for the triangulation and verification of each fatal incident. The analysis revealed distinct patterns in media coverage. High-profile incidents, such as the 2015 Kozhikode tragedy where a local citizen died attempting a rescue, and the 2024 Thiruvananthapuram canal death, which involved a prolonged and visible search operation, received extensive coverage across nearly all major outlets. Incidents involving solely migrant workers or those occurring at private residences often received less prominent, though still consistent, reporting. Throughout the decade, digital-native platforms, particularly *The News Minute*, demonstrated the most active and sustained engagement with the issue. Their reporting frequently went beyond event-based coverage to explicitly connect individual deaths to the systemic failures of the PEMSAR Act, the persistence of caste-based labour, and governmental

accountability (Fathima, 2022). *The Hindu* also provided consistent and reliable reporting on these incidents (Raveendran, 2024). This sustained journalistic work was invaluable in building the case studies that form the foundation of this paper's results.

Based on the verified media reports, detailed case studies for eight separate fatal incidents were constructed. Each case study documents the date, location, number of victims, their identities (local/migrant), the nature of the work, and the immediate aftermath as reported. The methodology has certain limitations. The reliance on media reports means that the data is subject to the biases and limitations of journalistic coverage. To mitigate this, a comparative verification process was undertaken for each documented fatality. Incidents were cross-referenced across multiple reputable media outlets, including national English-language papers and local Malayalam publications. While minor details occasionally varied, the core facts of each incident—the date, location, names of victims, and the nature of the work being performed—were consistently reported, providing a high degree of confidence in the validity of the documented cases. This consistency across sources helps to build a reliable evidentiary base, even in the absence of accessible official post-mortem reports or FIRs, which are often difficult for independent researchers to obtain. The paper explicitly acknowledges where information gaps exist due to these constraints.

The 'Kerala Model' paradox

The state of Kerala has long been projected as a "model" of development in India, celebrated for its high literacy rates, robust public health system, and progressive social indicators. This "Kerala Model" is predicated on the idea that public action and state intervention can deliver a high quality of life even at low levels of per capita income. However, in the context of manual scavenging, the state has been a key part of a national narrative of denial. The Union Government has repeatedly stated in Parliament that "No reports of manual scavenging have been received from any State," a position that allows states like Kerala to maintain a progressive image (MoSJE, 2022). This narrative is often bolstered by reports of technological interventions, such as the deployment of the "Bandicoot" robot, positioning Kerala as an exception to the national crisis through technological solutionism.

However, this official narrative of a "manual scavenging-free" state conceals a stark and lethal contradiction, one that is visible within the government's own records. While the executive branch publicly denies the existence of the practice, official data from the National Commission for Safai Karamcharis (NCSK) and the Ministry of Social Justice and Empowerment reveals a different reality. These records show that the number of officially acknowledged "sewer deaths" in Kerala jumped from 3 to 13 in the 2019-20 fiscal year (GOI, 2022). Furthermore, a 2022 press release from the Press Information Bureau (PIB), while leading with the standard denial that "No death has been reported due to engaging in Manual Scavenging," includes a table detailing compensation paid for deaths during "hazardous cleaning of sewer and septic tanks" (MoSJE, 2022). This table explicitly shows that the state of Kerala has acknowledged and paid compensation for 13 such deaths since 1993. This bureaucratic dissonance—where the state denies "manual scavenging" but compensates "hazardous cleaning deaths"—is the crux of the paradox. It reveals that the state is aware of the fatalities but refuses to categorize them under the label that carries the most political and legal weight.

The central paradox is not simply that the state denies deaths that are publicly reported; it is that the state uses a strategic and cynical semantic loophole embedded in national law to maintain this denial. The Prohibition of Employment as Manual Scavengers and their

Rehabilitation (PEMSR) Act, 2013, creates a legal distinction between a "manual scavenger" (narrowly defined as someone cleaning an insanitary latrine) and a person engaged in the "hazardous cleaning" of a sewer or septic tank. This paper argues that the narrative of a "manual scavenging-free" Kerala is a political and statistical artifact of this definitional loophole. By adhering to the 1993 definition of scavenging (related to dry latrines, which Kerala has largely eliminated), the state can claim compliance while ignoring the 2013 reality of sewer and septic tank deaths.

The absence of these deaths from official records is not merely a failure of surveillance but a product of what Kahle and Kumbhare (2023) term the "legal opportunity structure." Their analysis suggests that access to judicial remedy is heavily contingent on "caste normativity" and the strategic capacity of local activist networks to navigate the court system. In the context of Kerala's migrant workforce, this opportunity structure is effectively closed. The decision to litigate is "shaped by practical concerns" and the availability of resources, which the transient, unorganized migrant worker fundamentally lacks. Consequently, the legal system acts as a filter: it records only those violations that pass through the narrow aperture of local activism, while the majority of deaths—particularly those of the "statistically invisible" migrant—remain outside the purview of the court. As Kahle and Kumbhare note, "caste normativity both pushes Dalit actors towards litigation, and shapes how Dalit actors can engage with the judiciary"; for those outside this normative framework, the judiciary remains an inaccessible fortress, and their deaths remain administrative accidents rather than actionable crimes. The very architecture of the legal system, which requires the filing of FIRs, the pursuit of compensation claims, and the navigation of the specific "scavenging" versus "cleaning" dichotomy, is designed to filter out those without significant social capital.

Documented fatalities and official denial

Between 2014 and 2024, seventeen distinct fatalities were documented across eight separate incidents, contrasting sharply with the state's official record of zero. These fatalities were not randomly distributed but clustered within specific infrastructural and domestic domains. While this study has identified 17 fatalities since 2014, the official number of acknowledged "sewer deaths" in Kerala (since 1993) stood at only 3 for years (Kumar, 2019). This number suddenly jumped to 13 in the 2019-20 fiscal year, as reported by the National Commission for Safai Karamcharis. This sudden update suggests a reactive, rather than proactive, process of acknowledgment, likely prompted by legal or political pressure. Crucially, this official tally of 13 has not been updated since March 2022. This means that the seven additional fatalities identified by this study's media analysis—all of which occurred between June 2022 and September 2024—remain completely off the official record (The Telegraph, 2025).

A chronological analysis of the documented incidents reveals a persistent pattern of mortality that defies the official narrative. The grim inventory begins in April 2014 in Kochi, where two migrant workers from Tamil Nadu died from asphyxiation in a Kerala Water Authority (KWA) sewer. This was followed by the high-profile Kozhikode incident in November 2015, claiming three lives, including two migrants from Andhra Pradesh and one local rescuer. The year 2016 saw a spike with three local deaths in a Kannur home septic tank in January and two more in a Kottayam restaurant manhole in June. The pattern continued into the next decade: June 2022 saw the deaths of two West Bengal migrants in a Thrissur septic tank; May 2024 witnessed two local workers dying in a Kozhikode restaurant waste tank. The sequence culminated in July 2024 with the death of one local worker in the Thiruvananthapuram canal, followed by two more local deaths in a Thrissur bakery sullage tank in September 2024. This cumulative toll of

seventeen lives stands as a stark testament to the gap between the official count of "zero" manual scavenging deaths and the lethal reality on the ground.

Table 1 - Summary of Documented Sanitation Worker Fatalities in Kerala (2014-2024)

<i>Date</i>	<i>Location</i>	<i>No. of Victims</i>	<i>Victim Identity</i>	<i>Circumstances</i>
<i>Apr 13, 2014</i>	Kochi	2	Migrant (Tamil Nadu)	Asphyxiation in KWA sewer
<i>Nov 26, 2015</i>	Kozhikode	3	2 Migrant (Andhra), 1 Local	Asphyxiation in manhole
<i>Jan 19, 2016</i>	Kannur	3	Local	Asphyxiation in home septic tank
<i>Jun 6, 2016</i>	Kottayam	2	Local	Asphyxiation in restaurant manhole
<i>Jun 27, 2022</i>	Thrissur	2	Migrant (West Bengal)	Fell into septic tank
<i>May 31, 2024</i>	Kozhikode	2	Local	Asphyxiation in restaurant waste tank
<i>Jul 13, 2024</i>	Thiruvananthapuram	1	Local	Drowned in garbage-filled canal
<i>Sep 25, 2024</i>	Thrissur	2	Local	Asphyxiation in bakery sullage tank

The human cost of this statistical erasure is most vividly illustrated by the tragedy of July 2024, which unfolded in the heart of the state capital, Thiruvananthapuram. On the morning of July 13, 2024, N. Joy, a 47-year-old sanitation worker from Marayamuttom, entered the Amayizhanjan canal, a critical waterway running beneath the Thampanoor Central Railway Station. Joy was a contract labourer, hired by a private agency contracted by the Railways to perform the "monsoon cleaning" of the canal, a task that involved manually removing plastic waste and silt from the water. The canal, described in reports as the city's primary flood water drainage system, had been severely neglected, turning into a repository for the city's garbage and sewage. While Joy and three other workers were inside the canal, a sudden surge of water, triggered by heavy rainfall, swept through the tunnel. While his colleagues managed to scramble to safety, Joy was dragged into the darkness of the 117-metre-long tunnel that runs directly beneath the railway platforms (Raveendran, 2024).

What followed was a harrowing 46-hour search operation that exposed the utter inadequacy of the state's sanitation infrastructure and emergency response mechanisms. The tunnel was choked with such a high density of solid waste—a mixture of plastic, silt, and "hardened sludge"—that it formed an impenetrable barrier. The state deployed its much-lauded technological solution, a robotic camera, to locate him, but the machine failed; it could not navigate the sheer density of the filth. The operation required the intervention of scuba divers from the Kerala Fire and Rescue Services, and eventually, a specialized team from the Indian Navy, who were forced to dive into the toxic, waste-laden waters in zero-visibility conditions.

Joy's body was finally discovered 46 hours later, on July 15, decomposed and entangled in garbage near Thakaraparambu, nearly a kilometre downstream from where he vanished. This incident did not occur in a remote, ungoverned periphery but in the administrative centre of the "Kerala Model," directly beneath a symbol of modern connectivity (the railway). It highlighted the breakdown of responsibility between the Indian Railways, which owned the land, and the Thiruvananthapuram Corporation, which managed the city's waste, with both entities engaging in a public blame game while the worker's body remained lost in the filth.

This tragedy was not an isolated anomaly but the latest entry in a decade-long chronicle of preventable deaths. A reconstruction of the timeline from 2014 to 2024 reveals a persistent rhythm of fatality that defies the state's claims of eradication. The sequence began on April 13, 2014, in Kochi, where two migrant workers from Tamil Nadu died from asphyxiation inside a Kerala Water Authority (KWA) sewer (Sabrangindia, 2021). This incident established early on that state-managed infrastructure was a primary site of danger, contradicting the notion that such deaths are purely private accidents. This was followed by a high-profile tragedy in Kozhikode on November 26, 2015, where three men died in a manhole. Notably, one of the victims was P. Noushad, a local auto-rickshaw driver who witnessed the two migrant workers from Andhra Pradesh collapse and died attempting to save them (The Hindu, 2019). Noushad was hailed as a hero, and his death sparked a temporary media frenzy, but the systemic reliance on migrant labour that caused the initial accident remained unaddressed.

The violence then shifted to the private sphere in 2016, a year that saw a spike in reported incidents. Three local people died in a home septic tank in Kannur on January 19, and two more perished in a restaurant manhole in Kottayam on June 6 of the same year. These deaths underscored the lethality of the "last mile" of sanitation—the private septic tank—where regulation is non-existent. The pattern of mortality continued into the next decade, often involving migrant labour, reflecting the changing demographics of the workforce. On June 27, 2022, two brothers from West Bengal suffocated to death after falling into a septic tank in Thrissur while attempting to retrieve money that had fallen into it. The year 2024 proved particularly deadly, witnessing a resurgence of fatalities in commercial and public spaces. On May 31, 2024, two local workers died cleaning a restaurant waste tank in Kozhikode. This was followed by the drowning of N. Joy in the Thiruvananthapuram canal in July, and most recently, on September 25, 2024, two more local workers died in a bakery sullage tank in Thrissur.

Systemic patterns of exploitation

The spatial distribution of these seventeen fatalities reveals that hazardous sanitation labour is not confined to the periphery but is embedded within the state's core infrastructural and domestic spheres. This analysis identifies three distinct structural domains of mortality, each implicating a different layer of governance failure. The most politically significant cluster involves Public Infrastructure Projects, which accounted for six fatalities across three separate incidents. These deaths, occurring in canals and sewers managed by state bodies such as the Kerala Water Authority and Indian Railways, constitute a direct indictment of the state machinery. Unlike private sector violations, these incidents—such as the 2014 Kochi sewer deaths and the 2024 Amayizhanjan canal tragedy—occurred under the supervision of the very entities mandated to enforce the PEMSR Act. Here, the state is not merely a passive regulator but the active employer of last resort for hazardous manual labour, engaging in the very practices it claims to have eradicated. The contracting system allows these state bodies to maintain "plausible deniability" by outsourcing the risk to third-party agencies, but the site of death remains public property.

Parallel to this is the Commercial Establishment cluster, which also recorded six fatalities. Occurring in high-visibility locations such as restaurants and bakeries, these deaths expose a vacuum of regulatory enforcement where private enterprises operate with impunity. However, the deadliest domain per incident remains the Private Residential sector, accounting for five deaths across just two incidents. This cluster represents the "informal, unregulated cleaning sector," where the home becomes a site of invisible violence. In these spaces, the absence of witness testimony and the decentralized nature of employment allow the state to classify such deaths as "private accidents" rather than occupational fatalities, effectively erasing them from the public record. Thus, the violence of manual scavenging permeates every layer of the "Kerala Model," from the public sewer to the private septic tank.

The reliance on migrant labour for sanitation work in Kerala mirrors the historical trajectory of "ascribed untouchability" identified by Ghoshal et al. (2022). Their study of Dalit communities in Bangladesh reveals how landless labourers were "imported" by colonial administrators with promises of secure livelihoods, only to face a "historic betrayal" that trapped them as a "scavenging community" for generations. Similarly, the modern migration corridor to Kerala functions as a mechanism of caste assignment. For these workers, migration does not offer social mobility but rather a re-inscription of stigma; they are "imported" specifically to perform the "dirty work" that the local "developing wonder" rejects. This dynamic ensures that the violence of manual scavenging is displaced onto a population that is socially and politically exterior to the state's progressive narrative. As Ghoshal et al. observe, such communities remain the "discontents" of the nation's rise, their subjugation a necessary condition for the host state's projection of modernity and hygiene. In Kerala, this is manifested in the replacement of the local Dalit worker (who has union protection and political voice) with the "invisible" migrant from West Bengal or Tamil Nadu, who has neither. The migrant body becomes a disposable input, easily replaced and easily forgotten when consumed by the sewer.

Furthermore, the state's ability to disown these fatalities is rooted in what Koonan (2021) identifies as "incomplete municipalization." By failing to extend institutional control over the entirety of the sanitation chain—specifically the cleaning of private septic tanks—the state creates a zone of "institutional absence" where sanitation work is relegated to "unregulated arrangements." In this void, the labour contract is private, informal, and invisible to the state's labour bureaucracy. Consequently, when a death occurs, it is categorized not as a failure of public utility management but as a private accident, absolving the state of direct liability. This structural apathy, or "all-pervasive state apathy" (Koonan, 2021), allows the government to maintain a clean record while the bodies of workers pile up in the private crevices of the city, rendering the systemic exploitation administratively invisible. As Koonan argues, the legal response is often reactive, driven by "resistance and protest" rather than proactive governance, because the system is designed to keep the state at arm's length from the filth it generates.

The recurring tragedy of "rescuer deaths" further amplifies this systemic failure. A tragic and repetitive pattern is the "rescuer death," where one worker collapses from asphyxiation, and one or even two others die attempting a rescue without any safety equipment. This pattern was observed in seven of the eight fatal incidents analysed, accounting for the majority of the victims. This recurrence is the most damning evidence of a complete and systemic failure to implement basic, legally mandated safety protocols and to create awareness among workers and employers about the lethal dangers of toxic gases in confined spaces. The contractor nexus is central to this perpetuation; contractors, including those working for state agencies like the KWA and the Railways, often hire vulnerable labourers, particularly migrants, for hazardous

cleaning work without providing safety equipment or training. In the event of a fatality, they often evade liability, leaving the victims' families without compensation or support.

Technological symbolism and state negligence

Ultimately, the persistence of these fatalities challenges the state's narrative of "technological salvation." The government's deployment of the "Bandicoot" robotic scavenger system serves as a potent example of technological symbolism (News Click, 2018). While the state projects an image of modernization—positioning itself as an exception to the national crisis through the adoption of automation—the empirical reality on the ground remains unchanged. The widespread celebration of robotic intervention obscures the continued reliance on manual labour for the most hazardous tasks, such as the desilting of the Amayizhanjan canal where the worker "Joy" drowned in 2024. This "technological solutionism" acts as a sophisticated mask for state negligence. By celebrating the existence of the robot, the state diverts attention from the structural caste dynamics that force men into sewers. The robot is deployed for the "clean" narrative of the Kerala Model, while the migrant worker is deployed for the "dirty" reality of the sewer. Consequently, policy interventions that focus solely on equipment procurement without addressing the caste-based political economy of labour are destined to remain cosmetic. Real reform requires not just the mechanization of cleaning, but the decommodification of the caste-labourer. As long as the migrant body is cheaper than the machine, the machine will remain a prop.

The state's reliance on robotic interventions functions less as a functional solution and more as a semiotic shield, a phenomenon Muruganandan and Venkatesan (2023) describe as the architecture of "neo-casteism." Much like the protective suit in Samarth's graphic narrative, which "depicts neo-casteist ideologies undergirding urban social systems," the robotic scavenger serves to sanitize the public imaginary. It renders the persistence of manual labour visually and statistically impossible by foregrounding a futuristic aesthetic of safety. By boldly depicting the "inhumane treatment" hidden beneath such modern guises, the theoretical framework suggests that technology often acts as a veil; it erases the biological worker from the visual field, allowing the continued exploitation of human labour to occur in the shadow of the machine (Muruganandan & Venkatesan, 2023). The technology does not replace the caste body; it merely provides the state with the plausibility to deny its presence, transforming the scavenger from a visible stigma into an invisible, yet systemically exploited, salaried employee of the underground.

The promotion of the Bandicoot robot appears to be a strategic move to project an image of modernization and progress, which conveniently distracts from the state's failure to enforce basic safety protocols and address the root causes of manual scavenging. While the technology itself is innovative, its limited and selective deployment fails to address the scale of the problem (PTI, 2017). The state has garnered significant positive media attention for being the "first to use robotic scavengers," yet these robots are not in widespread use across all municipalities. The fact that fatalities continue to occur even after the introduction of this technology underscores its inadequacy as a standalone solution. The failure of the robotic camera in the Amayizhanjan canal tragedy—where it was rendered useless by the density of the waste—serves as a literal and metaphorical demonstration of the limits of this approach. The machine cannot solve a problem created by decades of infrastructural neglect and civic apathy. The current approach in Kerala, characterized by limited deployment, positions the technology as a symbolic fix rather than a systemic one. For technology to be a genuine solution, it must be part

of a broader, state-led strategy that includes scaled and equitable deployment across all municipalities and panchayats, not just in select urban centres.

Conclusion

The death of the sanitation worker "Joy" in the heart of Thiruvananthapuram serves as a grim epitaph for the narrative of the "Kerala Model." This research has demonstrated that such fatalities are not isolated accidents or anomalies in an otherwise progressive state, but are the inevitable statistical outcomes of a system designed to obscure caste-based exploitation. The "paradox" of Kerala—high social indices alongside persistent feudal labour practices—is sustained by a deliberate invisibility. By misclassifying manual scavenging deaths as "hazardous cleaning" accidents or relegating them to the private sphere, the state maintains a façade of zero-tolerance while permitting the practice to flourish in the shadows of its development accomplishments. The "Joy" incident, occurring in the capital's central canal system, physically and symbolically exposes the limits of this denial. It lays bare the reality that the "Model" rests on a foundation of "hardened sludge" and the disposable lives of those sent to clear it.

This investigation has identified that this invisibility is engineered through three specific systemic mechanisms: the legalistic erasure of deaths via the PEMSAR Act loopholes, the increasing reliance on a disposable and disenfranchised migrant workforce, and the performative deployment of technology like the Bandicoot robot. The intersection of these factors creates a zone of impunity where the state (Public Infrastructure), the market (Commercial), and the household (Residential) can consume the labour of the most marginalized bodies without consequence. The documented seventeen deaths are not merely failures of safety equipment; they are failures of a political imagination that continues to view the Dalit and the migrant body as expendable infrastructure. The state's reliance on "technological solutionism" has proven insufficient, serving as a PR tool rather than a genuine safeguard for human life.

Ultimately, addressing this crisis requires a radical departure from the current policy of denial. The persistence of manual scavenging in a state with robust legal protections exemplifies the dissonance between "constitutional ethos" and "lived reality" described by Malik and Gupta (2022). They argue that legal frameworks often focus on physical infrastructure—such as the demolition of dry latrines—as a proxy for eradication, a strategy that "overlooks the coercive nature of the caste system" (Malik & Gupta, 2022). In Kerala, where the dry latrine is largely extinct, the exploitation has merely migrated to the septic tank and the sewer. The state must move beyond the cosmetic deployment of robotics and the semantic gymnastics of the "official record" to acknowledge the caste-based nature of this labour. True rehabilitation demands more than compensation for the dead; it requires the rigorous enforcement of contractor accountability, the closure of legal loopholes that distinguish "cleaning" from "scavenging," and the recognition of migrant sanitation workers as rights-bearing subjects rather than invisible inputs. Specifically, the state must implement a mandatory Contractor Accountability Mandate, forcing all private and public agencies to register workers and prove safety compliance before contracts are awarded. Furthermore, an independent audit of all "accidental" sewer deaths since 2013 is required to correct the historical record. Until the state counts these dead with the same rigor it applies to its literacy rates, the "Kerala Model" will remain a narrative built on a foundation of silence.

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