NOT MY PROBLEM?

Understanding Waste Behaviour in Urban Communities

GHAZIABAD WASTE STUDY

Sadat Nagar Ikla

OCT 2025 - MAR 2026

Internal working document

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WHY THIS RESEARCH MATTERS

In most Indian cities, waste is seen as “not my problem”. This research reframes understanding waste behaviour ultimately through studying how communities negotiate responsibility, care, and collective life within rapidly transforming urban environments.

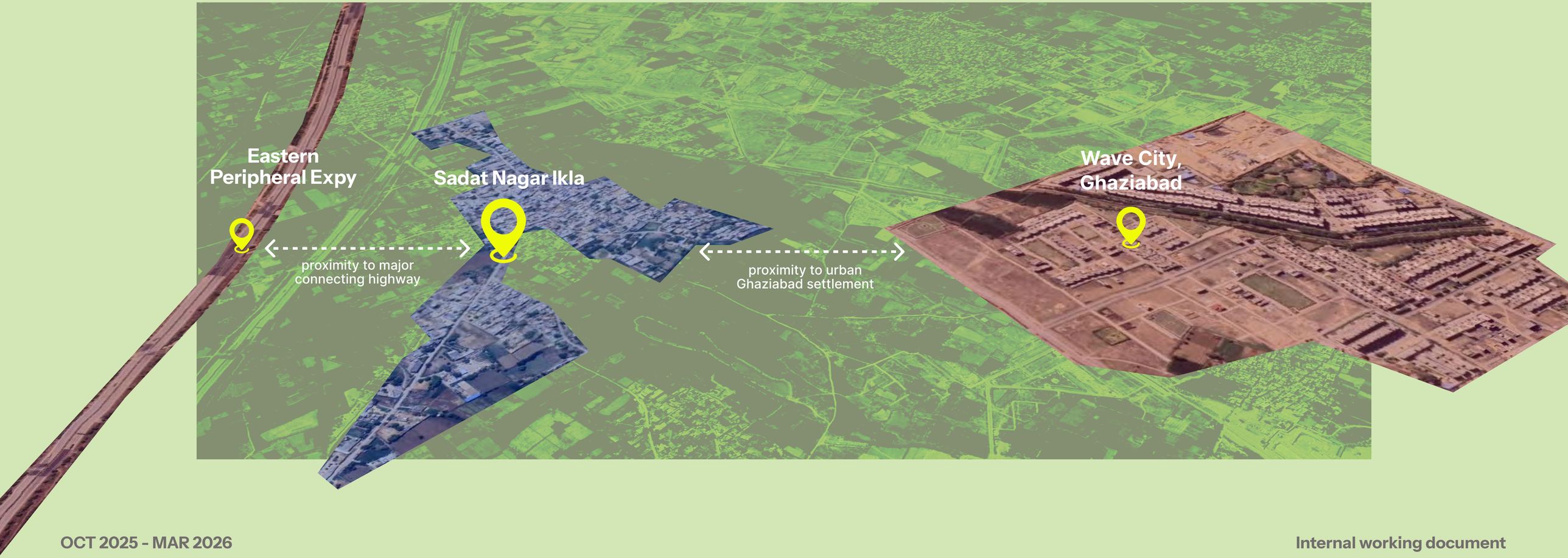
01

BACKGROUND, SITE & CONTEXT

The site Sadat Nagar Ikla represents a per-urban identity in Ghaziabad’s repidly changing infrastructural landscape

Sadat Nagar Ikla

Sadat Nagar Ikla, located in Rajapur, Ghaziabad, is a peri-urban village with a population of around 2,600 people. Positioned between rural and urban systems, it reflects a mix of agricultural livelihoods and small local businesses.



Why this site?

Sadat Nagar Ikla, represents a transitional condition with a strong peri urban identity. Despite the urban expansion in close proximity, the village continues its social and cultural rituals through a village lens. Livelihood is mainly agriculture.

Urban Infrastructure exists unevenly

Over the past decade, Sadat Nagar Ikla has gradually become integrated into the expanding urban fabric of Ghaziabad through the introduction of roads, municipal waste collection systems, nearby private developments, and increased connectivity to surrounding urban areas. However, this infrastructural integration remains uneven and fragmented across the settlement.

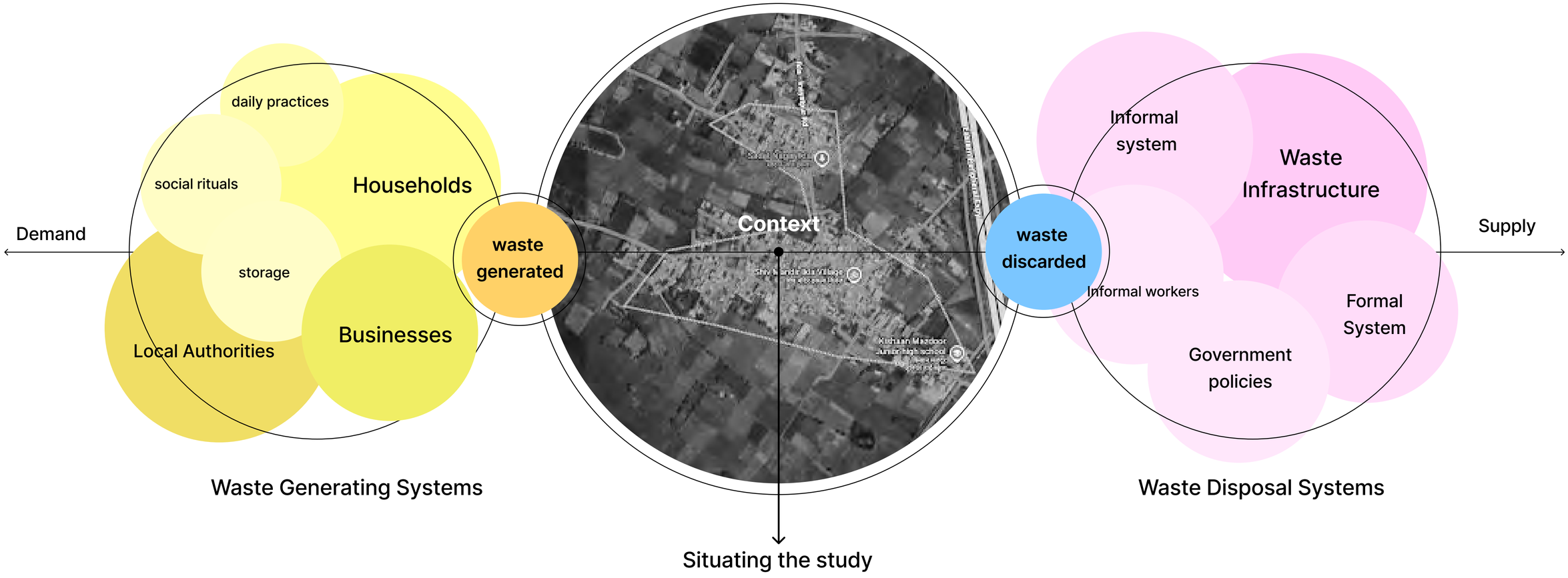
Governance structures overlaps

Multiple actors and institutions often operate simultaneously, including municipal authorities, panchayat systems, private contractors, local representatives, and informal networks of service provision. However, the roles, responsibilities, and boundaries between these systems are not always clearly coordinated or visibly understood at the neighbourhood level.

As consumption patterns, mobility, and land use rapidly transform, the physical environment urbanises much faster than social and behavioural systems adapt.

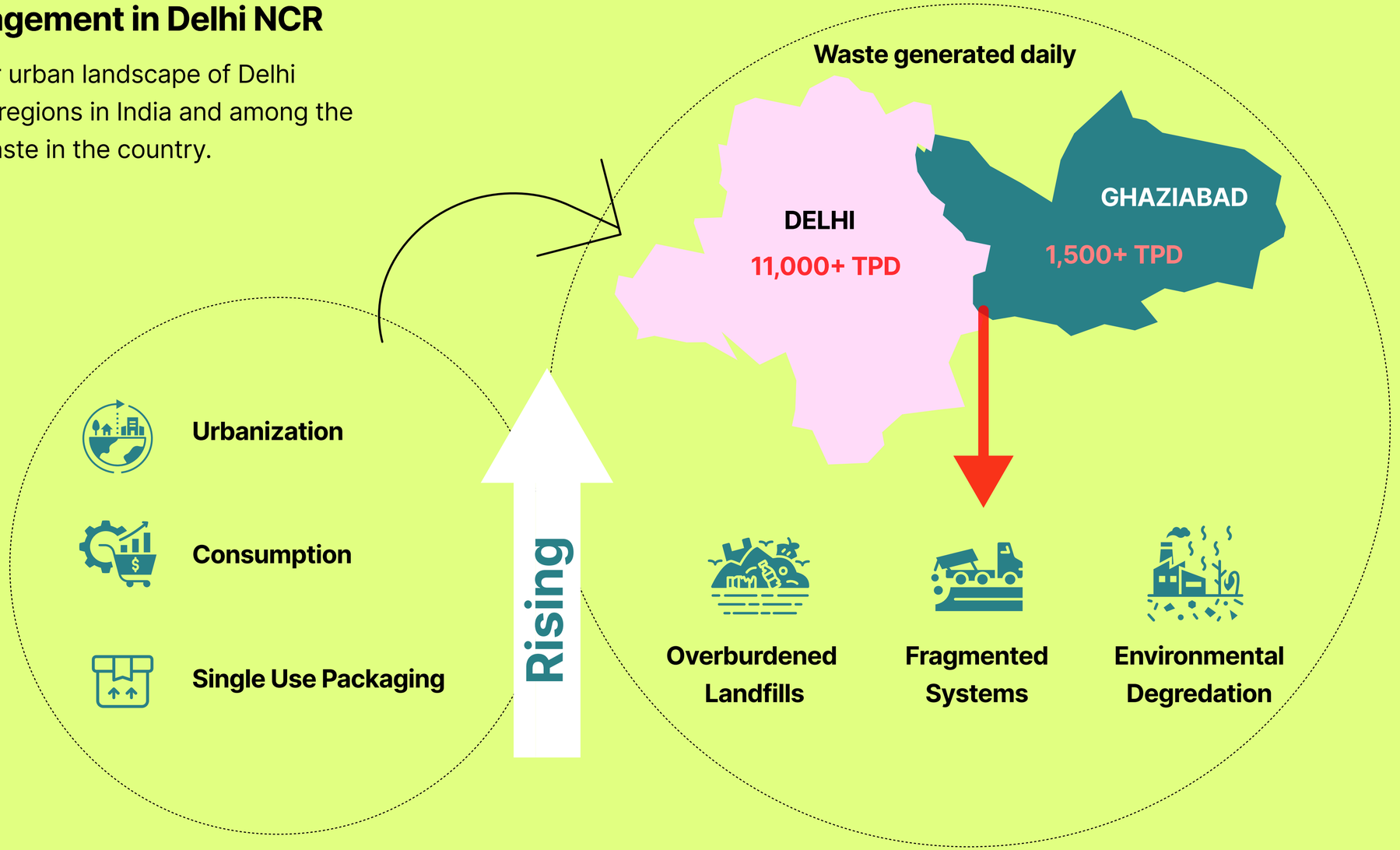
The Waste Ecosystem

Waste in Ghaziabad does not move through a single visible municipal system. Instead, it travels through overlapping networks of households, informal collectors, contractors, roads, vacant lands, segregation facilities, transfer points, and landfills.



The larger issue: Waste Management in Delhi NCR

Sadat Nagar Ikla exists within the larger urban landscape of Delhi NCR, one of the fastest-growing urban regions in India and among the largest generators of municipal solid waste in the country.



Across Delhi NCR, the majority of municipal solid waste ultimately travels toward peripheral dumping grounds and landfill sites that now define the region's environmental landscape.

Originally designed as controlled waste disposal facilities, these sites exceeded their planned capacities years ago but continue receiving mixed municipal waste every day.

History of Transformation: Sadat Nagar Ikla

Sadat Nagar Ikla was historically a low-density agrarian settlement located on the peripheral edge of Ghaziabad, where livelihoods, land ownership, and everyday life were closely tied to agricultural activity and village-based social structures.

Over the past 10–15 years, rapid urban expansion across Ghaziabad has impacted the spatial and economic condition of the village. It has transformed the village from a relatively isolated rural settlement into a peri-urban transition zone embedded within the expanding city.

2010

2015

2025

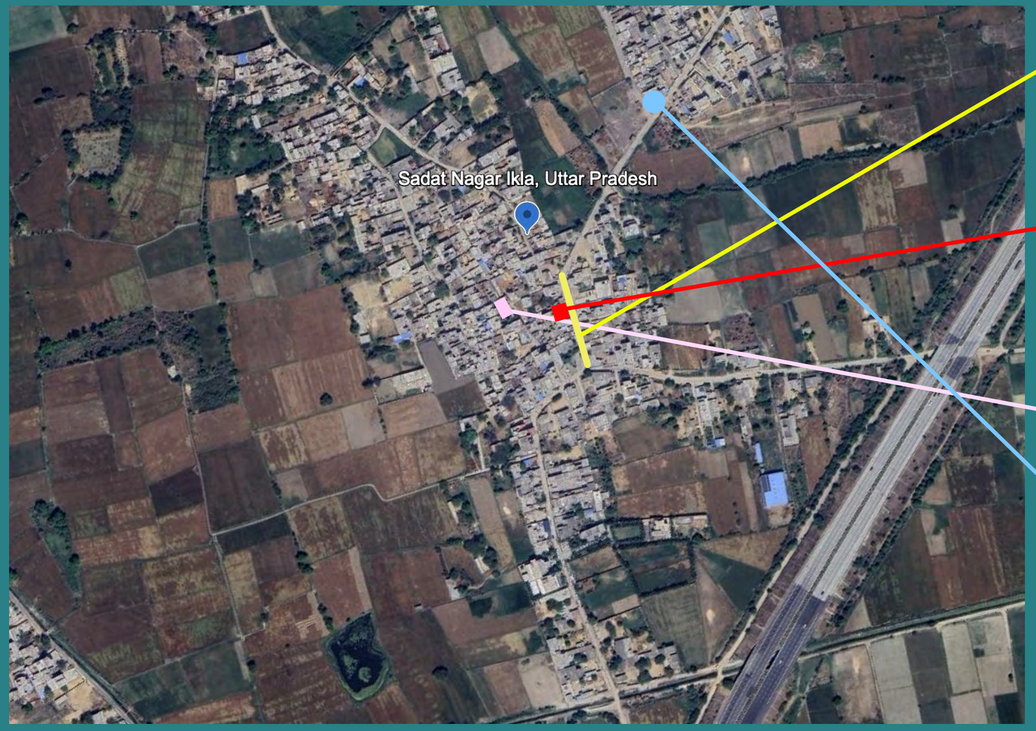
Community Mapping of Site

Spatial Morphology & Settlement Structure

- Dense Residential Core
- Unplanned growth pattern with limited formal planning
- Narrow Internal Lanes within the settlement

	Residential core surrounded by agricultural fields Presence of vacant / open plots acting as transitional spaces Open areas function as buffers between built and unbuilt zones
	Mix of older inward-facing housing typologies Ongoing incremental / newer developments Results in a fragmented but adaptable built environment
Street Network & Accessibility	Streets vary in width and connectivity Limited accessibility for service vehicles Internal lanes restrict efficient service movement
Infrastructure & Public Utility Gaps	Lack of designated public utility spaces Absence of formal waste collection points Limited integration of infrastructure within settlement fabric

Key Sites in the Neighbourbood



Central Market Lane

The central market lane hosts different types of small businesses of the village, including food shop, parlours, barbers and is the centre point of economic activities.

Primary School

Lying on the same lane as the market, the primary school is the main reach point for youth. Children are provided meals at the school.

Gram Panchayat Building

The gram panchayat is the main formal gathering point for the villagers for any workshops, information transmission. It also contains a library reading space.

Waste Segregation Facility

The facility is located at the outskirts of the village. It is newly built and currently lacks operational capacity, existing as a peripheral standalone building.

Demography of the village

TOTAL POPULATION	2,600
HOUSEHOLDS	432
LITERACY RATE	67%
SCHEDULED CASTE POPULATION	25%
TOTAL WORKERS	752
MAIN WORKERS	499
MARGINAL WORKERS	253

PRIMARY LIVELIHOOD

PERI- URBAN SETTLEMENT

TYPOLOGY OF PEOPLE IN THE WASTE ECOSYSTEM

The waste ecosystem in Sadat Nagar Ikla comprises a diverse network of actors who interact with waste at different stages of its lifecycle, from generation and disposal to collection, recovery, and governance. At the household level, residents are the primary waste generators, with women often taking responsibility for the day-to-day management of waste through storage, segregation, and disposal practices.

Spaces of waste coagulation in the village

Canals (Naalis)

Empty Plots Outside the Village

The supply side system: Waste Disposal Infrastructure

Waste Collection E-trucks

Waste Segregation Facilities: MRF

Waste segregation facilities has been newly built in the outskirts of village. However, these facilities have been largely out of operation.

Officially appointed safai karamcharis

Government appointed street cleaners who have the responsibility of cleaning public spaces. Present but not regular, citizens have resorted to keeping the periphery of their spaces clean.

The supply side system

In Delhi and Ghaziabad, municipal solid waste is legally the corporation's responsibility but operationally outsourced to private concessionaires, who collect door-to-door for a regulated fee, transport waste through dhalaos or MRFs to landfills, and hold contractual rights to sell recovered recyclables.

1. Legal Responsibility vs Operational Reality

Waste management is legally the responsibility of the Ghaziabad Nagar Nigam (GMC). However, most functions (collection, transport, processing) are outsourced to private contractors. Key mandates like source segregation and integration of informal workers are poorly implemented

2. Waste Flow: A Three-Stage System

- Stage 1:
  Household generation (low segregation compliance)
- Stage 2:
  Neighbourhood aggregation (shift from dhalaos → MRFs
- Stage 3:
  Transport to processing plants and landfills

The supply side system

3. Formal Vs Informal System

Formal System

Private contractors manage collection and disposal

TWO PART SYSTEM

Informal System

Waste pickers and kabadiwalas recover recyclables

The supply side system

4. The hidden economy of waste

Layer	Transaction
Formal/ Contractual	The municipality grants the private concessionaire legal right to sell all recovered recyclables from municipal solid waste
Semi-formal/ Sub-leasing	Private contractors who control a dhalao charge informal workers Rs 2000- Rs 3000 to access the site, or place them on a stipend of Rs 6000 for 2-3 months to segregate waste on the contractor's behalf
Informal/Extractive	Where the MCD operated dhalaos remain, sanitation staff, operatives, supervisors and intermediaries extract bribes from pickers for permission to sort and remove recyclables

5. The structural shift

Pre-privatisation, the dhalao was open, decentralised, and the workplace of informal pickers, who effectively performed the segregation function for free in exchange for the right to keep recyclables.

Post-privatisation, Dhalaos are being closed and replaced with privately-owned compactors and MRFs. Private concessionaires now hold legal title to the recyclable stream that pickers previously treated as a common-pool resource. Pickers must travel 2–3 km further to reach a remaining dhalao, often making multiple trips.

This is the central tension on the supply side: the SWM Rules 2016 mandate integration of informal pickers into the formal system, but the privatisation model has displaced them, converting a once-commons resource into a privately-controlled and rent-extractive asset.

Household Interface Collection System

Aspect	Expected System	Observed Reality	Impact on Behaviour
Collection Frequency	Daily/ Regular	Every 4-10 days	Waste accumulation
Payment	Free	Rs 50 per month	Expectation Mismatch
Reliability	Predictable	Irregular	Loss of trust
Segregation Handling	Separate Collection	Unavailable	Reduced Motivation

02

PILOTING FUTURES

This Ghaziabad study is one of three city pilots, same lens, different civic system.

How do we shift daily routines and social norms so waste segregation and clean streets become part of collective pride?

PROJECT OVERVIEW

This Ghaziabad waste behaviour study is one of three pilots in a larger programme titled Piloting Futures Through Social Design, jointly conducted by the Centre for Social Design (C4SD). The programme runs from October 2025 through September 2026.

Each pilot tests a different question about how social design can intervene in civic systems taking a specific city, a specific institutional partner, and a specific lived problem, and treating them as a single working unit.

C4SD

Centre for Social Design

WHERE THIS SITS

This study is the Delhi pilot inside a larger three-city project, Piloting Futures Through Social Design, running in:

Patna
(Ganga Path riverfront)

Delhi
(water access in Old Delhi)

Ghaziabad
(waste in a village)

WHERE THIS SITS

The study is being conducted in collaboration with:

the GDA relationship held by **Mr Abhinav Gopal**

is funded under the **Netherlands Embassy**

partnership with **(Ink). Social Design. Netherlands**

THE TEAM

The project at different stages involved different people with expertise in separate fields which includes but is not limited to designers, researchers, behavioural scientists, architects, & engineers.

Mayank Raj
Design + systems

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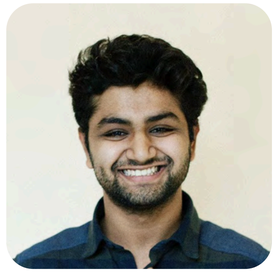

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03

HOW WE WORKED

Four kinds of research, used in combination. None is treated as sufficient on its own; each is used to test, qualify, or extend the others.

Methodology

Research Objectives

The aim of this study was to develop a holistic understanding of waste management and disposal behaviours as part of an interconnected system.

The research examined:

- everyday practices of waste-generating households,
- informal and formal systems of waste collection,
- the spatial and infrastructural conditions shaping disposal,
- and the governance structures responsible for waste management.

Rather than focusing only on infrastructure deficits, the study investigated how waste behaviour is produced through the interaction of:

- systems,
- routines,
- perceptions,
- access,
- and social norms

04

PROCESS & THEMES

observation of the study clubbed with insights, counted in people, in hours, and in the demand the formal system does not see.

WHAT WE DID | TRIANGULATING WHAT THE LITERATURE SAYS WITH WHAT THE FIELD SHOWS

The slides that follow take each major fieldwork finding and read it against the academic, policy, and journalistic record on waste behaviour.

For each finding, three things are noted:

What the literature says, what the published research already establishes.

What we saw in Sadat Nagar, what the team observed directly.

What is new in the field, what emerged in our work that the existing literature does not capture.

This is how the study earns its conclusions. Where the field merely confirms the literature, the finding is well-supported but not original. Where the field adds something the literature misses, that addition is the contribution of this study.

Framing the study

The study looks at 4 interconnected systems to gain a holistic understanding of waste behaviour, in different capacities

1 Service Infrastructure System

This focuses on the existing waste management services, including collection mechanisms, roles of formal and informal actors, and the availability and functioning of infrastructure. Examining this system helps identify how waste is intended to be managed and where gaps in delivery or accessibility influence behaviour.

2 Spatial–Settlement System

This examines the physical layout and morphology of Sadat Nagar Ikla, including housing patterns, street networks, and the presence of open or unused land. Understanding the spatial context is essential, as it directly shapes how residents interact with their environment and where waste is ultimately disposed.

3 Waste Flow System

This traces the journey of waste from the point of generation within households to its eventual disposal or recovery. Mapping these flows reveals the interaction between formal processes and informal practices, highlighting how waste actually moves through the system in reality.

4 Governance & Policy System

This looks at the institutional and regulatory framework guiding waste management, including government policies, assigned responsibilities, and local governance structures. Analysing this system provides insight into how roles are defined, implemented, and perceived at the ground level.

Household Narratives

Irregularity of waste collection services

Residents consistently reported that waste collection services are irregular, often arriving in 8 to 15 day intervals. As a result, households are unable to store waste for extended periods due to space constraints, odour, and hygiene concerns. This leads to the need for immediate, alternative disposal methods.

Dumping in Nearby Empty Plots

In response to delayed or absent collection, many households resort to dumping waste in nearby empty plots or open areas. This practice is driven primarily by proximity and convenience, as these locations offer the quickest and least effort-intensive solution. The behaviour indicates not a lack of concern, but the absence of accessible and dependable alternatives within the system.

Burning Waste (Plastic) for fuel

Some residents also reported burning plastic waste as a means of disposal. This reflects an attempt to reduce accumulated waste quickly, especially when other options are unavailable. However, it also points to the lack of safe, environmentally appropriate disposal mechanisms for low-value or non-recyclable waste.

Selling waste with value

Materials with perceived economic value, such as plastic bottles or metal, are often separated and sold to kabadiwalas. This indicates that when incentives exist, households are willing to engage in segregation and recovery practices. Informal systems are often more reliable and better integrated into daily life than formal waste services.

Observed Behaviour related to waste disposal

Stage	Observed Practice	Reasoning Behind Behaviour
Storage	Stored in large bins inside homes	Convenience, avoids daily disposal
Frequency	Disposed every few days (not daily)	Collection Irregularity
Disposal Location	Empty plots, fields, drainage channels	Proximity + ease
Cleaning Priority	Clean within personal boundaries	Responsibility is spatially limited

Form of waste visible in the village

1. High Value Waste (Recovered & Circulated)

- Examples: Bottles, metal, cardboard
- How it is treated: Collected and sold to kabadiwala
- Behaviour: Actively separated and stored
- Implication:
  → Strong informal recycling system exists
  → Value drives behaviour

2. Conditional Value Waste (Partially Recovered)

- Examples: Plastic bottles vs low-grade plastic (wrappers, packets)
- How it is treated:
  - High-value → sold
  - Low-value → dumped or burned
- Behaviour: Selective segregation
- Implication:
  → Segregation is inconsistent and value-based
  → Low-value waste falls through the system

3. Semi-Useful Waste (Contextually Reused)

- Examples: Food scraps, vegetable peels
- How it is treated: Fed to animals or discarded
- Behaviour: Reused where possible, otherwise disposed
- Implication:
  → Not always perceived as “waste”
  → Managed within household or immediate context

4. No Value Waste (Discarded & Externalised)

- Examples: Dust, packaging residue, mixed waste
- How it is treated: Dumped in open plots, fields, or drains
- Behaviour: Quickly removed from household
- Implication:
  → Becomes the bulk of visible waste problem
  → No system incentive for proper disposal

05

FINDINGS & INSIGHTS

Themes that recur across the supply system, the demand picture, waste behaviours , and the daily observations.

THEMES AND INSIGHTS

Household Behaviour

Storage, segregation, disposal routines

Spatial Systems

Streets, open plot, waste accumulation zones

Infrastructure

E-trucks, dhalaos, MRF facilities

Informal Systems

Kabadiwalas, waste pickers

THEMES AND INSIGHTS

The four systems of household behaviour, Spatial systems, Infrastructure and Informal System have been observed to be motivated by 2 key factors that frame daily routines, attitudes and culture surrounding waste disposal.

Ease

In the context of waste behaviour, ‘ease’ is defined as activity and behaviours that fit into the existing routines, without having to re-route familiar rituals. The layer of ease has varying means and observed behaviours depending on the stakeholders.

Visibility

As waste is thought to be something that is hidden, the level of responsibility and accountability depends on how visible this waste is, in the daily lives of the villagers. As long as there is a degree of separation between the house and waste, in the responsibility of it ends.

INSIGHTS

EASE

Waste behaviour is shaped by daily routines and disposal is carried out along side daily responsibilities

VISIBILITY

Waste behaviour is shaped by how visible waste is in the determined peripheral boundaries of the home

DEMAND SIDE SYSTEM

Household Behaviour

Waste is stored in large bins at home, to be disposed when it is filled.

Waste is disposed off in nearby empty plots of land.

Spatial Systems

Proximity of the nearby waste areas is close to residential complex but on the way to daily work

Infrastructure

Household receive an inconsistent flow of collection services that breaks trust in the system, inspite of payment.

Informal Systems

Selling waste materials through informal systems creates a pseudo segregation model to recognise what has value vs what does not.

Once the waste is pushed outside the boundary of the house, it become invisible.

The close proximity between the fields and houses create a space that is easier to access and does not require third party involvement

Awareness

Residents remain unaware of side effects of waste remaining in the field.

Perception

Disposal in the field remains a viable option since residents believe that “This is a village, not a city”, hence the same rules do not apply

Trust

Trust in infrastructure and formal systems remains fractured due to unreliability and inconsistency

Due to the proximity and location of MRF facilities, residents remain unaware of the facilities available

Cleanliness is viewed as a private responsibility, not collective.

SUPPLY SIDE SYSTEM

Influencing Households

Formal collection of waste cost Rs 50 per month, with services being infrequent.

Spatial Systems

Lanes in residential area are small and crowded and hard to navigate

Infrastructure

MRF facilities are not directly accessible to residents.

E-trucks that collect waste are too big to access all households; leading to mismatch of service and space.

Informal Systems

06

SYNTHESIS & PLANNING

Three lenses to read the findings through, and four planning points that follow from them.

THREE THEMES CONSTANT IN EVERY FINDING

Realibility before awareness

Residents paid for waste collection services, yet collection remained inconsistent. Segregation infrastructure existed, yet remained inaccessible. Formal systems existed, yet people continued relying on informal systems because they were perceived as more dependable and immediate.

“What if residents could reliably predict when and how waste would be collected?”

“What if dumping spaces became visible community spaces rather than invisible, peripheral spaces?”

Waste becomes invisible. Responsibility for waste was closely linked to visibility. Residents actively maintained areas directly outside their homes, yet waste disposed of in fields, empty plots, or peripheral spaces quickly disappeared from everyday concern. Similarly, much of the formal waste system remained invisible. Residents often did not know where waste travelled after collection, where infrastructure was located, or who was responsible for different parts of the system.

Behaviour follows ease. Residents rarely selected disposal methods based on environmental considerations. Instead, disposal decisions were strongly influenced by effort, proximity, and convenience. Behaviour followed the option that required the least effort within existing routines.

The fieldwork suggests that waste behaviour is often less a question of motivation and more a question of friction.

“What if ease became the strongest driver of positive behaviour rather than, negative behaviour?”

CRUCIAL POINTS FOR EFFECTIVE PLANNING

01

01 The Household Boundary

Residents are not indifferent to cleanliness. Once waste crosses the household boundary, ownership becomes less clear and accountability diffuses into the wider environment. The opportunity sits in extending the perceived boundary of care beyond the doorstep and into shared spaces.

02

02 The Disposal Decision

The decisive moment is when a household chooses where waste will go next. At that point, residents are not comparing environmental outcomes; they are comparing effort, distance, certainty, and convenience. The opportunity sits in making the preferred option easier, faster, and more predictable than the alternatives that currently exist.

CRUCIAL POINTS FOR EFFECTIVE PLANNING

01

03 Informal Spaces functioning as Infrastructure

The empty plots, field edges, and peripheral lands are performing work on behalf of the waste system. They absorb waste that formal collection systems fail to capture consistently and provide residents with an immediate disposal outlet. The opportunity is to redesign the function rather than erased.

02

04 Value Changes Behaviour

Materials that hold value rarely become waste. Plastic bottles, cardboard, and scrap are separated, stored, and recovered because residents recognise their worth. Materials with no visible value move quickly toward dumping, burning, or disposal. The opportunity sits in expanding what people perceive as valuable — economically, socially, or environmentally.


C4SD × Ink Social Design
Piloting Futures
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