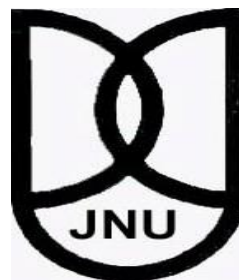# POLITICS OF WASTE: APPROACHES TO SOLID WASTE MANAGEMENT IN DELHI

*Dissertation submitted to Jawaharlal Nehru University in partial fulfillment of the requirements for the award of the degree of*

## MASTER OF PHILOSOPHY

## SURABHI GUPTA



**Centre of Political Studies**

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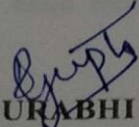
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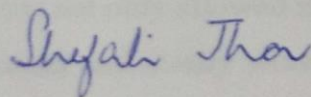
**2017**

**Date: 25ᵗʰ July 2017**

## DECLARATION

This is to declare that the dissertation entitled "Politics of Waste: Approaches to Solid Waste Management in Delhi" submitted by me in partial fulfillment of the requirements for the award of the degree of Master of Philosophy, at Jawaharlal Nehru University, New Delhi, is my own work. The dissertation has not been submitted in part or full, for any other degree or diploma, either at this or any other university.
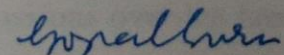
SURABHI GUPTA

## CERTIFICATE

We recommend that this dissertation be placed before the examiners for evaluation.

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## *Acknowledgements*

I must acknowledge the excellent services of the Central Library of JNU which made access to the much-needed books and journals so easy.

And finally, I would like to thank Dhruv and PK for listening to me babble for months about my chapters and the impossibility of field work. My friends- Manpreet and Devina- have proved to be indispensable in the last minute craziness of editing, printing and proofing the thesis.
Thank You.

SurabhiGupta
New Delhi, 24th July, 2017

## *List of Abbreviations*

**CSE:** Centre for Science and Environment

**DDA:** Delhi Developmental Authority

**DEDA:** Delhi Energy Developmental Agency

**DNES:** Department of Non-conventional Energy Sources

**GOI:** Government of India

**LPG:** Liberalisation, Privatisation, Globalisation

**MCD:** Municipal Corporation of Delhi

**MoUD**: Ministry of Urban Development

**MoEF**: Ministry of Environment and Forest

**MPD:** Master Plan of Delhi

**MSW:** Municipal Solid Waste

**NCT:** National Capital Territoy

**NDMC:** New Delhi Municipal Council

**NGO:** Non-Governmental Organisation

**NIMBY:** Not in My Backyard

**NURM:** National Urban Renewal Mission

**ODF:** Open Defacation Free

**PIL:** Public Interest Litigation

**SWaCH:** Solid Waste Collection and Handling

**SBM:** Swachh Bharrat Mission

**SPCB:** State Pollution Control Board

**SWM:** Solid Waste Management

**TUI:** The Ugly Indian

**UNSD:** United Nations Statistics Division

**UPE:** Urban Political Ecology

**WIEGO:** Women in Informal Employment: Globalising and Organising

**WTE:** Waste to Energy

# INTRODUCTION

## CONTEXT AND SIGNIFICANCE

*A clean India would be the best tribute India could pay to Mahatma Gandhi on his 150 Birth Anniversary in 2019*
("Swachh Bharat Abhiyan | Prime Minister of India", 2014).

-stated the Prime Minister, Narendra Modi as he launched the Swachh Bharat Mission (SBM) at Rajpath on 2nd October, 2014. This movement has been widely publicised in the form of a national public drive (Jan Andolan) with the aim of creating a world-class country as well as fulfilling Gandhi's dream of a clean and hygienic India. The nation-wide cleanliness drive has been prioritized by the new government, with images of the Prime Minister himself picking up the broom. He gave the mantra of 'Na gandagi karenge, Na karne denge' (people should neither litter, nor let others litter). The mission attempts to invoke individual responsibility as citizens to create a better, cleaner country through active participation and behavioural changes, inculcating a civic sense that resembles one in world-class cities such as Singapore. Members of the civil society from Bollywood actors to the sportspersons, industrialists to spiritual leaders, have responded enthusiastically to the drive, even taking 'selfies' of them participating in the 'cleaning' of the dirt of the city. The simplistic image if the 'broom' has been invoked to demonstrate the idea that waste of the city can be managed if all of us, as citizens, decide to take responsibility of our own 'dirt'. Social Media has also been utilised to ensure active participation. #MyCleanIndia was launched simultaneously as a part of the Swachh Bharat drive to highlight the cleanliness work carried out by citizens across the nation.

Rapid urbanisation and economic development has marked India's progress for the past decade. This has led to increased migration from urban to rural areas. Further, economic liberalization of 1990's resulted in an increase in both production and consumption of goods that are easily disposable. The waste generated has also changed in its content and metabolic density. The 'Problem of Waste' has multiplied in the past years. In 2011, the

Ministry of Urban Development estimated that the country's urban cities produced more than 150,000 tonnes of municipal solid waste (MSW) a day, with a view that this would likely double by 2020 (MoUD, 2013). Waste becomes a Problem when it becomes visible in city-areas that are defined by a well-ordered rationality. While waste has always been a problem- more precisely, an obstruction- to the vision of Modernity, it has gained a new prominence in contemporary India. As 'matter out of place', waste has always posed a threat to modernity and its aspirations (Moore, 2009; Chakrabarty, 1992; Douglas, 1965). Struggles against and over waste has intensified in the past decade. At the same time, the manner of solving the crisis has also taken the form of scientific, technological and centralized reforms in Solid Waste Management (SWM).

Waste Management and Sanitation are the buzzword of the Government in their plans for nation's development. SBM was launched with a vision of 'ensuring hygiene, waste management and sanitation across the nation. Its ambitions include elimination of open defecation, eradication of manual scavenging, modern and scientific Municipal Solid Waste (MSW) Management, building and augmenting capacities for Urban Local Bodies (ULBs), generating awareness about sanitation and health as well as creating an environment in which the private sector can participate in expenditure, operation and maintenance. ("Swachh Bharat Mission", 2016)

The waste generated is a result of 'excesses of modernity' (Moore, 2009). Certain poor, marginalized sections earn their livelihood through what is considered as 'trash'[1] by the rest of the populace. They are the wastepickers, scavengers, ragpickers, kabadiwalas, etc. who survive by collecting, segregating and recycling waste. The work of these wastepickers has to a large extent supplemented the work performed by municipalities, reducing its costs as well as being environmentally sustainable. However, both the existence of waste and the

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[1] In this Thesis, I use terms like 'trash', ''garbage' and 'waste' interchangeably, even though strictly speaking, they are analytically different terms. Waste is a more general technical term used for all types of materials while garbage is a more colloquial term often used specifically for municipal solid waste (MSW). Trash is colloquially used for anything that is being thrown away. For the purpose of this thesis, this distinction is largely irrelevant.

visibility of the wastepickers pose a threat to the vision of a modern, civilized city.

The perceived failure of government agencies in managing waste as well as acceptance of neo-liberal policies has led to privatization of SWM. Further, the 'crisis of waste' has resulted in the popularity among policy makers for big, 'end of the pipe' solutions such as Waste-to-Energy Plants, central compost plants etc. Such proposals however threaten the livelihood of wastepickers. Waste has thus become a site for conflict between the authorities and those involved in SWM informally.

The introduction of technologies such as WTE plants have also revealed tensions between the middle-class residents who protest against the threat to their ambient air quality. This has led to an unlike alliance between two very different groups characterized by "conflicting rationalities" (Watson, 2003).

Waste Management in this regard has become an important issue that has societal, economic and health impacts. How waste is managed and what approach is adopted to solve the 'waste crisis' will affect the existing formal-informal structure of SWM. The manner in which this waste is perceived by – the state, the middle-class and the ragpickers themselves- tells us about the diverging visions for the city. The recent interest of entrepreneurial capital in the field also demonstrates alliances that exist and their competition with old traditional pioneers of waste management i.e. ragpickers/kabadiwalas. The waste that is thrown out in public spaces and collected in open garbage landfills are toxic, and dangerous to health, particularly for those living near them. WTE Plants in Delhi has again changed the 'value' of waste. The study on 'waste management' in a city of Delhi becomes prominent in the changing environment of privatisation and centralisation; where the focus is on streamlining the entire SWM process.

## 1.2 OBJECTIVES OF THE STUDY

The study aims to look at the 'politics of waste'- how waste can become political in its cultural performance as well as materiality. The study then looks at the manner in which waste has been managed by the civic authorities of Delhi – its implications and simultaneous reactions by those affected by such changes- the ragpickers, the middle-class and the emerging private sector in this arena. Further, Swachh Bharat Abhiyaan has invoked individual responsibility to achieve the vision of a clean city- such an initiative perceives filth as a marker of (bad) character, (im)morality, of(collective lack of values). The narrative of waste in such language demonstrates the manner in which the 'state'[2] looks at waste- the study aims to understand this perception.  The study takes up Delhi as a site for research since both the Government and the municipalities have had aspirations to transform Delhi into a 'world-class city'. This makes 'waste' an interesting object of inquiry as it reveals the cracks in this dream for modernity and perfect order.

## METHODS AND THEORETICAL FRAMEWORK USED

The arguments presented in this thesis are predominantly informed by a review of the existing literature and use of secondary data. For this purpose, both government documents as well as various environmental and waste related reports published by non-governmental organizations have been used.  In addition, some parts of the thesis make reference to interviews and observations that I collected in my limited field work- where I visited the Jindal-operated Okhla Waste-To-Energy plant, conducted semi-structured oral interviews with ragpickers and an informal interview with Chintan and SafaiSena representative.

The thesis borrows from an 'Urban Political Ecology' (UPE) approach to understand Solid Waste Management in New Delhi. While a detailed review of literature of UPE has not been done, a few major themes are discussed.

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[2] State and Government has been used interchangeably for the purpose of the thesis; although technically vary in meaning.

**Urban Political Ecology Approach**

Solid Waste Management has emerged as an acute environmental issue that has plagued India. It has been looked at as a managerial issue but involves a myriad of political actors at different levels. The thesis borrows the basic tenets of UPE while understanding the way in which SWM becomes a part of a wider political strategy, acting through its unique materiality.

UPE as a conceptual framework[3] is an offshoot of Political Ecology approach that emerged in the late 1990s. Political ecology by then had developed a happy indifference to the urban world and its research projects focused mainly on the politics of land use in non-urban (and non-Western) spaces (Angelo and Wachsmuth, 2014). This led to a reassessment of Political Ecology approach that was heralded by a call made by Erik Swyngedouw (1997)[4] who attempted to reconcile the society/nature and material/discursive binaries at work in political ecology through a novel approach to hybridity that he termed 'socionature'; and secondly, a proposed to extend the reach of political ecology into urban studies, in particular through the medium of water.

UPE argues that urban Spaces increase, rather than limit, interactions between humans and the (natural and built) environment. Keil (2003) for example, writes, "*urbanization is not merely a linear distancing of human life from nature, but rather a process by which new and more complex relationships of society and nature are created*". The study of issues of urban areas thus need not exclude the environment.

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[3] For further understanding of UPE, see Zimmer (2010) and Heynen (2014).

The concept of Hybrids used in Political Ecology is understood as Latour (1993) refers to as-'*mixtures (...) of nature and culture*'. Modernity accelerated the production of hybrids-hybridization- yet at the same time has attempted to repress this fact in its strive for purification. This is done through the production of powerful discourses that presents hybrids as if they belong to either of the two poles- poles that are not equal; nature is 'naturally' inferior to culture.  Water shortage in Delhi for instance, is discussed as an exclusive problem of water availability in the region by the city administration. Questions of excessive consumption by richer parts of the city and of losses in the pipelines are hardly ever addressed. (Zimmer, 2010)

Swyngedouw pushes the concept of hybrid further by arguing that hybrid is not merely "piece of matter" (Zitouni 2004 in Swyngedouw 2006). He argues that hybrids have three dimensions: a physical material one; a practical, commodified one; and a discursive, constructivist dimension. The processes belonging to these dimensions are mediated through social relations, as well as societal relationships with nature. (Zimmer, 2010)

A central contribution of UPE has been the urbanization of the concept of 'metabolism'. Metabolism is the process wherein physical matter such as water is transformed into useable, ownable and tradable commodities. The process of mobilizing metabolism is done within certain existing social divisions as a result of which surplus value go to certain classes. Metabolism is thus politicized. What kinds of hybrids are to be produced and in which way reflect the dominant interests. Societal relationships with nature and social relations thereby reinforce each other: On the one hand, the social standing of an actor is strengthened by performing environmental practices perceived as legitimate; on the other hand, these practices reproduce a certain interaction with nature (Robbins and Sharp 2006 in Zimmer, 2010)

Zimmer (2010, p. 349) in his article 'Urban Political Ecology: Theoretical concepts, challenges, and suggested future directions' argues that by transferring the concept of hybridity onto a city, it simultaneously embodies  'natural' and 'social' processes. Instead of

focusing on environmental changes and conflicts, UPE takes interest in cities as dynamic hybrids, constantly (re-)produced by humans and non-humans alike. The urban environment is thus problematized. Zimmer puts forward the following points:

- Urban Political Ecology assumes its objects to be hybrids;
- These are investigated through studying the processes of their co-production by humans and non-humans;
- These processes are socially embedded and historically specific. This implies that they are influenced by power relations which mediate between humans as well as between humans and non-humans;
- Special attention is paid to the dynamics, i.e. instabilities and discontinuities of, as well as conflicts in and around, practices, discourses and social relations as well as societal relationships with 'nature'.

### 'POLITICS OF WASTE': Framing the Context

### Towards a UPE of waste

There is a growing literature on the politics of waste in cities of the global south (Cornea, Véron& Zimmer, 2016; Gill, 2009: Bjerkli, 2013; Moore, 2009; Fahmi and Sutton, 2006; Gidwani, 2013; Myers, 2014; Shinoda, 2005). They highlight the different actors involved in SWM and how waste becomes a part of broader urban strategies. Moore (2009) for instance, takes up the case of Oxaca to demonstrate how waste is utilized as a political tool by the city officials as well as residents of the city. Through the examination of 'the dirty politics of inclusion and exclusion associated with waste' (Myers, 2014b: 448), political and governance processes are explored. (Cornea, Véron & Zimmer, 2016).

 An UPE on solid waste would point towards waste as an entry point into the investigation of urban politics and power relations inherent in the (re)production of uneven urban socio-natures. Work on waste has taken many forms - the opposition to waste-to-energy projects (Demaria and Schindler, 2016); and issues of social justice, in particular as they concern

waste workers (Bjerkli, 2015; Hartmann, 2012; Parizeau, 2015; Yates and Gutberlet, 2011; Chaturvedi and Gidwani, 2011); the governance of waste and its connection to neoliberalism (Myers, 2005) and the (capitalist) metabolism of cities (Lawhon, 2012; Njeru, 2006; Pickren, 2014); environmental justice issues – largely related to landfills (Baabereyir et al., 2012; Leonard, 2012) etc. This thesis aims to add to this literature as well as provide for more analytical entry points that can reveal a deeper understanding of how urban politics comes to be structured around everyday practices. (Cornea, Véron & Zimmer, 2016)

This thesis takes waste as a socio-natural hybrid, both material and sociocultural, as an environmental artifact and a social relic (Parizeau, 2015). Waste is 'imbued with cultural value' (Parizeau, 2015) and the product of economic and social forces (Hartmann, 2012). Thus an analysis of how waste is managed, where does it exist and who ultimately is given to handle it provides an entry point into observing 'politics of waste' in the city. The answers to these questions will reveal the power relations that are (re)produced in the everyday cultural performance and materiality of waste. To this end, a Foucauldian understanding of power is favored. Power is diffuse and relational and emerges through everyday interaction.

There are two different ways that literature on waste has been documented- one has taken openly visible conflicts on waste as the object of inquiry (for instance, Demaria and Schindlers study of  WTE plants); while others have focused on the politics of everyday-not openly contested socionatures. Corrnea et al. (2016) for instance uses UPE approach to examine segregation-at-point project in a small town in West Bengal to understand a more general multi-scalar, socio-political urban processes.

The study of 'metabolism' of waste becomes prominent as the metabolic process of the social and material produce hybrid relations that alter and define urban societies and nature (Hartmann, 2012). In this regard, this thesis looks into the interactions between the informal

economy, the middle-class and the state to understand how waste gets differently defined by these entities as well as how waste is utilized by them as a broader urban strategy. The focus is on the projects of the state and opposite/similar aspirations of the middle-class and the informal economy in SWM- how are conflicts generated, what alliances are formed, and how does it affect the everyday interactions of the informal sector. This will reveal the processes through which power is "exercised and negotiated at various scales; and how this affects the service provided" (Bjerkli, 2015, p.20) as well as the hierarchies constructed as a consequence.

## Delhi as an area for studying SWM

*Delhi is now a megalopolis, sprawling beyond its own borders, swallowing up villages and farmland, sucking in migrants, spewing out pollution. There are no natural limits to this rampant city, nothing to stop it growing, except perhaps, if it fails to live up to the new Indian dream. […] Delhi, the city of Sultanates and Mughals, of Djinns and Sufis, the poets and courtesans, is now also a city of cybercafés and multiplexes. It is the past and it is the future.* (Miller 2009, p. 1).

The past few decades has witnessed a huge level of migration from rural to urban areas along with urbanisation and rapid development marking major cities of India as urban hubs. The level of urbanization of the country has increased from 17.35% to 31.2% in the last 60 years and is expected that as much as 50% of Indian population will live in cities in next 10 years (Khurshid and Sethuraman, 2011). Delhi, officially the National Capital Territory (NCT), has a population of about 16.3 million, making it the second most populous city and second most populous urban agglomeration in India and 3rd largest urban area in the world (Census of India, 2011; UNSD, 2015). Delhi is a Union Territory but resembles a state of India as it has its own judicial system, legislature and an executive council of ministers. New Delhi is jointly administered by the federal government of India and the local government of Delhi. The NCT of Delhi comprises of 11 districts, 27 tehsils, 59 census towns, 300 villages, and 3 statutory towns, the Municipal Corporation of Delhi (MCD), the New Delhi Municipal Council (NDMC) and the Delhi Cantonment Board (DCB). The civic

bodies of Delhi are responsible for its Solid Waste Management. (Gupta and Arora, 2016 p.131)

Delhi forms an interesting area to take up as a case study as it has historically been an object of fascination and aspiration for fulfilling the grandiose vision of its rulers. Today, the aspiration of city planners, policy makers as well as the middle-class is to lift Delhi to the status of a 'global-city. The economic liberalization of 1990's led to a change in the political and economic agenda of the country. Further, it was the introduction of Jawaharlal Nehru National Urban Renewal Mission (NURM) that brought urban development as a centrepoint of political promises. This resulted in aspirational documents being published by the GOI like the Master Plan of Delhi (MPD). The latest MPD reflects the global ambitions for the city:

> *Delhi, [...] symbol of ancient values and aspirations and capital of the [world's] largest democracy, is assuming increasing eminence among the great cities of the world. Growing at an unprecedented pace, the city needs to be able to integrate its elegant past as well as the modern developments into an organic whole [...]. The city will be a prime mover and nerve centre of ideas and actions, the seat of national governance and a centre of business, culture, education and sports [...]. Vision-2021 is to make Delhi a global metropolis and a world-class city, where all the people would [sic] be engaged in productive work with a better quality of life, living in a sustainable environment* (Delhi Development Authority, 2007)

Delhi has witnessed many changes in the past decades that demonstrates that Delhi is on its way to 'progress' towards becoming a global city. The introduction of the Metro, changing landscapes including an overhaul of Cannaught Place, Nehru Place etc, a steady rise in construction of western-style shopping complexes/malls, focus on infrastructure in the budget etc depict the manifestations of such aspirations.

At the same time, Delhi also lives under the shadow of its past- it has a huge historical legacy. This can be seen in what is sometimes referred to as the juxtaposition between Old and New Delhi. While Old Delhi is characterized by old buildings, historical ruins, narrow

roads and high population density; New Delhi is viewed as a more' modern' area characterized by wide roads, open 'green spaces', and modern buildings.

Given the context of Delhi being a part of the 'Global City' project, it becomes all the more interesting to take it up as a case study to understand the informal sector in solid waste management. Garbage on streets is regarded as one of the most visible negation of any aspiration for a civilized modernity. The materiality of waste becomes a hard-truth to swallow. Policy-makers thus have taken up various initiatives to dispose of trash in the most efficient manner. The informal sector has no discernible role to play in this imaginary modern city. Delhi has about 100,000[5]wastepickers working in the waste economy- their work not recognized and their existence often negatively perceived by the state as well as the middle-class residents of the city. ("Waste Pickers in India | WIEGO", 2017)

This thesis looks at the manner in which 'waste' has been managed in Delhi and which 'solutions' have been proposed and implemented. What does such a struggle for 'purification' of the city reveals about waste (non-human entity) as well as the city-officials, wastepickers and middle-class residents?

**Defining 'Waste' for the purpose of the study**

Basel Convention by UNEP define wastes —as substances or objects, which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law (United Nations Environment Programme, 1989). This thesis attempts to understand waste management practices in Delhi and the contrasting perspectives towards waste- of the state officials, for whom, waste is a hindrance to proper planning of the city, an obstruction to the aspiration of a 'global city'; and that of the ragpickers/ scavengers, whose livelihood is derived from what is thrown out by the residents as trash. The response

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[5] See official website of WIEGO-  http://www.wiego.org/informal_economy_law/waste-pickers-india

of the middle-class to a certain scheme of SWM (Waste-To-Energy Plant) has been elaborated; however, this is only done as it leads to an unlikely alliance between the ragpickers and the residents of a middle-class colony.  The relationship of the middle-class with the informal waste economy and 'waste' itself is beyond the scope of the thesis[6].

With the intensification of the 'cleanliness drive' and a simultaneous 'crisis' of the government bodies such as MCD in the city, access and management of waste has become more complex as new solutions to efficient management are being touted. The changes that are being brought in, such as contracting private firms, have ripple effects on informal workforce that have worked for years in conjugation with formal structures of the city.

This thesis adopts the framework of Vinay Gidwani and Rajayasree Reddy (2011) who define waste as — a mobile description of that which has been cast out or judged superfluous in a particular space-time. It is a technical and political artefact that gathers force in its performativity (Gidwani 2011, p. 1649). Arjun Appadorai (1988) understands waste as a social being, as a concept of how goods, things, 'stuff' are vessels by which states, individuals, and NGOs articulate identity, negotiate power, and influence the cultural production of urban space. Joshua Reno (2009) has articulated 'trash' as an artefact with deeply-imbricated political, economic, and cultural processes that influence notions of personhood and social relations.

The inherent logic in the phrase 'waste management' lies in the assumption that the cultural and social performativity of waste becomes more pronounced when it is viewed as a managerial problem by the state that will be best solved through scientific and technological solutions. The (mis)management of the city's waste is a reflection of a crisis of the bodies responsible for it; the underlining reason for the production of waste and variations in its contents and volume is not analyzed.

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[6] See Cornea (2017) et al. in the article 'Clean City Politics: An UPE of Solid Waste in West Bengal, India'

**Classification of waste**

Waste may be classified on the basis of its management that varies indifferent geographical locations such as urban, rural and hilly areas. However, the most common method of classifying waste is according to its source stream. Wastes such as domestic and industrial ones can be classified under the heads of urban, industrial, biomedical and e-waste. These are generated during the extraction of raw materials, manufacturing and processing of raw materials into intermediate and final products, the consumption of final products, and other human activities.

Urban Waste comprises of Municipal Solid Waste (MSW), Sewage Sludge and Construction & Demolition waste. Municipal Solid waste comprises of recyclable, biodegradable as well as inert waste. Most waste collected from urban hotspots is biodegradable due to exorbitant food and yard wastage from households. Recycling is the recovery of useful materials, such as paper, glass, plastic, and metals, from the trash to use to make new products, reducing the amount of virgin raw materials needed. A major fraction of urban MSW in India is biodegradable (51 per cent), recyclable (17.5 per cent) and inert (31 per cent). (Planning Commission Report, 2014)

Waste generated every day in the household and establishment in urban areas may be divided in to two categories: Dry waste and wet waste. Dry waste includes paper, plastic, metal, glass, rubber, thermocol, fabric, leather, rexine wood, wire and anything that stays for an extended period of time without decomposing. Wet waste includes kitchen wastes such as vegetables, fruit peels and pieces, tea leaves, coffee ground, eggshells, bones and entrails fish scales as well as cooked food (both vegetarian and non-vegetarian). The total amount of waste generated in the Delhi daily is about 10000 metric tonnes daily and out of this, amount of dry waste generated daily is 4000 metric tonnes which includes wood, cloths, plastic, paper, metal etc. The waste load on the civil bodies could have much more but for private sweepers and rag pickers who informally slog through the muck and snap up the refuse they want. Thus they nearly recycle 20% of 10,000 tonnes of waste that Delhi produces daily. ("Waste to Resources: A Waste Management Handbook", 2014)

**Rules and Guidelines for Waste Management**

India has provided for constitutional safeguards for the protection and preservation of the environment. It was in the 1970s that environmental jurisprudence gained prominence as many Public Interest Litigations were filed. Post the Stockholm conference, India, successfully passed various environmental laws. The Wildlife (Protection) Act 1972 was the first such statute to be promulgated.

Many laws for waste management were also passed -

The Water (Prevention and Control of Pollution) Act, 1974

The Water (Prevention and Control of Pollution) Rules, 1975

The Water (Prevention and Control of Pollution) Cess Act, 1977

Water (Prevention and Control of Pollution) Cess Rules, 1978

The Air (Prevention and Control of Pollution) Act , 1981

The Environment (Protection) Act, 1986

The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989

The Public Liability Insurance Act, 1991

The National Environment Tribunal Act, 1995

The National Environment Appellate Authority Act, 1997

The Bio-Medical Waste (Management and Handling) Rules, 1998

Batteries (Management and Handling) Rules, 2001

Hazardous Waste (Management, Handling & Transboundary Movement) Notified 2008

National Green Tribunal Act, 2010

The Plastic Waste (Management and Handling) Rules, 2011

E-Waste (Management and Handling) Rules, 2011i

The National Environment Policy, 2006 while suggesting measures for controlling various forms of environmental pollution lays emphasis on the need for collection and treatment systems for recycling wastes and devising measures for environmentally safe disposal of residues. Waste management in particular, is governed by various sub-ordinate legislations and the Ministry of Environment, Forest and Climate Change, Government of India (MoEF) in conjunct with State Pollution Control Boards of different states (SPCB) administer the gamut of waste management regulations.

### SWM IN CONTEMPORARY URBAN INDIA

The responsibility of waste management in India is primarily on the municipal bodies of the state. This constitutes the 'formal sector' of SWM arena. This formal sector is however not all-encompassing and is complemented by the unrecognized, unclaimed informal sector. This sector consists of thousands of ragpickers who earn their livelihood by collecting recyclable waste from areas not covered by the municipalities. The informal sector might however also work in the form of unions, organizations etc (eg Chintan or SWaCH). This trend of organizing themselves has been witnessed in the past few years. Thus, for lack of a better term, actors in this sector are sometimes referred to as the formalized informal sector. SWM has been, in the past few years, been outsourced to private contractors and these unions have attempted to enter the legal space by bidding for this work. The division between the formal and informal sector in the waste economy of India is thus not clear. The details of SWM in Delhi is elaborated in chapter 1.

### ORGANIZATION OF THESIS

The thesis presents its analysis in three chapters. The first chapter titled- **Landscapes of Waste in Delhi**- broadly looks into the experiences of Delhi with SWM practices, particularly the affair of civic agencies with privatization. The emergence of 'waste' as a managerial problem to be solved through better administrative approaches is analyzed. The next section looks at the different approaches to SWM and its cost-benefit analysis. Who are the new actors and interests working in SWM? The role of informal economy in SWM and the implication of privatization on the formal-informal relations has been discussed. How is

the informal economy affected by the entrepreneurial capital entering the waste market? The last section of the chapter deals with an analysis of the secondary literature on waste/dirt/trash to find answers to relevant questions. The contested 'space' of the city refers to how waste as a 'public' menace is perceived differently by the state on one hand, and the wastepickers on the other- the right to access of waste allows for the poor, marginalized section to gain entry into the city while simultaneously pushing them back to the fringes for the very work they do. The literature of waste is looked into to understand how was dirt defined?  How does economic development and growth associated with a 'Rising India' live alongside with dirty streets and iconic images of streets with piling garbage? This section also briefly looks at the question of identity in SWM- waste has, both materially and culturally, been associated with a particular caste. Does the entrepreneurial capital entering the SWM arenas bring about change or maintain the status quo?  The last section looks at the existing debates around these topics in the literature and forms the basis for further investigation.

The second chapter entitled- **Sites of contestation: Response of the State to the 'Waste Problem**- looks into the manner in which SWM practices have been approached in Delhi. The 'Waste Problem' arises only when waste makes its existence visible (when seen on open streets, for instance), and it reveals the inefficient civic agencies in managing waste as well as exposes the cracks in the vision of Delhi as a 'Global City' and India as an emerging economy. The chapter starts by analyzing the 'waste problem'. The next section looks into the ways in which solid waste management has been implemented in Delhi- it starts with analyzing the implications of the recently passed SWM Rules, 2016. Then it looks at the various infrastructural projects taken by the government with the aim of efficiently disposing of waste such as centralized composting plants, scientific landfills, privatisation of waste services etc. The particular focus of the chapter is on Waste-To-Energy Plants in Delhi as a 'panacea' to the waste problem- how it was advocated by the state, the effect on the informal sector, the opposition to the project by two very different groups- the wastepickers union and the middle-class, leading to an unlikely alliance between them. The

last section tries to analyze these policies of the government towards SWM to understand the state's perception towards waste generation and its claims to manage it.

The third chapter entitled- **Waste Conflicts: Response of the Wastepickers to the Governments**' Response- looks into the different ways in which the 'informal' waste economy has reacted to the projects undertaken by the government to solve the waste problem. The governments' actions to privatize the SWM arena, step by step, generated an equally strong response from civil society groups (environmental watchdogs and NGOs). This led to some sort of organization (in certain areas) of the wastepickers into unions, cooperatives etc. This chapter looks into the origin of such resistance, and the eventual 'formalisation' of the informal sector. What are the implications of such changes on the relationship of wastepickers with the authorities? How do these organisations function in relation to each other? The next section looks at Sarah Moore formulation of 'garbage' as a political tool and place it in the Indian context to analyze the manner in which waste has been used as a negotiating tactic by different interest groups and forms the basis of a much wider urban strategy.  What happens to the subjectivity of waste in this process?

# CHAPTER 1

# LANDSCAPES OF WASTE IN DELHI

*Waste to wealth is a belief that is gaining momentum. Swachh Bharat Mission provides opportunities for a large number of social entrepreneurs that are being devoted towards this.If we start treating waste as wealth, then waste will end up becoming a byproduct.* - Mr. Narender Modi on the 90th year celebrations of the EsselGroup (Business Standard, 2017)

The launch of SBM made possible a public discussion on waste management and sanitation. The Government has, in the past year, centered their focus on 'cleaning' the city through efficient SWM systems as well as individual behavioral changes. This is demonstrated through the passing of new Rules of SWM, 2016; the listing of states according to their cleanliness (Swachh Survekshan); privatizing part-by-part the SWM arena; implementing big technological solutions such as Waste-To-Energy plants, making a mediatized publicity of governmental schemes such as Free Toilet Scheme (to ensure villages and cities become Open Defacation-Free (ODF) etc.  The Delhi municipal bodies have taken up various such measures to ensure that waste is not visible piling up on the streets and are properly and systematically disposed of. The past few decades have witnessed an exponential rate of waste generated. In 2011, the Ministry of Urban Development estimated that the country's urban cities produced more than 150,000 tonnes of municipal solid waste (MSW) a day, with a view that this would likely double by 2020. (MoUD, 2013)

This chapter broadly looks into the experiences of Delhi with SWM practices, particularly the affair of civic agencies with privatization. The emergence of 'waste' as a managerial problem to be solved through better administrative approaches is analyzed. The next section looks at the different approaches to SWM and its cost-benefit analysis. Who are the new actors and interests working in SWM? The role of informal economy in SWM and the implication of privatization on the formal-informal relations has been discussed. How is the

informal economy affected by the entrepreneurial capital entering the waste market? The last section of the chapter deals with an analysis of the secondary literature on waste/dirt/trash to find answers to relevant questions. The contested 'space' of the city refers to how waste as a 'public' menace is perceived differently by the state on one hand, and the wastepickers on the other- the right to access of waste allows for the poor, marginalized section to gain entry into the city while simultaneously pushing them back to the fringes for the very work they do. The literature of waste is looked into to understand how was dirt defined? How does economic development and growth associated with a 'Rising India' live alongside with dirty streets and iconic images of streets with piling garbage? This section also briefly looks at the question of identity in SWM- waste has, in both its materiality and symbolically, been associated with a particular caste. Does the entrepreneurial capital entering the SWM arenas bring about change or maintains the status quo? The last section looks at the existing debates around these topics in the literature and forms the basis for further investigation.

## 1.1 THE 'CRISIS' OF WASTE: Beginning of 'waste management' in India

While the littering of the streets as well as lack of public sanitation has been a reason for frustration among Indian intellectuals and nation-builders from pre-colonial times, the focus of the state exclusive on SWM can be traced back to the Surat Plague of 1994. The plague in Surat resulted in widespread hysteria and panic. It brought the relationship between 'unmanaged waste' and disease to the forefront of policymakers and the public. This led to a new kind of surveillance and control by the authorities. The MCD banned all wastepickers activity as a consequence. The logic being that the garbage is spread by wastepickers and could be a threat to the health of the public. Government documents reemphasized this stance; the Bajaj Committee report[7] for instance notes, "the common method of disposal of the waste is by unplanned and uncontrolled open dumping at the land fill sites. In these sites,

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[7] The Bajaj Committee report is just one of many key government documents related to solid waste management and is considered a landmark document as was viewed to be quite progressive in its blatant acknowledgment of the important role of waste pickers at a time when municipal solid waste management had emerged as an issue deserving national scrutiny (Gidwani and Chaturvedi, 2011).

ragpickers often pick recyclable materials; rats, dogs and cattle forage for food; flies, mosquitoes and rodents swarm and thrive in these dumps." To address this problem, the report recommends "organized tipping of waste, use of mechanical equipment to level and compact the wastes and a final covering with earth followed by further compaction" in order to "reduce fly, rodent, animal and human intrusion into the garbage." Wastepickers, cattle, dogs, and rodents are all saprophytes that thrive on rotting garbage. They need to be done away with for all the harm they could cause." The subsequent protests by the NGOs led to the order being reverted. (Luthra, 2015)

Reports also mentioned the susceptibility of such workers who handle waste on a daily basis. The low mortality rates of the workers in the sector was recognized and acknowledged. Such a narrative became the basis for the proposal for 'modern' and 'scientific' SWM systems as better and socially-just alternatives. The Bajaj Committee while recognizing the contribution ogragpickers in recovery of recyclable material from urban solid waste, also warned that the wastepickers, particularly women, live in unhygienic and unsanitary conditions that is not acceptable (Planning Commission, 1995).

While the narrative that was established called for alternative work for wastepickers, none has been provided. Instead the government has implemented projects like Waste-To-Energy Plants that has led to the displacement of hundreds of ragpickers.

The littering on city-roads and garbage piling on street-corners does not mesh with the vision of a world-class city. A public interest litigation (PIL) was filed by Almitra Patel, an environmental activist, in the Supreme Court, alleging the inability of the municipalities in delivering proper SWM services to citizens. This led to a series of reports on the status of SWM in urban areas and the rules governing the management of municipal solid wastes was passed in 2000. These set of Rules were the first of its kind to specially focus on municipal SWM. The rules have been revised, almost 16 years later, to integrate wastes generated, apart from areas under municipalities. The analysis of the SWM Rules, 2016 has been elaborated in chapter 2.

**1.2 SWM IN DELHI: Different Approaches to SWM**

Waste management comprises a collective activity involving segregation, collection, transportation, re-processing, recycling and disposal of various types of wastes[8]. Waste is generated as a result of human activity and its rapid increase in the last few decades has made waste-management to be perceived as a battleground for civic authorities. It is estimated that by 2026, over 50% of India's population is expected to live in urban areas, leading to an exponential growth in quantity of waste generated. Delhi now has 25 million residents, making it the second most populous city in the world. Every day, its inhabitants generate about 10,000 tonnes of rubbish. The civil agencies in New Delhi alone spend nearly 4.7 crores of tax-payers money every day in order to manage garbage. (Toxicslink.org, 2017)

Waste in Delhi is managed by a combination of government bodies, private players and informal workforce. The MCD has for the past few years started outsourcing SWM to private firms. This is due to the inability of the civic authorities to handle waste of the city as well as a growing frustration among the public against MCD. Waste Management has been approached in Delhi as a technical problem that has a suitable technical solution such as technological innovations and inclusion of private players. It is in this context the solution that has gained favor is the integration of the stages of waste processing into a single system.

Three municipal bodies – the Municipal Corporation of Delhi (MCD), the New Delhi Municipal Council (NDMC) and the Delhi Cantonment Board (DCB), are responsible for solid waste management in Delhi. MCD alone manage almost 95 % of the total area of the city. The above authorities are supported by a number of other agencies. The Delhi Development Authority (DDA) is responsible for siting and allotment of land to MCD for

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[8] See Wikipedia page on Waste Management

sanitary land filling. Delhi Energy Development Agency (DEDA) under Delhi Administration (DA) is responsible for solid waste utilization projects aiming at bio- gas or energy generation in consultation with the Department of Non-Conventional Energy Sources (DNES), and Ministry of Environment and Forests (MoEF), Government of India. The Department of Flood Control of Delhi Administration looks after the supply of soil to be used as cover for sanitary landfills by the MCD. Apart from the above public agencies, other agents are also involved in SWM of the city including private sweepers and garbage collectors employed by the people for cleaning privately owned premises, waste pickers, waste dealers and recycling industries, which consume recyclable waste to produce recycled products. (Planeteerdelhi, 2012)

The manner of collecting and disposing of waste is decided by the municipalities in India. The approach to waste management is characterized by the involvement of the degree of the involvement of the private and informal sector. The search for solutions has broadly taken two different approaches – decentralized and centralized – driven by different actors and interest groups (Chatri and Aziz 2012).

The decentralized approach focuses on enhanced community participation in waste management, emphasizes the development of decentralized infrastructure such as local material recovery facilities and involvement of existing players in waste management, including the informal private sector. This approach does not promote large-scale models for waste disposal; instead argues in favor of onsite waste disposal- for instance, through small compost plants in colonies. The waste generated in such colonies will be treated where it is generated. This enhances citizen participation and reduces the dependence on the local government. Most decentralized form of SWM takes up the informal sector as a major player in waste collection- thus, at-source waste segregation is encouraged. This approach has been advocated by citizen groups, environmentalists, and civil society actors from non-governmental organisations (NGOs) as well as representative organisations of the informal sector. Small-scale private enterprises has also shown interest in this approach, seeing a social as well as business opportunity in SWM. Such a solution however cannot succeed

without cooperation of the local government (Chaturvedi, Arora and Saluja, 2015).

The case of Alappuzha district in Kerela demonstrates the success of such an approach. The municipalities in the district have withdrawn from the waste business. It does not collect waste because it has no place to take it to for disposal. The city's only landfill has been sealed by villagers who live in its vicinity. The burden of waste management now falls entirely on the people. They segregate and compost what they can. The compost is used for growing vegetables and plants in their homesteads. The non-biodegradable waste—paper, plastic, aluminum tins etc – is done by the well-organised informal sector. This approach has not only reduced the cost of collection and transportation incurred by the municipalities; but also places the responsibility of SWM on the waste-generator. (Centre for Science and Environment, n.d.)

The inability of local governments to deliver effective waste management services also forms the starting point for the centralised approach. This approach promotes large, centralized projects to manage waste such as central composting plants, setting up of waste-to-energy (WTE) plants and city-wide contracts with large formal waste management companies. Such an approach is very popular as it provides easy and perceivably 'fast' solutions to the problem of waste.  A shared interest and opportunity-based alliance exists between the local governments and large waste management companies who can obtain large value contracts for providing city-wide waste management services. The promise of a clean city, generating energy from waste and reducing the administrative and financial burden of the local government provides the necessary support for the alliance between the city government and the formal waste management companies. Civil society and citizen groups play a critical watchdog role in this approach but have limited active engagement in waste management. The widespread informal sector is seen as a competitor for the formal waste management agencies because it competes with the formal private sector actors for access to waste. (Chaturvedi, Arora and Saluja, 2015).

This approach has been found attractive by Delhi authorities and lately even by the National

Government that has been amenable to private firms in waste businesses as well as in the waste- energy sector. In Delhi for instance, the MCD has contracted with three separate companies—Delhi Waste Management (a subsidiary of the much larger SPML Infra Ltd), Ramky Enviro Engineers Ltd. (REEL), and AG Enviro Infra Ltd—for solid waste collection and transportation. These contracts allow the collection of waste from community garbage bins or *dhalaos* and transportation to the landfill. Such contracts have also started being extended to include door-to-door waste collection.(Luthra, 2015)

A combination of the two approaches described above can also be adopted. In these hybrid approaches, certain stages of waste management – usually collection, segregation and composting – are organised in a decentralised manner while recycling and recovery of materials (including energy) is organised centrally. The effort of the local government becomes essential, without which the conflict between different players can become a hindrance. The hybrid models, at least in theory, are able to overcome the conflict between the informal and formal sector, embedded in both the decentralised and centralised models. However, the critical challenge for implementing these models is to prevent the tendency towards centralization and ensure cooperation between the formal and informal subsidiaries. The formal/official sectors cooperation and assistance to the informal wastepickers is important for such a model to be successful (Chaturvedi, Arora and Saluja, 2015)

Such hybrid models require a formal recognition of the informal sector by the local authorities. In Pune for instance, the municipality has opened up avenues for co-operative of waste pickers to do door-to-door collection. The Solid Waste Collection and Handling (SWaCH) co-operative formally came into existence in August 2007. It has an active role in SWM of Pune and works in collaboration with the municipality outside the contract framework that characterizes the centralized model. Accordingly, the Pune Municipal Corporation is supposed to guide the co-operative without impeding its autonomous and independent nature. Local citizens and other NGO's are also participants in this model. A fee (set by the council) is collected from households and businesses by the cooperative. The waste collector has rights to the recyclable waste and retains the income earned from its

sale. The municipal council further states that sorting centres for the segregation of recyclable waste and non-recyclable waste will be established, preferably one in the centre of each ward. It is mandated that the Pune Municipal Corporation will provide the co-operative with funds for handcart maintenance, uniforms, gloves, insurance and other necessary requirements/services for the first five years, after which the cooperative needs to be self-sufficient.  This model has been implemented in 127 wards. This approach to SWM has improved the working conditions and income of the waste pickers. It has also simultaneously strengthened relations between waste pickers, residents and the state by making everyone more actively involved in service delivery (Chintan Environment Research and Action Group 2008, 23-25, 59-63) (Samson, 2009, p. 58-60)

## 1.3 THE INFORMAL ECONOMY OF WASTE

Increasing population and disposable income in the urban areas of developing countries has resulted in an exponentially high rate of consumption. The waste generation has thus been rising at an unprecedented rate over the last two decades. The 'littering' of public space, associated challenges of open dumping and burning of waste have come up as pressing issues large urban agglomerations with high density of population, unplanned urbanisation and weak physical infrastructure (Government of India 2009). However, the waste generated also creates economic opportunities for certain sections of the urban poor seeking to make a living in large cities. This consists of the poor, weaker residents of the city living on the fringes, making their subsistence through this waste. They form the informal sector of SWM- their work is not legal, in the sense that waste management is the responsibility of the municipalities. Thus, their work ends up in the grey areas of legality- while their contribution to SWM is substantial, yet their work remains unrecognized. They are simultaneously stigmatized for the work that they do. These actors are involved in the entire waste management value chain, from collection, segregation and transportation, to repair, reuse and recycling.

The informal sector of SWM has been an entry-point into the city for many who have migrated from the outskirts of the country. In my conversation with one of the ragpickers of

Delhi- Ranjit replies to my question on how he decided to do 'this' (kabadiwala) job:

*I came to Delhi to earn more money. The land at home (bihar) is small and I already have 4 brothers to take care of it. My friends were already settled here and they introduced me to this job. I had no money and this work required none of it. So I joined and I go around the sector on my cycle to collect waste that residents or anyone wants to sell. When I can, I send back some money home.* (personal communication, 2017).

The attractive feature of this sector is that it provides low entry-cost opportunities to the urban poor without making substantive investments.(Chaturvedi, Arora and Saluja, 2015) Thus, despite their marginalised position and their simple equipment, the wastepickers are able to recover up to one-third of the waste in a self-financing way (Gunsilius et al. 2011)

Thousands of ragpickers help to segregate wet and dry wet in almost every towns and cities. The work conditions are, more than often, hazardous that adds to their vulnerability. The increase in gated colonies around the city further stigmatises their entry and prohibits their access to waste. They contribute to reduce the waste burden of the city in the absence of proper facilities and infra-structure that has led to overflowing landfills. There are an estimated 1.6 lakh ragpickers in Delhi alone who segregate waste, first at the local level and then at the land-fill sites across the city to pick up whatever little they could to make to meet their both ends meet. They usually sell wet wastes to composting plants and dry waste such as plastic glass etc. to 'kabadiwallah' in return of money. (Gill, 2012)

With growing public awareness about waste-related problems and with increasing pressure on the government and urban local bodies to manage waste more efficiently, the concept of waste as —a material which has no use -is changing to —a resource at a wrong place.

Most dumping grounds, such as the one in Gazipur (Delhi) attract hundreds of individuals (referred as rag pickers) for recovery of a variety of recyclable material for sale. Most of these individuals live near or on the disposal site. This makes it easy for them to stock their goods, and have their family (in most cases young children) participate in the segregation

activities. These individuals work under conditions that pose a grave risk to their health and wellbeing (Singh, R., & Chari, n.d)

The informal system co-exists with and supplements formal systems of waste collection, treatment and disposal. The work of the wastepickers not only helps the environment (as recycling is the most sustainable way if disposing waste) but also reduce the cost for municipalities.

The legal structure of waste management does not completely ignore the informal sector. Within the myriad rules and policies of the government, Kabariwalas and ragpickers are recognised as part of waste handling in municipalities. The National Action Plan for Climate Change, 2009, states, ―While the informal sector is the backbone of India‘s highly successful recycling system, unfortunately a number of municipal regulations impede the operation of the recyclers, owing to which they remain at a tiny scale without access to finance or improved recycling technologies‖ Similarly The National Environment Policy, 2006, recommends legal recognition to the informal sector systems of collection and recycling through ―institutional finance and relevant technologies (National Environment Policy, 2006). Both the Plastic Waste (Management and Handling) Rules, 2011 and Electronic Waste (Management and Handling) Rules, 2011; directs the municipality to engage agencies or groups working in waste management including waste pickers. (Chintan, n.d.)

## 1.4 THE EMERGING PRIVATE SECTOR IN SWM

Delhi has been at the forefront to bring about improved, innovative and efficient approach to waste management. In this regard, many solutions have come up, ranging from PPPs (Public-Private partnerships) for streamlining SWM to technological solutions such as incinerator technology (waste- to-energy plants). In many instances, the scattered garbage across the city has been perceived in terms of failure of government authorities, which is compounded by issues of waste being commonly dumped in the open illegally and the three existing landfills already exhausted (Ghazipur (70Acres), Okhla (56Acres), Bhlasawa (40Acres)). Delhi‘s chief minister, Sheila Dikshit, claimed that MCD was inefficient and

corrupt as was proved by the accumulation of garbage across the city". Subhash Chopra, a vocal member of the Delhi Legislative Assembly has stated that privatization of garbage collection and disposal will be in the welfare of the city as the MCD has been a total failure on this count. Such a narrative depicts the problem being framed in the language of management failure; a technical problem to be solved by experts. (Schindle, Demaria, and Pandit, 2012)

The narrative of inefficient waste management services led to the popularity of the 'private' alternative. Privatisation is traditionally understood as the transfer of state resources and activities to the private sector. The privatization of SWM however merely does not replace the formal sector; but displaces the informal workforce of wastepickers and obstruct their access to waste.

Schindle, Demaria, and Pandit (2012), in their article, 'Delhi's Waste Conflict' have explained the overhaul of Delhi's waste management as unfolding in three distinct phases.

The first phase began in 2005 when the Delhi municipalities outsourced the waste collection at dhalaos or collection points. Thus contracts were offered for private firms to collect, segregate, and transport municipal solid waste from these areas. Companies were bidding for the waste itself as well as for the fee they would receive from the state for its collection (Chaturvedi and Gidwani 2011). Contracts gave some of these firms access as well as rights over the waste once it reached the transfer stations, from where the firms were responsible for moving it to landfills (Gidwani and Reddy 2011). A transportation fee was paid to the firms according to the nature and weight of the waste transported. The wastepickers, who have traditionally been recovering the recyclable waste were however not given any such payment. The first struggle over access to waste thus took place in these dhalaos between the private firms workers and the ragpickers.(elaborated in chapter 3). Since the private firms were paid on the basis of the weight of the waste transported, there was an incentive to ensure that recovery of waste by wastepickers was reduced and such leakage points were plugged.

The second phase (2005-12) can be characterized by the popularity and advocacy of WTE

plants to reduce the pressure in the already over-burdened landfills. These plants process waste into refuse-derived fuel (RDF) that is incinerated to generate electricity in the process. These plants require a supply of high-calorific waste such as paper and plastic as 'fodder' to generate energy which puts them directly in competition with the wastepickers as the same waste also has a high recyclable value. This further reduces the access of wastepickers to waste. WTE was also opposed by the middle class residents. The details have been elaborated in chapter 2.

The third phase, which began in 2012, extended the reach of private firms to households by granting them the right to door-to-door collection. This has led to a boom of private businesses (social entrepreneurial firms) in the recycling sector such as Pom-Pom, Ecowise, Kabadiwala, Scrapos, ekabadi, Kachrapatti, and KachreKaDabbaetc "that "collect and pay for recyclables right at your doorstep as per your convenience of time and location". (Pom-Pom, n.d).

In one example, the MCD signed a contract with Delhi MSW Solutions, which is itself a subsidiary of Ramky, to manage waste in four of the city's zones (Civil Lines Zone, Rohini, Vasant Kunj and Dwarka/ Pappankalan). This contract includes door-to-door collection, transfer and transportation of municipal solid waste, the development of an integrated Municipal Solid Waste Processing Facility (including a waste-to-energy plant) and an Engineered Sanitary Landfill. Thus, the entire waste management chain in these four zones is being integrated under the control of a single firm and waste workers have essentially no access to waste.(Schindle, Demaria, and Pandit, 2012)

Two aspects of MCD were privatised: The first is related to transportation of the waste and the second to its appropriate disposal, recycling or use in waste to energy projects. In Delhi, MCD makes the rules and gives out contracts to private players. The private contractor is paid for the waste collected by weight. The ownership of the recyclable waste lies with the contracting company. The private contractors have the right to manage the dhalaos (an intermediary transfer point, often like a room) as their own spaces, with rights to advertise on the walls and to fence off the waste dumped there. Additional spaces to store the segregated dry waste will be allocated to the contractors during the 8 year contract period.

The contractor is expected to segregate waste in a graded manner over time. Privatization in Delhi is thus not a direct transfer of a set of services from the government to the private sector. Both the collection and disposal services provided by the government and the segregation services by the informal sector, were handed over to the private contractor. Public assets of built land and space were also handed over as part of the contract. (Chintan, n.d)

The process of contracting with private firms was initiated without any discussion or consultation with interest groups. The NGO's argued that such a SWM model did nothing to promote segregation-at-source and marginalized the informal sector.

MCD contracted with three companies to begin in June 2005. Each contractor was to ensure that the waste in the dhalao was segregated, the dhalao and its defined surroundings of 25 feet was clean and the waste was collected and transported at regular hours to the landfill. Each contractor was given a list of existing dhalaos to ease their work. Thus, there have been attempts to radically transform SWM by the MCD that has left out the informal sector redundant in the new policy framework. The MCD's efforts are directed at processing waste in the final instance – what Schindle et al. call 'end-of-pipe' solutions. The cornerstone of this strategy is the construction of waste-to-energy plants that is an attractive solution but would require an overhaul of the entire waste management system and will have drastic impact on the existing formal and informal waste management systems. The privatisation of door-to-door collection is then a systematic step towards disconnecting the formal system from the informal system and preventing waste workers from accessing waste. Such a privatization from one point to the last aims to plug the 'leakage points' through which waste is accessed by the informal sector. (Schindle et al., 2012)

There are many rules recognising informal waste-pickers. Despite this, a study of the contract signed with the private contractor reveals that the work of the informal sector, as it is being actually performed, has not been taken into account. The non-recognition of their work and invisibility as an efficient, organised force may be the reason for their exclusion.

Secondly, the working of the sector is poorly understood by those involved in designing the process and thus may not be considered a good fit. Thirdly, the vision of a city with an efficient system of privatized waste does not include wastepickers or other informal sector recyclers, since they are in contradiction to the idea of the modern and the ordered. A former Chairperson of the NDMC expressed the imagined city succinctly when he remarked, "I want our streets to look like Singapore". (Chintan, n.d)

The focus on a centralised approach poses a major threat to the livelihoods of the waste workers because they must increasingly compete with private firms for ownership and control over recyclables at multiple stages (Schindler, Demaria and Pandit 2012). Both the informal and formal sectors are interested in the high calorific value of the recyclable fraction of the waste. The informal sectors sustain their livelihood without making substantial investment through recycle garbage. The private firms, on the other hand, profits from the same 'garbage' as it would like to maximise the returns on the infrastructure investments. The right to access to waste becomes the main bone of contention- the privatization of SWM not only displaces the informal sector but also reduces the recovery and recycling efficiency (Gidwani and Reddy 2011;Cavé 2012).

Chintan[9] (an NGO) has documented the effect of privatisation of the waste management system on informal workers. The article taken out by them looks at each level of informal sector and analyzes the changes. For the Wastepicker, there is a gradual displacement from their work. There is an artificially increasing competition for a limited resource. Further, the informal economy works with a mutual understanding of territorial control; each worker has a fixed route. Alternatively, a few wastepickers take over dhalaos, from where they mine the waste as it is thrown out. Privatisation breaks down this system by introducing 'bin guides' where waste is no longer shared amongst a vast community of poor but is a monopoly. Further, the ownership of space-the dhalaos and bins-has also negatively impacted

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[9]Chintan was established in December 1999 as a means of addressing issues of sustainable consumption and environmental and social justice. It works with informal workers in waste management. See website for details. URL:
http://www.chintanindia.org/about_goals_and_objectives.htm

wastepickers. Earlier, they would segregate their waste in these dhalaos, as the only available space to undertake such work. Now, DWM[10] (Delhi Waste Management) does not allow this and has therefore taken away the only 'work space' available to such persons.

The new format of privatisation seems to disregard wastepickers in the system and thus deny them any rights.

## 1.5 ACTORS AND INTEREST IN WASTE

Who is interested in waste? The manner in which policies have evolved, waste management has come up as an attractive venture for new players such as private businesses. This has led to a ripple effect on the formal-informal structure of waste management system of Delhi where access and rights to waste is a strong subject of negotiation between different players. This also brings up the old question of caste-class implications of such new additions to an arena that both, symbolically and materially, have been associated with lower-castes.

Waste, much like its composition, is a complex challenge. The starting point for understanding the complexity and associated challenges is to recognise the multiplicity of actors, interests, technologies and approaches. How actors, interests and approaches to SWM intermingle with each other, becomes crucial to understand the coalition that is dominant at any juncture. The post- 2012 scenario in Delhi and many big cities of India has demonstrated a shared interest and opportunity-based alliance between the big waste management companies and the state to transform the urban landscape. This has definitely shrunk, if not eliminated, the space for alternative approaches. On occasions these alternative approaches – supported by environmental NGOs, informal sector activists or even certain sections of the state – express themselves in the various policy processes and platforms contesting the dominant approach. (Chaturvedi, Arora and Saluja,2015). The wastepickers for instance have formed unions, cooperatives etc to put forward a united stand against privatization (elaborated in chapter 3). The way in which Delhi undertook changes in its waste management policies has however led to a conflict between existing and new

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[10]Delhi Waste Management (DWM) is a consortium of transportation companies and financiers. Contracted by the MCD for SWM

systems, disconnected the implicit understanding between formal and informal structures of waste management without providing space for dialogue and conflict resolution. The apparent dismissal of the informal sector will be a constant hindrance to any PPP based innovation as conflict will arise between the (now) divided parts of the private sector-formal and informal.

The question of access to waste becomes prominent when contracts by government bodies give private firms access and rights over waste, including door-to-door collection that was hitherto the domain of kabadiwalas.

## 1.6 IDENTITY AND WASTE: Contested Space of The City

In his recent visit to Australia, the newly elected Indian Prime Minister Narendra Modi invited the Indian diaspora in Australia to join his efforts to clean up India and promote his flagship programme, Swachh Bharat Mission (SBM). He argued

> *Dirt attracts illness and the poor man suffers, due to which work days are lost and monetarily too. I invite your participation in the drive.* ("Prime Minister Narendra Modi invites diaspora to join in Swachch Bharat, build toilet", 2017)

The governments cleanliness drive cannot be faulted for being impractical; infact the appeal has a strong  modern underpinning, what Christine Sylvester would describe as uncritical faith in the  'winning virtues of the West' , appealing to humanitarian concerns and citizen responsibility.

Delhi is the city of a large middle class population with high disposable incomes. With rising economic development, there has also been a simultaneous growth in consumerism and its associated waste. The large urban middle class population is part cause and part effect in this process of economic growth. It contributes to economic development by providing a very large market for consumer commodities. Numerous scholars have acknowledged the difficulty in defining the Indian middle class, not least because of its multitudinous and diverse nature (Fernandes 2006, Nisbett 2007). The middle class however becomes a focal point as the producer of waste is also really the 'consumer' of primary

goods; thus inverting the classical understanding of markets. (Gill, 2010)

With India on an upward growth trajectory, the next step is to 'look' developed and that involves the removal of 'dirt' from the streets of major cities such as Delhi. Development is not a dirt-free phenomenon. In the Economic and Philosophic Manuscripts of 1844, Karl Marx made this comment about early capitalist development: 'Dirt-this stagnation and putrefaction of man-the sewage of civilization (speaking quite literally)-comes to be an element of life for him. Utter unnatural neglect, putrefied nature, comes to be his life-element'. Most urban centres, mid 19$^{th}$ century London for instance, was covered in dirt at its height of industrial revolution. Dirt however cannot only be attributed to development. Dirt, in the form of street littering and garbage on roadsides, has been characteristic of India since colonial times.

First, the question that needs to be answered is: What is dirt? Is it merely material that is no longer needed and thus thrown out? Certain groups of people have been associated with polluting the city with waste. Middle-class environmentalism[11] has been directed towards removing this kind of waste (eg. illegal slums) that they believe is an eyesore to the promise of a 'clean and green city'. Such environmentalism is not necessarily effective or socially progressive- instead it is often violent towards certain marginalized, poor sections of the city (Baviskar, 2003; Bhan, 2009; Gandy, 2008; Ghertner, 2012; Mawdsley, 2009; Menon-Sen, 2010; Truelove and Mawdsley, 201). Fernandes (2004) has termed this process a "politics of forgetting" which she defines as a politico-discursive project in which the middle classes have been effectively able to engage the state in urban restructuring processes from which the poor are displaced in order to create and maintain urban spaces in the interest of those classes. AmitaBaviskar (2003) has famously articulated how Indian middle-class bourgeois environmentalism, in the form of intra-class alliances with the state, invariably disenfranchises the urban poor that tend to occupy public spheres in the name of creating clean and green public spaces. Baviskar has termed this process of bourgeois environmentalism as "an organised force whereby upper-class concerns around aesthetics, leisure and safety have come significantly to shape the disposition or urban spaces".

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[11]See Baviskar 2003, Harris 2011 for further analysis on middle-class environmentalism

India's pre-colonial rulers were also perplexed with urban public spaces that were typically chaotic; all kinds of rituals- washing, changing, sleeping, urinating and cooking[12] - were performed in these spaces. The bazaars and galis were characterised as unplanned, disordered, filthy and threatening. The display of bodily functions in public spaces reinforced an Orientalist discourse about primitive cultures' failure to distinguish between public and private, driving colonial attempts to 'impose an alternative metropolitan spatial order wherein a network of manicured, broad avenues [were] marked against the imagined disorder of the "native" quarter'.(Edensor,2014; Doron and Raja, 2015). Even nationalist leaders, most famously Mahatma Gandhi himself, have also expressed their frustration over lack of civic consciousness amongst Indians.

Mary Douglas (1966) in her pioneering work, 'Purity and Danger', analyzed the cause for this lack of civic sense and the carelessness with which public spaces were (are) polluted. Douglas famously argued that dirt is 'matter out of place': a product of social disorder, that poses a threat to established categories and social arrangements, and is therefore considered polluting and dangerous. Douglas gave an incisive understanding of the Hindu caste system and the conducts of purity and pollution that governed individual contact and was also mirrored in the body politic. Douglas postulates that the disregard for public space is entirely in line with the caste system and its preoccupation with ritual hierarchies based on purity and pollution (Doron and Raja, 2015). She took up the case of open defecation to demonstrate this carelessness (which can be extended to include all kinds of waste in the modern period that is thrown out in the streets and fill open garbage dumps). The urban public space can be littered, polluted, spitted on as the task of its cleaning is expected to be done by sweepers-those appropriately placed to deal with polluting substances. The cleaning of human excreta and other waste does nothing to undermine upper-caste purity; if anything reinforces it by clearly distinguishing themselves from the unclean tasks being performed by

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[12]Tim Edensor, 'The Culture of the Indian Street', in Nicholas Fyfe (ed), Images of the Street: Planning, Identity and Control of Public Space, London: Routledge, 1998, p 204; and see Warrick Anderson, Colonial Pathologies: American Tropical Medicine, Race and Hygiene in the Philippines, Durham, NC: Duke University Press, 2006

"untouchables". Much as activities like eating and dressing, in India defecating also serves to reproduce the social order. (Doron and Raja, 2015)

Notions of hygiene are thus not fixed and vary across spatial and temporal contexts. The lack of hygiene and cleanliness while 'bad'; is also enmeshed with moral and ideological underpinnings. The vision of dirt has been accompanied with a signal of immorality. In Nichols' (2008) words, "the need for sanitation is conflated with the moral demand for purity".

In his essay 'Of Garbage, Modernity and the Citizen's Gaze', Dipesh Chakrabarty (2002), drawing inspiration from Douglas, attempts to put forward cultural specific conception of space. Chakrabarty argues that the 'inside' is constantly safeguarded against the threatening, polluting, malevolent forces associated with the 'outside'. The outside is a much more ambiguous space. It need not follow the same social order and threatens the very purity of the private. It is occupied even by the 'dangerous' castes. Chakrabarty however argues that this outside can be understood as a space where the subaltern could survive on their own terms, be assertive. He then views the lack of civic sense as the larger public's 'refusal to become citizens of an ideal bourgeois order' (p.76). The phenomena of dirty public spaces can be placed within the framework of resistance to transformation of the chaotic bazaar into sterile public spaces.

Chakrabarty's analysis thus places the responsibility for public filth on the 'non-bourgeois peasant-citizens', who have merely been unwilling to follow the 'attendant rituals of public life'(p.77-78). The public space however is not an exclusive domain of these castes. The question that needs to be addressed is not who is responsible for our public spaces being filthy (we all are); the point rather is to ask, who has the choice of retreating to a private arena which is clean and hygienic, and who, on the other hand, has perforce to live with the filth and/or stay back and clean up after.(Doron and Raja, 2015, p 194)

Valerian Rodrigues (2009), responds to Chakrabarty's thesis, by arguing that the mixing of castes, typical of public spaces, renders them not ambiguous but impure. This very impurity allows for a certain acceptability of the filth and displacing any responsibility towards it- 'let

them be' until the 'right'person of an appropriate caste comes to clean up. The dirty public spaces, according to Rodrigues, has less to do with a certain class of people's 'refusal to become citizens of an ideal, bourgeois order', than it has to do with the neglect of spaces people share with those beneath them in the caste hierarchy.

The 21st century has witnessed a sharp rise in the middle class that is no longer willing to exclusively occupy the private 'pure' space that they can affordably carve out for themselves. The public space however can no longer be tolerated as filthy now that the middle class are intent on claiming public spaces for their private consumption. Slums are now demolished to make way for malls and parks, and roads and pavements are now cleaned up for ease of access and expeditious movement of goods and people. Middle-class environmentalism defines the fundamentals for a sustainable and green city that requires not only the cleaning up of public spaces but also an intolerance for people who do not fit the description of responsible citizens committed to the regime of cleanliness and hygiene. The poor are then once again excluded, not simply for ritual and economic reasons, but for being 'deficient' citizens. (Chakrabarty,p 77; Doron and Raja, p 195)

The rise of gated colonies, parks (urban green spaces), malls etc in contemporary Delhi depict the middle-class occupation of public spaces that are governed by rules of cleanliness and hygiene. The informal economy of waste provides a key entry point to study the marginalized sections who work with 'unwanted' trash in order to enter a very reluctant social order. Moore argues that garbage has been used as a 'political tool' as well as source of livelihood to gain 'right to the city'. The wastepickers collect waste from all over the city- this requires everyday interaction with households helps, suspicious authorities, gatekeepers and caretakers of colonies/flats, municipal sweepers etc. They are constantly involved in 'artful negotiations, temporary compromises and subtle contestations over rights of movement and access to the ritually pure inside-space, habituated by the elite that is isolated from the polluting outsiders in the city' (Gill, 2012). Gill demonstrates the manner in which the divisions and stratifications inherent in social interactions and subtle actions in the 'modern' age is to ensure that the 'pure' is not defiled by what is considered 'impure'.

The subaltern is conscious of its 'place' and thus attempts to earn its livelihood through any means that gives them advantage in a vast and brutal urban milieu.

Those working with waste still largely belong to certain castes and minorities- dalits, muslim minorities, christian converts and bangladeshi migrants- who enter this unconventional trade of wastepicking for recycling. A hierarchy is subtly maintained between the formal municipal worker and lesser informal collector of waste. There is a further divide within the wasteworker community, depending upon the degree of contact with ritually polluting materials (elaborated in the 3$^{rd}$ chapter).

For the wastepicker, waste offers a hope for a good livelihood and an upward mobility in a socially resistant society. At the same time, the same 'castes' of people working in the sector also demonstrates the unfulfilled promise of freedom from the oppressive traditional occupational order that is the domain of the low caste groups (Gill,2012). Interestingly, the 'lucrative' business of waste has also drawn superior caste groups to enter the market directly at the top (eg. as big recycling firms or private firms bidding for city-wide contracts from MCD). These castes work with waste yet at the same time remain 'pure'. The actual handling of waste is left to the employees (who end up being former wastepickers- belonging to a certain caste).

The increasing privatisation of waste management, particularly door-to-door collection of waste, closes off access of the informal worker to the streets and the resource to the itinerant buyer and waste picker. Corporate capital has been showing interest in entering this 'waste market' that has traditionally been low status area of work. While many NGO's have protested against such privatization on the ground that it leads to the displacement of many wastepickers whose livelihood depends on the access to waste; others have argued that private firms will employ and absorb the informal workers into the formal sector. This has also come to be true- as many contracts are awarded to private firms, many wastepickers have had to 'advocate' for jobs in these firms. However, such an understanding does not take into account the informalisation of work that exists within the exalted formal sector

where labour works with no security, no decent work conditions, nor benefits, and certainly not the right to organize and protest against any of the above. Dharmendra Yadav, of the All-India Waste Workers Union, stated in an interview, that under a pilot scheme, the waste collection company now employs some waste pickers to manage the dhalaus. They are paid the minimum wage of 4,500 rupees a month — less than they would earn if they were still working independently. The private firm aims for maximizing profit and this can only be done by undervaluing labour (since only that cost is variable)- so minimum wage is paid to the worker while demanding greater productivity by a smaller number of them. Waste collectors may then find the informal market engagement with their own kind a better option even if it's a shrinking and increasingly policed site.

Similar arrangements- where rag pickers are employed as labour rather than earning income from recycling independently- are have been made in the case of the Gazipur WTE plant that will replace a landfill site.

The WTE plants are being promoted by the central government as a panacea to the waste problem of the country. These units are conveniently located in the outer fringes of the city at Okhla, Ghazipur and Bawana. This has led to a protest by middle-class residents who inhabit the neighborhoods surrounding the plant. A shared interest in opposing these WTE plants has led to an unlikely alliance between the

Such centralized approaches go against the preferred rank order of SWM options to maintain environmental sustainability. The priority goes like this: reduction, reuse, recycle, energy recovery and disposal. The private wastes to energy recovery plants are preferred despite going against the accepted logic. The technology requires high-calorific waste that has recyclable potential and by diverting this waste into the WTE plants, not only will recycling be disincentivised but also disrupt the informal waste economy, leaving thousands wastepickers out of work.

# CHAPTER 2
# SITES OF CONTESTATION:  RESPONSE OF THE STATE TO THE 'WASTE PROBLEM'

*I buy a packet of chips. I keep the packet safe in my pocket or my bag as long as I have chips in it. After the last bite of chips is taken, the packet suddenly becomes the most disgusting thing in the world. I need to dispose of it as far from me and as soon as possible; even if I am littering the ground as a result or mixing it with other waste.*
Mr Imran Khan, Assistant Manager, Voice for Waste programme
(personal communication, 2017)

The very visibility of waste, its "brute physicality" in a country that is striving to be included in the list of developed nations, is a rather embarrassing portrayal of systemic failure. There is a general disgust towards this waste that needs to be hidden and disposed of in an efficient manner. The streamlined, efficient disposal of waste becomes a marker of a civilized society and developed economy. Garbage is an everyday phenomenon. We throw all our trash- things that are of no 'value' to us any more- in bins or dump them in areas that are out of sight. Waste generated in a neighborhood does not stay there- it is dumped far away, most often in poorer localities. What happens to it after its dumping is rarely any of our concern, until it makes itself visible through its stench in the areas we inhabit.  Our waste habits are then marked by *distance, disposability* and *denial*. (Hawkins, 2016). Waste simply gets taken "away" and while there is a general awareness of the manner of its disposability- landfills and dumping grounds in the peripheries of the city use of technological solutions etc - it is acceptable till the waste is out of immediate sight and Not In My Backyard (NIMBY). This distanced relation most citizens (generally populations living in regulated colonies and planned areas of the city) have with waste facilitates a feeling of denial of any kind of a 'waste problem' and absolves us from any guilt with regard to our lifestyle choices.

While the creation of bins and marked urban 'green areas' in cities are accepted as a positive step geared towards developing a more civilized modernity; the very rubbish these bins withhold gets regarded with revulsion and their visibility is seen as unacceptable.  The very scrutiny of this waste- its contents, volume, pathways etc. - depicts that waste is a cultural performance. This "*organised sequence of material practices deploys certain assumptions and bodily techniques*" in which "*waste matter is both defined and removed, a sense of order is established and particular subject made.*" (Hawkins, 2006, p.2). Waste is then not something fixed, without any context, just existing- it is an effect of how it is perceived. The State's response to the 'problem of waste' then forms an important historical context in which the cultural performance as well as the very materiality of waste becomes prominent. Mary Douglas in her work 'Purity and Danger' provides us with a strong cultural theory of waste. Douglas focuses on dirt as a spatial issue- *where* this waste exists, not on *what* it is. How our society and environment is organised determines the classification of what constitutes as waste. "*Dirt*", writes Douglas, "*is the by-product of a systematic ordering and classification of matter, in so far as **ordering involves rejecting inappropriate elem**ents.*"(Douglas 2000, p 36; emphasis mine). As most often quoted, dirt is 'matter out of place'. It does not exist out of the social order; instead makes the order of system more visible. Douglas argues; "Where there is dirt, there is system". When certain objects are not in their required place in the social order, it becomes 'dirt'. Douglas thus focuses on the location of dirt and firmly places it within the terrain of cultural rituals and their symbolic meaning.

However, merely analyzing the cultural aspect of waste is not enough. Sometimes, waste is too 'real', seeping into well-ordered lives, exposing the contradictions of a lifestyle that desires a clean environment as well as no obstruction to unlimited consumption. This makes the materiality of waste important to scrutinize. What do we dispose of? Which waste is unacceptable enough for certain groups, the middle-class for instance, to raise their voices against the government? What constitutes of waste and who produces it becomes integral to understand the politics surrounding it. As Gay Hawkins argues

> '*The mountains of cheap and broken consumer durables signify an economy utterly dependent on disposability. The greasy fast food packaging reveals a decline in home cooking. Waste becomes a social text that discloses the logic/illogic of culture. It*

*becomes subordinated to human action, a slave to desire and manipulation. In the demand to show how waste is a result of cultural practices- from religious taboos to consumer capitalism- the active connections between humans and wasted materials in which both are produced are hard to see. The action seems to flow all one way. Waste is reduced to a product of culturally and historically variable human practices; what we want to get rid of tells we who we are*'. (Hawkins, 2006 p.vi)

This study thus adopts from the Urban Political Ecology approach that argues against the binary of nature and culture- and for the purpose of study, the opposition of human and waste. What we get rid of also *makes us who we are*. How waste is produced, its presence/absence, visibility/invisibility; how it becomes recognizable and representable as dead matter - affirms our own subjectivity- a sense of self. Hawkins attributes sociality to how waste becomes present to us, how it is encountered and experienced. Within the dynamics of these relations, one can analyze the mutual constitution of human subjects and inanimate waste objects. How waste is managed, when does it become visible enough to become a public issue, the negotiations that evolve as a result of the manner of its disposal- is fundamental to the practice of subjectivity.

While waste is not given a separate agency in the study- it is understood in terms of its interactions with humans. As Gay Hawkins argues

'*To reduce waste as an effect of human action and classification is to ignore the materiality of waste, its role in making us act; the ways in which waste is both a provocation to action and itself is a result of action…*' (p 4, 5)

This chapter aims to look into the manner in which the Indian state[13]has responded to the 'problem of waste'. Waste is recognised as a problematic issue as soon as it becomes visible in those parts of the city that is marked by a priori civilised and planned structure. This waste then harshly exposes a deviation from the striven for ordered state. The government then looks into faster ways to dispose of with the city's trash. The manner of collection of waste from households, hotels, markets etc. and its disposal creates a space for interaction between city managers, waste-pickers and waste-producers. For the purpose of the study, the focus is on solid waste being generated by households in general. The waste generated

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[13] Indian state and government has been used interchangebly

by households tends to not be segregated-at-source and thus becomes mixed with all other rubbish. However, recyclable objects such as old newspapers, magazines, cardboard boxes are still sold to the colony-chosen kabadiwalas for some value and then taken on by him to sell it further. Value of certain rubbish thus does not end at this point by certain households. The reason for this environmentally conscious act range from concern for the environment, the monetary value in its selling, the effect of social pressure, role of cultural conceptions of waste and class-differentiated experiences of service delivery (Cornea,Veron and Zimmer, 2017; pp 738). The day-to-day collection and disposal of waste is formally the responsibility of Urban Local Bodies in India and is guided by a number of central policies and agencies. This chapter looks briefly into the new Solid Waste Management Rules, 2016 issued by the Environment Ministry and its effect on ground. The next section looks into the different initiatives taken up by the government for the disposal of waste- landfills, privatisation of waste collection, central compost plants and waste-to-energy plants. The context in which these waste disposal practices came to get popularised by the government and its eventual contestation by other actors, leading to unlikely alliances between the Delhi's middle class and ragpickers is elaborated.

How can one look at the manner in which the Government has traditionally looked into the waste problem? Are the laws and rules passed by the centre/state merely symbolic- aimed towards temporary "crisis management" or do they entail more substantive understanding of waste generation? Initiatives such as Waste-to-energy plants point towards a centralised approach towards waste management- how have these been introduced and under what circumstances do such moves become contentious? What do actions that aim towards invisibilizing waste do to waste? When does the middle-class become interested in the disposal of waste?

This chapter takes up secondary sources and official documents released by the government to find answers to these questions. The author has also used her own experience visiting the Okhla Waste-To-Energy Plant as well as semi-structured interviews with ragpickers (central Delhi localities) to substantiate certain arguments.

## 2.1 SOLID WASTE MANAGEMENT RULES, 2016

Failure of municipal bodies to handle solid waste appropriately has been demonstrated in the form of many legal petitions and the court has many a times, pulled up the agencies for answers on issues such as illegal dumping, open burning of garbage etc. The 1994 plague in Surat brought to the forefront the problem of "unmanaged" urban garbage. A petition was filed that led to the drafting of India's first Municipal Solid Waste (MSW) Rules in September 2000 (PIL No.W.P. [C] 888 of 1996 Almitra H. Patel vs Union of India and Others)[14]. They laid down certain rules and guidelines that held the municipal governments accountable for efficient SWM.

Almitra Patel claims that the SWM Rules are "*a powerful weapon that any Indian citizen can use to demand improved performance and accountability*"[15]. (Demaria and Schindler, 2016, p.304)

Solid Waste Management Rules has been revised by the Environment Ministry after 16 years, the earlier being notified in 2010. While announcing the revised SWM rules, Minister of State (Independent Charge) of Environment, Forest and Climate Change, Shri Prakash Javadekar pointed out that 62 million tonnes of waste is generated annually in the country at present, out of which 5.6 million tonnes is plastic waste, 0.17 million tonnes is biomedical waste, hazardous waste generation is 7.90 million tonnes per annum and 15 lakh tonne is e-waste. He added that the per capita waste generation in Indian cities ranges from 200 grams to 600 grams per day. Javedkar further emphasized that 43 million TPA (tonne per year) is collected, 11.9 million is treated and 31 million is dumped in landfill sites, which means that only about 75-80% of the municipal waste gets collected and only 22-28 % of this waste is processed and treated. This generation of waste will only increase in the coming years. It is estimated to increase from 62 million tonnes to about 165 million tonnes in 2030. (Press Information Bureau, 5th April 2016)

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[14] See http://courtnic.nic.in/supremecourt/temp/wc%2088896p.txt
[15] See http://www.almitrapatel.com/

Some of the **salient features of SWM Rules, 2016** (as mentioned in the public notice by PIB) include**:-**

1. The Rules are now applicable beyond Municipal areas and extend to urban agglomerations, census towns, notified industrial townships, areas under the control of Indian Railways, airports, airbase, Port and harbour, defence establishments, special economic zones, State and Central government organizations, places of pilgrims, religious & historical importance. This was done with the objective to ensure effective implementation of the Rules and achieve objectives of the Swachh Bharat. Therefore, the word 'municipal' has been removed from the SWM rules, 2016 (earlier called the Municipal Solid Wastes (Management and Handling) rules, 2000

2. The *source segregation of waste* has been mandated to channelize the *waste to wealth* by recovery, reuse and recycle.

3. The 2010 rules did not assign any duties to the waste generator. The SWM 2016 rules introduces Responsibilities of Generators to segregate waste into three streams: Wet (Biodegradable), Dry (Plastic, Paper, metal, wood, etc.) and domestic hazardous wastes (diapers, napkins, empty containers of cleaning agents, mosquito repellents, etc.) and handover segregated wastes to authorized rag-pickers or waste collectors or local                                                                                          bodies.
   Thus, the event organizers, Resident Welfare and Market Associations, Gated communities, institution and SEZ have been assigned responsibility.

4. No person should throw, burn, or bury the solid waste generated by him, on streets, open public spaces outside his premises, or in the drain, or water bodies.

5. Waste Generator will have to pay **'**User Fee' to waste collector and for 'Spot Fine' for Littering and Non-segregation. Imposition of user charge and fine will improve waste collection and management and strengthen the financial position of local authority.

6. The issue of collection and disposal of sanitary waste like diapers, sanitary pads and other disposal items have also been addressed. They should be wrapped securely in pouches provided by manufacturers or brand owners of these products or in a

suitable wrapping material and shall place the same in the bin meant for dry waste / non- bio-degradable waste.

7. *The concept of partnership in Swachh Bharat has been introduced. Bulk and institutional generators, market associations, event organizers and hotels and restaurants have been made directly responsible for segregation and sorting the waste and manage in partnership with local bodies.*

8. All hotels and restaurants should segregate biodegradable waste and set up a system of collection or follow the system of collection set up by local body to ensure that such food waste is utilized for composting / biomethanation.

9. All *Resident Welfare and market Associations, Gated communities* and institution with an area >5,000 sq. m should segregate waste at source- into valuable dry waste like plastic, tin, glass, paper, etc. and handover recyclable material to either the authorized waste pickers or the authorized recyclers, or to the urban local body.

10. The bio-degradable waste should be processed, treated and disposed of through composting or bio-methanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local authority.

11. New townships and Group Housing Societies have been made responsible to develop in-house waste handling, and processing arrangements for bio-degradable waste.

12. Every street vendor should keep suitable containers for storage of waste generated during the course of his activity such as food waste, disposable plates, cups, cans, wrappers, coconut shells, leftover food, vegetables, fruits etc. and deposit such waste at waste storage depot or container or vehicle as notified by the local authority.

13. The developers of Special Economic Zone, industrial estate, industrial park to earmark at least 5% of the total area of the plot or minimum 5 plots/ sheds for recovery and recycling facility.

14. All *manufacturers* of disposable products such as tin, glass, plastics packaging etc. or brand owners who introduce such products in the market shall provide necessary

financial assistance to local authorities for the establishment of waste management system.

15. All such brand owners who sale or market their products in such packaging material which are non-biodegradable should put in place a system to collect back the packaging waste generated due to their production.

16. Manufacturers or Brand Owners or marketing companies of sanitary napkins and diapers should explore the possibility of using all recyclable materials in their products or they shall provide a pouch or wrapper for disposal of each napkin or diapers along with the packet of their sanitary products.

17. All such manufacturers, brand owners or marketing companies should *educate the masses* for wrapping and disposal of their products.

18. *All industrial units using fuel and located within 100 km from a solid waste based Refused Derived Fuel (RDF) plant shall make arrangements within six months from the date of notification of these rules to replace at least 5 % of their fuel requirement by RDF so produced.*

19. *Non-recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of on landfills and shall only be utilized for generating energy  either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.*

20. High calorific wastes shall be used for co-processing in cement or thermal power plants.

21. An event, or gathering organiser of more than 100 persons at any licensed/ unlicensed place, should ensure segregation of waste at source and handing over of segregated waste to waste collector or agency, as specified by local authority.

22. *Special provision for management of solid waste in hilly areas:- Construction of landfill on the hill shall be avoided. A transfer station at a suitable enclosed location shall be setup to collect residual waste from the processing facility and inert waste. Suitable land shall be identified in the plain areas, down the hill, within 25 kilometers for setting up sanitary landfill. The residual waste from the transfer station shall be disposed off at this sanitary landfill.*

23. *In case of non-availability of such land, efforts shall be made to set up regional sanitary landfill for the inert and residual waste.*

24. *Integration of waste pickers/ ragpickers and waste dealers/ Kabadiwalas in the formal system should be done by State Governments, and Self Help Group, or any other group to be formed.* (PIB website, 2016; emphasis mine)

The rules emphasise on environmentally sound SWM practices through proper segregation, collection and treatment of waste. The infrastructure for the collection, storage, segregation, transportation, processing and disposal has been primarily given to local authorities. While about 75- 80% of the municipal waste gets collected and out of this only 22-28 % is processed and treated and remaining is disposed of indiscriminately at dump yards. The press release also states that if cities continue to dump the waste at present rate without treatment, it will need 1240 hectares of land per year and with projected generation of 165 million tons of waste by 2031, the requirement of setting up of landfill for 20 years of 10 meters height will require 66,000 hectares of land.

The new SWM Rules, 2016 clearly promotes Waste-To-Energy Plants or RDF based plants for disposal of waste. The press release by the environment Ministry on 5th April, 2016 cites the Report of the Task Force of erstwhile Planning Commission- the untapped waste has a potential of generating 439 MW of power from 32,890 TPD of combustible wastes including Refused Derived Fuel (RDF), 1.3 million cubic metre of biogas per day, or 72 MW of electricity from biogas and 5.4 million metric tonnes of compost annually to support agriculture. Further, the new SWM rules have mandated all industrial units using fuel and located within 100 km from a solid waste based RDF plant are to replace at least 5 % of their fuel requirement by RDF so produced. Further, it states that the Ministry of Power shall fix tariff or charges for the power generated from the WTE plants and ensure compulsory purchase of power generated from such Waste to Energy to DISCOMS. This is to make the waste to energy plants economically viable and improve the gainful utilization of waste. The rules also adds that Ministry of New and Renewable Energy Sources shall facilitate infrastructure creation for Waste to Energy plants and provide appropriate subsidy or incentives for such Waste to Energy plants

The waste required to generate energy needs to be of a high calorific value. Thus the rules also states that 'non-recyclable' waste having calorific value of 1500 K/cal/kg or more shall not be disposed of on landfills and shall only be utilized for generating energy. While it has been stated that only non-recyclable waste of higher calorific value is to be used for such plants, it is a difficult edict to implement on the ground. Non-segregation at source is a bigger hindrance to any efficient manner of such specific streamlined disposal. Thus, as a result, waste that is picked up from source is mixed. It becomes a 'resource' over which control is negotiated, contested and often coerced. The right over ownership of waste becomes an integral issue that the SWM rules should recognize and guide towards arbitration. In a way, the new rules do recognise the informal sector that comprises as many as 200,000 laborers (Chaturvedi and Gidwani, 2011) - stating that wastepickers/ ragpickers and waste dealers/kabadiwalas are to eventually integrated in the formal system by State Governments, and Self Help Group, or any other group to be formed.

The new SWM Rules also assigned the Ministry of Urban Development (nodal Ministry of SWM) responsibility to formulate National Policy and Strategy on Solid Waste Management including policy on Waste to Energy in consultation with stakeholders. Similarly state MoUD will formulate a state policy for SWM. MoUD will also be review the measures taken by the States and local bodies in their function of SWM and appropriately undertake training and capacity building of local bodies and other stakeholders. The national policy on SWM, will be guiding tool for the States/ local authorities in SWM. (PIB, 2016)

The new rules formulated by the Government, in theory, demonstrates a seriousness in tackling the urban waste problem. Issuing responsibility to the waste generator is a positive step. The implementation of these rules on ground will prove to be a bigger challenge however. Most waste generated by hotels, households etc are dumped in 'open' far away from where it was generated, often in the middle of the night. This makes discharging accountability standards harder. Further, appropriate infrastructures required for the proper implementation of the new rules have not been established.

*'During our enquiries, only one official across the hierarchy in a relevant agency could clarify that the MCD follows the Swachh Bharat guidelines and SWMR in absence of revised bye-laws. However, including him, all other employees contacted were clueless about the measures planned by MCD to implement SWMR. The situation in many other urban agglomerations is similar, if not worse.'* (Bolia, Singh 2016)

## 2.2 'SCIENTIFIC' LANDFILLS

Landfills are another traditional manner used by the authorities for disposing waste. Out of 43 million TPA collected, 11.9 million is treated and 31 million is dumped in landfill sites. Technically, these landfills are supposed to be sanitary and scientific, instead the government has been merely using 'open dumps' in the name of landfills where garbage is collected sky-high. Sandip Dutt, Operations Director of the Oakhla Waste energy plant, stated that such landfills do not have the necessary layering that needs to take place underground. Thus, pollutants from mixed waste (such as battery discharge) percolate in the deeper layers of soil and destroy the land. This leaching causes pollution and its stench further makes the surrounding areas uninhabitable and unsanitary (personal interview, 2017). In Delhi, there are four registered 'sanitary' landfill sites- Bhalswa (NDMC- 40 acres), Narela-Bawana (NDMC- 60 acres), Oakhla (SDMC- 32 acres), Gazipur (70 acres, EDMC). The landfill site at Narela-Bawana is hailed as the first 'scientifically' engineered landfill in Delhi. Other agencies such as Delhi Municipal Rail Corporation (DMRC) and Agricultural Produce Market Company (APMC) etc. also dispose of their waste on the MCD controlled landfill sites. Other civic bodies like Delhi Cantonment Board and New Delhi Municipal Council in the city however have no provision for their waste disposal. The MCD then allows them to use these landfills as dumping sites by charging them a tipping fee per refuse collector truck (rs 205-235). (Gupta and Arora, 2016 , p 136).These landfills are already overused and exhausted and they overflow leading to negative  health and environmental impact. Neighborhoods close to landfills have often taken the judicial route to take up the case against the government for the location and treatment (or more precisely, lack of treatment) of landfills.

In response to a PIL on the issue of air pollution in the city, the bench of Justice BadarDurrez Ahmed and Justice Jayant Nath summoned the commissioners of the three MCDs and the member secretary of the Delhi Pollution Control Committee (DPCC) to "explain" why proper maintenance of the landfill sites was not being done. Emissions from such landfills and burning of garbage have been identified as major sources of air pollution in the city. "*The sites are non-scientific, not being maintained under rules so there is no consent by the DPCC*," said DPCC counsel SanjivRalli , adding that it was "*beyond anyone's capacity*" to "*make the sites compliant with the rules*".(Mathur,2016) Later proposals for landfills in Oakhla Phase I, where the land belongs to Railways, SultanpurDabas in North West Delhi, and Tekhand in South East Delhi also faced protests. (Bhatnagar 2015)

While the new SWM Rules, 2016 designates for a sanitary landfill and proper treatment of garbage on these lands, the above case demonstrates a very different reality on ground. Garbage is a "public secret" (Moore, 2009) kept by the city planners and administrators, supported by the citizenry of the city. The very visibility of waste as a result of exhausted landfills and open dumping grounds then proves to be distasteful as it exposes the hopeless yearning for a 'purified modernity' (Hawkins, 2006).

## 2.3 COMPOSTING PLANTS

Since Delhi generates a good amount of biodegradable waste, it has a strong potential for composting. Large Scale compost Plants have thus been set up in Delhi, with facilities in Okhla (MCD, NDMC); Bhalswa (Excel Industries Ltd); TikriKhurd (Agricultural produce market committee) and Narela-Bawana. These plants have however not been very successful as the waste collected is mixed and not segregated-at-source.  The privately operated Bhalswa plant for instance was closed down for non-compliance of rules. MCD had provided 12 acres to the company for setting up and operating the plant for 30 years at a licence fee of Rs 1 per sqmetre per annum in 1998. Under the agreement, the company was supposed to treat 500 metric tonnes of garbage, which steadily went down to 100-200 metric

tonnes. In March 2014, Delhi Pollution Control Committee served a closure notice to the plant for violating pollution norms under the Water and Air (Prevention and Control of Pollution) acts. The Plant officially mentioned that the manure generated from composting the transported waste was not quality product and they faced market constraints in selling it. (Suraksha.P, TOI, 2015)

The collected garbage is unsegregated and thus waste like electronics also gets mixed- eg the powder of a battery may mix along with biodegradable trash that is separated at the plant, and the manure thus produced is of low quality and may also be destructive to fertile soil.  As a result, the compost plants at Okhla and Narela-Bawana landfills are also running below capacity. The manure produced have gained a bad reputation among farmers despite it being subsidized by the government in an effort to promote compost plants. However, any such efforts are in vain till every household is not encouraged to segregate.

Large-scale composting plants are an attractive recourse to the rising waste crisis in the city- it is favored by environmentalists who demand for a circular material flow instead of a linear one; waste creates a product of further value without causing pollution. Decentralisation of waste management is however the first step towards ensuring its efficient functioning.

## 2.4 PRIVATISATION OF SWM

Local Municipal Bodies are empowered to establish infrastructure to ensure efficient delivery and functioning of certain urban services. As elaborated in chapter 1, MCD has largely not been perceived as a success in this case; the crisis compounded when garbage becomes visible on open streets. This problem of waste management is largely identified to be a result of either mismanagement or governmental corruption. In this scenario, privatisation appears as a better alternative. The privatization of waste management in Delhi has unfolded in three phases. Briefly summarized- the first phase began in 2005 when municipal authorities started to contract private firms for the collection and transportation of waste from transfer stations/dhalaos to landfills (Chaturvedi and Gidwani 2011). The second phase is marked by the setting up of waste-to-energy plants with much fanfare. Currently

there are three waste-to-energy plants in Delhi- in Okhla, Ghazipur and NarelaBawana. The three plants together incinerate some 8000 tonnes of MSW daily and produce about 62.2 MW of electricity, amounting to 1.3% of Delhi's consumption of 4800 MW. These plants are launched with the hope that it may provide some respite from the overflowing landfills as well as provide the much needed energy for the city's electricity consumption. The third phase of privatization (2012 onwards-) is geared towards streamlining the SWM system from door-step collection to transportation to ultimate disposal. The final phase was a result of the realization that centralized approaches such as WTE plant requires high calorific waste which was often recovered by ragpickers from unconnected points such as households, bins, dhalaos etc. Privatisation of the entire process then would lead to the plugging of these 'leakage points'. In Delhi, the calorific value of formally collected waste at disposal sites (ie after recyclable waste is removed by wastepickers) is approximately 1000 kcal/kg (NEERI 2005), while combustion incinerators require waste with a minimum calorific value of 1500 kcal/kg. Thus, privatisation from doorstep to WTE plants was proposed.

One example is a 2009 contract between the Municipal Corporation of Delhi and a subsidiary of Ramky (Delhi MSW Solutions Ltd), one of India's largest waste management firms, which was granted the firm exclusive rights to collect and process waste in four zones in Delhi (Civil Lines, Rohini, Vasant Kunj, Dwarka and Pappankalan).

(Schindle, Demaria, and Pandit, 2012)

Waste is not constant- a change in its composition, volume and "metabolic density" indicates change in consumption patterns and lifestyle choices. Privatisation can be seen in the context of changing content, volume and metabolic density of waste in the past decade- more waste of higher calorific value is being created. This has created newer ways of processing, redirecting disposing of waste that has led to a '*comprehensive reconfiguration the city's metabolism*'. (Demaria and Schindler, 2016) Increasing density of high-calorific waste makes WTE plants more attractive as waste is no longer mere matter 'out of place'- it holds value as it has the potential to produces energy/electricity.

## 2.5 WASTE TO ENERGY PLANTS

One of the most contentious issues relating to waste has been the setting up of Waste-to-Energy Plant or RDF based technology plant by the government. WTE is touted as a panacea to the waste problem by the authorities, seen as a threat to their ownership on waste by the informal ragpickers and protested against by the middle class for leading to increase in air pollution. Delhi has three WTE plants- the biggest being the Okhla plant.

> '*Residents of south delhi'sOkhla area were delighted to see what they thought was the season's first snowfall. But they were enraged after realising that it was toxic ash from the large waste to energy plant*' (Demaria, Schindler citing Radcliff News 2012)

Demaria and Schindler use the above online news article to demonstrate the importance of the materiality of waste i.e. toxic ash in this case, in the lives of those inhabiting areas neighboring WTE plants. Materiality in the form of emissions and pollutant matter then becomes a regular anxiety-inducing feature of the everyday lives these middle-class residents. On the other hand, kabadiwalas collect; segregate and sell waste to recyclers and such incinerator plants create a threat to their livelihoods. It represents a bitter economic injustice to them as it threatens to dispossess them of their resource i.e. waste (Wilson et al. 2006). Despite what may be called "conflicting rationalities" (Watson, 2003) between these two groups- the WTE plants seems to bring them together into an incipient alliance with the common aim of closing such endeavors down.

> '*To the former this struggle is material in essence as they seek to reduce their exposure to waste on the grounds that it poses a health risk, while the latter are engaged in a political economic contestation whose aim is to defend a source of livelihood*.' (Demaria and Schindler, 2016; p 294)

In my interview with a group of rag-pickers, two of them earlier worked near areas that were previously (illegal) landfills/garbage dumps in Okhla and now is the site for the new WTE plant. Now working in central Delhi (different areas everyday according to informal agreements with other ragpickers), one named Nadim, originally from Bihar said-

*Earlier, for about five years, I scavaged garbage from a landfill near the plant. We waited for dump-trucks every morning. We collected items such as paper, scrap metal, plastic etc. The trucks soon stopped arriving. We heard that the government had taken away waste for a new plant.*

Apart from those two, the others however did not have any opinion on the effect of WTE plants on their work. They seem resigned to their fate; one of them saying "sab kismet main likhahai" as his parting remark. Most kabadiwalas working in areas with no WTE plants did not seem to have much idea about the WTE plant or its implications.

Demaria and Schindler, in their work on WTE plants and urban metabolism, interacted with key stakeholders involved in everyday struggles over waste management and augmented these experiences with interviews during the time period 2012-2013. In response to the WTE plants, rag-pickers had strongly negative reactions:

> "*Since we don't have any other work we are forced to do this filthy work. We are forced to pick up this waste. Still the government is trying to force us out. They want to produce electricity by burning our livelihood.*"

> "*The work of the waste-to-energy plant is to burn things. They know that [inert and organic] waste never burns. They are trying to burn things [recyclable material] from which we earn our living. Therefore, we are opposing the waste plants.*"
> (p.302)

Many trade unions were formed demanding access to waste, such as All India KabadiMazdoorMahasangh (AIKMM), SafaiSena, Delhi KabadiMazdoorSangh, and Green Flag. These unions have rallied and organized wastepickers, targeting local officials as well as private firms. While access to waste is a difficult claim to demand, given that waste is the responsibility of municipal bodies, their main strength lies in public demonstrations. Environmental and social groups such as Toxics Watch Alliance, Hazards Center, Toxics Link, Chintan, Nidan and Global Alliance for Incinerator Alternatives (GAIA) have also supported the wastepickers cause. A ''Global Strategic Workshop for Waste Pickers' was hosted in Pune in which wastepickers and activists from around the world gathered and

identified privatization and waste-to-energy as the two main threats to wastepickers globally. (Demaria and Schindler,2016, p.303)

While the ragpickers livelihood has been threatened, the middle class residents have also raised their voice against practices of open dumping and WTE plants. The proliferation of landfills and informal dumping grounds started taking place in the 1980's as subsidized commercial fertilizers reduced demand among farmers for organic waste, which they had hitherto used as fertilizer. This was complemented with a growing economy in the 1980s and 1990s that witnessed an increase use of plastic and an accompanying boom in construction increased the volume of inert waste. This was the context in which middle class mobilized for a more effective SWM. (Almitra Patel, Demaria)

Most middle class residents in Delhi either supported or failed to notice the initial wave of privatization of the city's SWM system. Complaints came up only on issues of mismanaged SWM by such private contractors but privatisation, by itself, was not something that bothered many residents. It took the proposal for construction of WTE plant to induce anxiety among middle class. The first waste-to-energy plant in Delhi was built in a populated area called Okhla and it is India's largest. The second plant is somewhat smaller and is located in an area called Ghazipur which is somewhat peripheral but nevertheless densely populated. The proponents of the Okhla waste-to-energy plant conducted an environmental impact assessment (EIA) in 2006, and not surprisingly, they concluded that the plant would not have serious adverse environmental impacts. The assessment explained that although there would be continuous emissions of particulate matter and ash, the plant will only have a "minor negative impact" on ambient air quality. ( Demaria and Schindler, 2016). Interestingly, while questioned on reports of polluted emissions resulting from the plant, Mr Sandip Dutt, operations manager of the Okhla WTE Plant, didn't deny it. He however strongly referred to EIA Reports that dismisses the possibility of negative impacts given that proper treatment regulations are followed and he cautioned against taking emission numbers in absolute terms- *while measuring pollution of a given area, ambient air quality needs to be taken into consideration. Emissions are to be seen with respect to the air*

*that already surrounds the plant. We can, at most, follow standards that are set by the government and we already do that.* (Personal communication, 2017- paraphrased)

I take up the case of Okhla WTE Plant, since it is the largest in the country and the first to start operation, since 2012. While taking a drive upto the WTE Plant (June 2017), my Uber brings me to a stop in front of a large track of land filled with 'sludge dumps' and the stench is unbearable. I later was told that an NDMC controlled composting plant was the reason for it. The Jindal-operated WTE Plant stands tall and the only stench is of the sludge muds of the composting plant. The multi-story building is filled with a low-level humming noise and as one gets closer to the inner workings of the plant, it's almost a roar. Large trucks filled with mixed waste come to the plant every morning and it is lifted with heavy machinery onto a conveyer belt. This garbage is then run under magnets to pull out scrap metal; shaken to remove heavier substances like pebbles and anything else that might not be needed as they don't burn (stones, bricks, ceramics) are removed manually. It is high-calorific waste like paper, cardboard, certain types of plastics that are best for the efficient functioning of such plants. This trash is then delivered to the incinerator where it is burned at a very high but stable temperature. This heated smoke rises up and is able to spin the turbine, generating electricity. The control room has the readings for the temperatures for incineration and the electricity that gets generated per tonne. Mr Dutt stated, with a certain pride, that the plant generates 20 MW-hours when in full capacity.

This Jindal-operated municipal waste to energy plant is just 1.7 kilometres away from the Okhla Bird Sanctuary. The waste-based power plant is sandwiched between an eco-sensitive zone and residential colonies less than 50–100 metres away. Environmental Groups and watch-dogs have pointed out the adverse effect it has on a large number of transcontinental migratory birds that visit the Okhla sanctuary. Gopal Krishna, Editor of Toxics Watch Alliance (TWA) (2017) further elaborates that Okhla's vegetable market (*subzimandi*) is blanketed in ash emerging from the plant, which burns 2,050 tonnes of mixed municipal waste that has hazardous waste characteristics.

> *This plant has been releasing massive amount of toxic ash. Such plants in Narela-Bawana and Ghazipur should also be shut down to pave the way for decentralized*

*mohalla -level waste management. The polluting emissions from the Jindal plant, located in a densely populated residential site, are extremely hazardous to human health. We demand that the plant be shut down immediately*. (Krishna, 2014)

This waste-based power plant is not only in the proximity of densely populated New Friends Colony, Maharani Bagh, SukhdevVihar, and Nehru Place, but also prominent institutions, including hospitals such as Apollo, Escorts, and Holy Family. (Krishna,2016,p.97). This makes the study of the impact of such plants all the more important.[16]

Local residents claim they were important stakeholders that should have been consulted in some way but they were not informed about the project in its early stages. They subsequently formed the Okhla Anti-Incinerator Committee in 2009 to oppose the waste-to-energy plant. They sought to mobilize support through social media and they organized public actions such as street plays.[17] The demand was raised for more accountability from public officials and insisted that the plant posed an environmental hazard. It took the form of protests, public demonstrations, petitions to the minister (Minister of Environment and Forests, Jairam Ramesh then promised to launch an inquiry into the approval of the plant given its proximity to residential areas), appeals to judiciary etc.

There have further been allegations of corruption in the form of non-transparent deals for the construction of the plant. Some residents have claimed that waste crisis has been used as an excuse to sell prime land for a far less-than-market price and will ultimately be resold at a higher value. (Citing Demaria and Schindler's personal communication with a leader of the movement). In the court proceedings, the petitioners argued that the WTE plant was located in an area that was designated for the construction of a compost plant .According to the Delhi master plan, this area falls on the green belt. The Jindal WTE plant however denied the charges and stated that the land was allocated for Okhla Sewage Treatment Plant and given to them by the Delhi Jal Board.

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[16] For more details, refer to Why Urban Waste Continues to Follow the Path of Least Resistance. Economic & Political Weekly EPW APRIL 29, 2017 volliI no 17

[17] See https://www.facebook.com/pages/Okhla-Anti-Incinerator-Committee/ 203624043005125

Setting up of plant has not been a cheap affair and Jindal has been serious about making the plant more profitable. Sandip Dutt mentioned, '*We have already taken up contracts to sell electricity to private bodies.*' (Personal communication, 2017)

The residents and specifically, the Okhla Anti-Incinerator Committee have thus contested the WTE plant on grounds of environmental unsustainability and polluting emissions. The focus then is on the materiality of particulate matter that has invaded their living spaces, seeped into their clothes and even bodies.

A PIL was filed by the residents in 2009 in the Delhi High Court in 2013. The presiding justices opted to refer it to India's recently created National Green Tribunal (NGT), which was created in 2010 '*for effective and expeditious disposal of cases relating to environmental protection*'.[18] The residents alleged that the Plant initially stated that they will use only refuse-derived fuel and biogas to convert waste to energy when they sought environmental clearance but later burnt mixed waste, which polluted the air. The NGT on 2nd February, 2017 gave its decision allowing the waste-to-energy plant in Okhla to function, saying it was 'non-polluting', but levied an environmental compensation of Rs 25 lakh for its earlier polluting ways.

The bench said the plant need not shift to another locality or shut down as there was definite proof that it complied with all requirements and was non-polluting.

This decision was met with huge disappointment by the petitioners who were residents of Sukhdev Vihar who had filed a petition against the plant, alleging that it was releasing harmful and toxic emissions. (Alavi, Hindustan Times, 2017)

**Unlikely Alliances: WTE as a site for contestation**

The WTE Plant has thus become a site for contestation and has also formed the basis for an emergent alliance between two very unlikely groups. One can use the time-old adage- 'the enemy of my enemy is my friend' to describe the manner in which they united in opposition to the municipality's decision in favour of such WTE plants. The Okhla Anti-Incineration Committee has highlighted the threat to wastepickers' livelihoods posed by the Okhla

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[18] See http://www.greentribunal.gov.in/index.php

waste-to-energy plant through social media, and a more collaborative relationship has developed on its way.

The resident welfare association and All India Kabadi Majdoor Mahasangh (AIKMM) subsequently formed the Ghazipur Anti-Incinerator Committee, and issued a press release (2012) with four demands:

1. Stop all on-going work on the Ghazipur incinerator immediately.

2. Dismiss all waste-to-energy incinerator project proposals.

3. Adopt participatory and decentralized waste management policies that do not disproportionally force any single community to live with the city's waste.

4. Recognize and support the informal waste recycling sector by adopting policies that include the waste pickers.

Members of the Okhla Anti-Incineration Committee officially started including the rag-pickers loss of livelihood due to WTE plants as a part of their action. Demaria and Schindler however observed that the manner in which Okhla residents collaborated with the ragpickers was very different from Gazipur residents.

> '*While Okhla residents demonstrate a willingness to explore alternative metabolic configurations which can serve as the basis for augmenting wastepickers' access to waste, in general the two groups have remained at arm's length. In contrast, wastepickers and Ghazipur residents have cooperated closely by holding joint demonstrations and issuing joint statements. The primary explanation for these differences is the socio-economic status of residents in Okhla and Ghazipur, respectively.*' (pp 306)

Okhla Residents comprise of a majority of affluent professionals who have the economic capability for lengthy judicial cases and engage in formal politics and legislation. They have previously leveraged media attention and engaged public officials like meeting up the then CM Sheila Dixit to mobilise decision in their favour. Ghazipur residents, on the other hand, tend to be from a lower socio-economic status, ranging from low-level officials to small entrepreneurs whose presence does not hold as much water and perhaps their leveraging power, on their own, remains insufficient to bring about any ground level change. For such residents then, collaboration with unions and NGOs working with ragpickers, has proved to

be symbiotic. The participation of middle class residents in demonstrations along with a group such AIKMM also has influenced the nature of protests. The knowledge regarding street protests was something the residents of Gazipur lacked in, AIKMM provided with assistance. When it was evident that permission from the police for a joint demonstration would not be given, the members of AIKMM considered escalating the situation by blocking roads. Ghazipur residents however refused to participate in direct action that was not sanctioned by authorities. This depicts the manner in which the nature of action against the state might differ when two very different groups come together.  Permission to hold a demonstration was finally obtained. While the Gazipur residents gained know-how on proper and effective ways of such public demonstrations, they also lent the demands of waste pickers some legitimacy in the eyes of authorities. (Demaria and Scindler) Such alliances however appear to be opportunity and need-based.

Wastepickers are concerned with their access to resource of waste that earns them their livelihood and thus any such reconfiguration of Delhi's SWM system is a threat to it. Demaria and Schindler use Gadgil and Guha's terminology of "ecosystem people" (1995) (eg farmers and small-scale producers of nonagricultural products in rural areas depend on ecosystems for their livelihoods), wastepickers' livelihoods are dependent on a metabolic configuration characterized by a high volume of accessible recyclable material. Middle Class residents are primary producers of waste that has only increased with rapid urbanization, change in consumption patterns (a move towards an increase in online shopping, for instance, has led to rise of high-calorific waste such as paper, cardboard etc). Their interaction with waste has in the past been in the form of distancing themselves from its visibility and removing what may be considered an eyesore to a cleaner, greener city. Baviskar (2003) talks about the emergence of what he calls 'bourgeoisie environmentalism'- that demonstrates the conflicting manner in which environmental contests has played out in the city. The immediate concern of the middle-class residents of Delhi is to be insulated from environmental hazards and in this regard, the toxic ash emitted by WTE plants is a major threat to a vision of clean lifestyle. The notion of what constitutes a clean modernity has, often, in the past been against the poor (for eg in cases where slums are perceived as an 'eyesore' and often seen as a source of trash in the location). There is an ongoing 'politics of

forgetting'[19]with regard to social groups that are marginalized; and the informal sector of waste has for long struggled against privatization of SWM and demanded recognition for their work- this has been ignored by city officials as well as middle-class residents of the city. The case against WTE plants however seems to bring these two groups together- the durability of such an alliance is opportunistic at best.

> *'Thus, while "wastepickers' main objective is to configure Delhi's metabolism in such a way that they maintain access to waste, middle class residents envision a metabolic configuration that produces a situated political ecology that insulates them from waste and enables a desired lifestyle.'* (Demaria and Schindler,p.307)

## 2.6 Formal Politics: Tendency towards adopting a Centralised Approach

Waste Management has been an issue that has also been incorporated in Delhi's formal politics. The BJP and Congress has long come towards a consensus on the issue of privatization of waste management and incineration. The BJP manifesto for instance promised a proper door-to-door waste collection and garbage segregation. It also promises to make Delhi *dhalao*-free. It further talks about using landfill trash to make highway. Congress also supports initiatives such as privatization and streamlining of SWM.  Both the parties favour the construction of incineration plants in various parts of the city to solve the waste crisis. The BJP office has gone on record stating that waste to energy plants are "*good for the city*" as they will help clean the city and generate power at the same time. (Moyna, 2012) It was the AamAadmi Party (AAP), a party that rose out of anti-corruption movement, and gained power in 2013, that talked about shutting down such plants. The Deputy Chief Minister inspected both Okhla and Ghazipur facilities, indicating that the joint efforts of wastepickers and residents in Ghazipur ultimately garnered an official response (The Times of India, 2015). During the electoral campaign, the AAP released a Manifesto on Sanitation

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[19] The politics of forgetting refers to a political-discursive process in which specific marginalized social groups are rendered invisible within the dominant national political culture. Such dynamics unfold through the spatial reconfiguration of class inequalities. Both middle-class groups and the state engage in a politics of forgetting that displaces the poor and working classes from such spaces. The result is the production of an exclusionary form of cultural citizenship which is, in turn, contested by these marginalised socioeconomic groups. See 'The Politics of Forgetting: Class Politics, State Power and the Restructuring of Urban Space in India'  by LeelaFernandes (2016)

and Waste Management, wherein the mohallasabha (neighborhood assemblies)[20]would be given complete authority and funds for local waste management. It promised a decentralized model of waste management that would facilitate local colonies and ragpickers to devise solutions. Even if AAP is unable to close down the WTE Plants (it has not been able to do it as yet), if such an approach is implemented, access to high-calorific waste would retain with the ragpicker. The government however has for long argued that MCD has the responsibility for sanitation and it needs to win power in municipal bodies to bring abuot the promised changes. (Times of India, 2016)

The Government has largely tended to favour a centralized approach to waste management- a crisis perceived as a product of mismanagement and corruption. The solution most often advocated by the state is then to build landfill sites, developing future sites, building of waste-to-energy plants, and  developing a centralised large waste-to-compost facilities (like that of NDMC in Okhla). This does not take into consideration different requirements within cities as well as between cities. While the rules are often idealistic, for instance the latest SWM rules mandates the formalization of the wastepickers; it often becomes contradictory when the state, at the same time, adopts centralized approach to SWM that takes away the livelihood of these workers. Other states also have tilted in favour of similar centralized approach when the 'crisis' of waste management has made itself 'visible'. However, many cities opted for a decentralized approach to SWM.

Government Policies towards waste thus appear to suffer from a bizarre inconsistency. The New SWM Rules, 2016, in theory entails certain substantive features that may lead towards a decentralized approach and better SWM practices. At the same time, it also favours the creation of large landfills, creation of WTE plants etc. There is a tendency towards centralization of SWM. A hybrid of centralized-decentralised approach appears to be existing on ground, and none seems to be effective.

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[20] Each ward is divided into 10 mohallas, and all residents of a mohalla are members of the mohallasabha. Each mohallasabha meets bi-monthly. The councilor and all local municipal officials are present and people decide how the municipal funds should be used in that mohalla
(see http://www.lokrajandolan.org/images/mohalla_sabhas_a_how_to_guide.pdf)

The SWM Rules however clearly perceives the waste problem as a managerial issue; the reason for the changes in its metabolic density and content in the past decade has not been looked into for solutions. There is a lot more focus on *how to dispose waste*; than *how it is generated*. The focus on segregation-at-source has not been given much thrust; the tendency is towards 'crisis management'. When the 'crisis' of waste becomes critical and its visibility clearly becomes unacceptable, then law-makers and policy analyst's dole out quick 'technological fixes' in the form of landfills and incineration as the best 'scientific' solution.

Such solutions however demonstrate a weak and poorly conceived regulatory regime that fails to address the fundamental problem of concern – *the contradiction between industrial-consumer and ecological process.* These governmental policies instead adopt policy frameworks that simply reinforce the dominant framework of human dominance, linear thinking and championing of creativity with which we have come "*to soil our nest in short order*" (White, 1967)

The subsidized centralized solutions produce a strong disincentive for recycling or reducing waste, effectively violating the hierarchy of waste disposal methods delineated by the government. (Reuse, recycling, recovery including energy recovery and as a last option, safe disposal)[21]Governmental actions and rules fail to address, in any meaningful sense, the need to decrease the frenzied rate of mass communication

Thus, despite a sheer volume of environmental legislations at the central and state level, the impact on ground in terms of reducing waste or its proper disposal has been unsatisfactory at best. An examination of the substance of SWM Rules, 2016 for instance, depicts that such acts are merely symbolic gestures with no substantive transformatory potential. The merely

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[21]  United Nations Environmental Program (2013). "Guidelines for National Waste Management Strategies Moving from Challenges to Opportunities" advocates a waste management hierarchy -an order of preference for action to reduce and manage waste, and is usually presented diagrammatically in the form of a pyramid. The hierarchy captures the progression of a material or product through successive stages of waste management, and represents the latter part of the life-cycle for each product. The aim of the waste hierarchy is to extract the maximum practical benefits from products and to generate the minimum amount of waste. The proper application of the waste hierarchy can have several benefits. It can help prevent emissions of greenhouse gases, reduces pollutants, save energy, conserves resources, create jobs and stimulate the development of green technologies.

reaffirm 'the ideological commitments of the industrial-consumer process- commitments that fail to recognize basic principles of ecology and stir the problem of waste in the first instance'. (Howard, 1999)

Interestingly, while waste is perceived to be effectively managed when distanced from the city; its very manner of disposability sometimes increases its visibility. Most modernizing projects such as Waste-to-energy plant, scientific landfills etc. renders garbage a hyper-visibility- for instance, when it leads to protests and becomes a part of public debate. Despite the rising unpopularity of 'scientific' landfills and WTE plants, the government, with an unwavering faith in technology, continues to propose multiple projects of the same kind throughout the city. While garbage continues to increase and change in its nature and quantity, the government continues to promote such centralized projects without realizing that what drives these projects of modernization towards cleanliness and sanitation are the same as the ones that leads to production of waste.  This contradiction lays down a new politics of garbage.

The very technologies and solutions whose aim was to keep hidden the garbage of the city, brings the topic of waste to the fore.

The incapability of civic agencies to handle waste undermines its authority. Since the state does nothing to change the developmental patterns adopted for progress, waste generation will only increase- leading to a constant threat to the modern order.

In any case, the materiality of waste becomes integral while studying the politics surrounding it.

# CHAPTER 3

# WASTE CONFLICTS: THE WASTEPICKERS RESPOND BACK

How do we perceive waste? The State/Government, the middle-class residents of the city and the waste-collector perceive waste in very different ways. The response of the Government has been analyzed in the previous chapter. The government has traditionally not given much thrust to efficient SWM strategies as a result of which illegal dumping sites cropped up in the poorer sections of the city and they continue to exist due to lack of alternatives. Privatisation as a trend has become popular, with contractors engaged for waste collection. These firms are paid a tipping fee for the waste collected and transported to designated 'scientific' landfills. The fee varies according to the weight of the waste. The waste collected remains unsegregated and there is no incentive to segregate wet from dy waste (as dry waste would weigh less as compared to mixed). The annual rate of waste generation in India is 4 percent and less than 15 per cent of urban India's waste getting processed in a country 12 times as dense as the US — landfills are then an unsustainable solution (Swaminathan, 2016). The transportation of waste from around the city to landfills or WTE plants also leads to cost escalations, apart from a now exhausted landfill. The burning of garbage in these open dumps then becomes a regular feature- as witnessed recently at Deonar. Landfills are a major cause for emissions of harmful greenhouse gases as well as leaching of soil. Large-scale centralized solutions are approved as it provides hope for a quick-fix answer to a mounting crisis- one that only seems to grow every year. The Rules on waste, though exhaustive, either seem to be insufficiently implemented on ground or tend to ignore the underlying reason for waste generation. The cost of uninhibited consumption and development seems to get passed on from rich to low-income neighborhoods; urban to rural areas and from developed to poor nations. Such actions have consequences that are fraught with environmental and health hazards, usually suffered by those living near areas where this waste is disposed off. A WHO report estimates that 22 diseases, including cancer, asthma and emphysema (a lung disease), are caused in India due to poor solid waste management (SWM) alone. (swaminathan, 2016)

The state is more focused on ensuring a well-planned city. The imagination for a Smart-City, for instance, presupposes a rational order, where all units function together like a well-oiled machine. Waste management has been perceived as an administrative problem; that will be solved once it is also included in the design of the rational planning of the city. The Delhi Master Plan, 2021, demonstrates the governments' weak will in holding the waste generator responsible. According to the Delhi Development Authority website, *A Master Plan is the long-term perspective plan for guiding the sustainable planned development of the city. This lays down the planning guidelines, policies, development code and space requirements for various socio-economic activities supporting the city population during the plan period. It is also the basis for all infrastructure requirements.* The plan views the problem of SWM in Delhi as assuming 'serious proportions' as a result of rising urbanization, population, changing lifestyle and consumption patterns. The solution proposed to tackle the problem is setting up landfills- *the area required for solid waste disposal through various technologies, including sanitary landfill sites, shall be reserved in the Zonal Plans.* (Delhi Development Authority, 2007)

The Government of other states, who have focused on a decentralized model for waste management have been successful in creating awareness among the residents of the city to segregate waste and succeeded in door-to-door collection. Asnani, Zurbrugg et al. (2008) analyze the case study of Ahmedabad to demonstrate how the efforts of civic agencies along with a partnership with NGO's and Resident Welfare Associations created an infrastructure for door-to-door waste collection system.

The Government of Delhi has traditionally followed a waste 'dumping' exercise; rather than a waste management one. The new SWM Rules, 2016 provides for some responsibility to the waste-generator and formalization of the informal sector. The success of any plan is however only as much as it's effective implementation; the new Rules have however been deficient in this regard.

This chapter looks into the different ways in which the 'informal' waste economy has reacted to the projects undertaken by the government to solve the waste problem. The governments' actions to privatize the SWM arena, step by step, generated an equally strong response from civil society groups (environmental watchdogs and NGOs). This led to some

sort of organization (in certain areas) of the wastepickers into unions, cooperatives etc. This chapter looks into the origin of such resistance, and the eventual 'formalisation' of the informal sector. What are the implications of such changes on the relationship of wastepickers with the authorities? How do these organisations function in relation to each other? The next section looks at Sarah Moore's formulation of 'garbage' as a political tool and place it in the Indian context to analyze the manner in which waste has been used as a negotiating tactic by different interest groups and forms the basis of a much wider urban strategy. What happens to the subjectivity of waste in this process?

Solid Waste Management has traditionally been the responsibility of civic agencies. This is written into laws that established municipalities and urban local bodies across the country making them responsible for 'the scavenging, removal and disposal of filth, rubbish and other obnoxious or polluted matter' (GOI, 1957, Section 42).The new SWM Rules, 2016 accords all municipalities primary responsibility to ensure efficient waste management and sanitation. However, the formal sector in SWM sphere is also complemented by a huge informal sector. The informal sector recovers 'waste' materials that are recyclable from areas such as households, landfills, illegal dumping grounds, public bins etc. They pick up waste and segregate dry from wet waste; then choose to sell the recyclable waste to the next level. The work of the informal sector reduces the cost of waste collection to municipalities. It further ensures an environmentally sustainable waste disposal through recycling- fulfilling a circular economy rather than a linear one. The formal-informal sector has worked alongside each other for decades in the country in general and Delhi in specific. Recent policy shifts in SWM by municipalities as well as changes in the way waste is perceived by the middle-class residents in the city has brought about new players in the SWM arena. The manner in which waste is collected and disposed becomes a site for contestation; with conflicts regularly arising between the authorities and those existing outside the system, and earning their livelihood through informally collecting waste as a resource. The streamlining of the SWM process by the state promises to comprehensively integrate and systematically transform the entire system. This has led to privatization of different stages of SWM- the

last one being door-to-door collection- that has severely threatened the capacities of ragpickers to earn their livelihoods.

Privatisation of waste directly attacks the access to waste of the informal sector. Some scholars have demonstrated this process through the lens of 'accumulation by dispossession' whereby capital separates workers (those who informally manage urban wastes) from their means of subsistence (waste materials) by using overt and covert forms of economic, political, and sometimes physical violence that workers have sometimes been able to resist (Chaturvedi and Gidwani, 2010; Samson, 2009b; Schindler, Demaria and Pandit, 2012; and Whitson, 2011; Neocleous, 2011)[22].

The response to this kind of privatization has motivated the informal sector workers to organize themselves to pose a united front against the authorities. A counter struggle against the neo-liberal privatization that has threatened the dispossession of the urban poor has ensued. This has taken up a variety of orgazational forms—associations, unions, cooperatives (Samson, 2009).   As a result, Trade Unions like the All India KabadiMazdoorMahasangh (AIKMM), SafaiSena, Delhi KabadiMazdoorSangh, and Green Flag have cropped up- demanding to access to waste; formalization of the sector etc. The chapter looks into the manner in which these organisations have formed and the way in which their demands have affected the 'urban metabolism'.

In Delhi alone, there are at least three different organizations working towards livelihood security and stability for waste pickers: Chintan Environmental Research and Action Group,

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[22]Hnderson (2011) offers a contemporary understanding of how trash converts to 'value' .Goldstein (2013) recounts the 19th century enclosure movement in England as a struggle over the land-use designation of "waste".Gidwani and Reddy (2011) demonstrate how waste was used to shape land policies in India is in the 19th century and continue to manifest today through neo-liberal policies and impose a new kinds of social order.

an NGO and its affiliate SafaiSena, an association of waste pickers and small scale waste traders; All India KabariMazdoorMahasangh, a union; and Sajag Society, an NGO and its affiliate KachraKamgar Union. At the national level in India, there are at least two organizations—the Alliance of Indian Wastepickers (AIW) and People's Alliance on Waste (PAW)—both loosely organized with different yet overlapping scopes and missions. At the global level, there is the Global Alliance of Waste Pickers (Global REC) and the Global Alliance for Incinerator Alternatives / Global Anti-Incinerator Alliance (GAIA). The existence of organizations at different scales allows local organizations to scale up their advocacy efforts to national and international levels and vice versa, that is, national and international advocacy efforts often percolate down through alliances with local organizations

This chapter looks into the myriad players that exist in the SWM areana and how 'garbage' becomes 'political' in contestations over access to waste. I take up the case of 'SafaiSena' to demonstrate how organisations when formed in the informal sector negotiate their livelihoods with powerful, legal authorities.

### 3.1 The Informal Sector Unites: Formalization of the Informal Sector

The 'metabolization of waste' (Demaria, Schindler, 2015) in Delhi i.e. the production, throughput and processing of waste- can be understood as a single processing network that is worked on by both the informal and the formal sector. The waste is collected from around the city- households, firms etc. - and taken to the collection points/ Dhalaos- where it becomes the property of municipal government. The collection of waste to this level is heavily dependent on the informal sector- approximately 150,000- 200,000 wastepickers (Chaturvedi and Gidwani 2011, p. 131) mediate the relationship between formal and informal value chains. There are different types of 'kabadiwalas'- *waste collectors/pickers*that engage in door-to-door waste collection; landfill workers; *phery-walas* who collect waste from roadsides, public bins etc; *cycle -kabadiwalas* who go around localities to collect waste (their distinctive announcing tone 'kabaaadi' is a regular feature in

most cities); *thiawalas* who have small kinara shops and buy/take dry waste; wastepickers who collect waste from garbage stations/dhalaos. The waste is first collected by these wastepickers; then the waste is segregated into wet and dry and sold to Small-Waste-Trader (SWT). The SWT then further segregates this waste into four categories and sell it to different Big-Waste-Traderm, where waste is further segregated (eg. Different kinds of plastics) and sold to the appropriate Supplier. The processing of waste till this level of value-chain belongs to the unorganized sector; outside the realm of state planning and work security. This waste is then sold to Recyclling firms, both formal and informal. (personal communication with Imran Khan, Voice for Waste programme, 2017)

There are certain unwritten social norms that dictate this collection of waste. The door-to-door collectors have certain localities under their 'jurisdiction' where they have been working for years and have a certain understanding with the Resident Welfare Organisation. Those entering the sector cannot take up this position; "they slip into the sector" by first working as roadside or landfill workers and eventually form kinship relationships that might facilitate their work as door-to-door collectors.

In my conversation with one of the door-to-door waste collectors,
*I came from Bihar and started working with my extended family as a shopkeeper. However, the pay was low and the work was irregular. Sometimes there was work; most often i was not paid. I met Raman (referred to as 'bhai'- the relationship brotherly between Nadim and Avdesh) who told me about the benefits of being a kabadiwalas- more money, no investment. His partner (his uncle) had died and he wanted someone new to help with waste collection. I then entered this work and have been working collecting waste from three colonies for the past 8 years. We go to resident- meeting every six months to ensure there are no complaints or to tell them our issues if we face any. We see our waste at almost double the price at the Paharganj Choona Mandir* (personal communication, 2017)

There then seems to be a hierarchy within the informal sector of SWM. This thesis does not go into the implications of such divisions; but it is clear that the landfill workers, roadside

kabadiwalas can be anyone who enters the SWM arena. This area also sees the participation of "nashe-walas" who are not "real kabadiwalas" and only do this work for some money.

The recovery of recyclable products takes place in areas that are not covered by the formal sector- 'leakage points'- from households (source), at dhalaos/transfer stations and at landfills. It is to ensure the plugging of these leakage points as recyclable waste also includes high-calorific waste used as fodder in WTE plants- that the authorities are keen to privatize and streamline the entire SWM process.

Wastepickers began to organize politically in the 1990's. Access to basic services of healthcare and education were the initial demands of such organisations. A decade later, the civic officials began privatizing SWM and proposed introducing centralized technological solutions. Historically, municipalities did not provide door-to-door collection and only took responsibility for waste from collected from dhalaos. As part of the ruling in case of Almitra Patel vs The Union of India (1998), the Supreme Court decided that door-to-door collection of segregated waste should be implemented in all municipalities by December 2003. This also resulted in the formulation of MSWM Rules, 2000. In response to the ruling, the New Delhi Municipal Council (NDMC) initially began to informally sub-contract collection to those already working in these dhalaos (Samson, 2009). The authorities did not include the wastepickers in such a contract. The struggles took the language of 'access to waste' – as the formal value chain was to soon seal all leakage points. The first conflict took place over dhalaos as the private firms started forcibly removing wastepickers from the transfer stations. They instead started demanding a fee from the wastepickers to continue their operations.

This is the context in which the NGO -Chintan Environment Research and Action Group- organised 2,500 waste pickers in the NDMC areas and 12,000 in the Municipal Corporation of Delhi (MCD) areas. A report was made on the contribution of the informal sector to SWM of Delhi. Taking this research in hand, the wastepickers demanded that they be contracted to provide the door-to-door services. After several weeks of discussion and a

series of very poorly drafted contracts, a formal agreement was signed that gave the waste pickers the right to collect waste from approximately 50,000 households. Chintan identifies the workers active engagement in their own struggle as well as proper data-backed research as key to success in convincing municipalities to consider the case. The demands were help in the form of loss of livelihood. (Samson, 2009)

The struggles of wastepickers have only intensified with the proposal of WTE plants and privatization of door-to-door collection of waste. A ragpicker who collects waste in Chelmford Colony, central Delhi explained

*A new company now collects waste from households. I went to the RWA to complain as I have been working here for the past 10 years. I earn and send back money to my parents, this is the only source of my livelihood. I talked to some households and they call me to collect their waste. But income has gone down.* (personal communication, 2017)

Private entrepreneurial companies like Pom-Pom, waste-warriors have also put up posters in various colonies. "*They offer better prices to residents but some homes still call us. We have been loyally serving the colony for years.*" (personal communication, 2017) When asked if they were a part of any union, they denied of having any knowledge of it.

Wastepickers Unions have organized demonstrations and protests, targeting both private firms and civic agencies. SafaiSena (meaning "Army of Cleaners") is one such organization. The official website describes them as 'a registered group of waste pickers, doorstep waste collectors, itinerant and other small buyers, small junk dealers, and other types of recyclers' that was formed in 2009. It has used its organization as a means to bid for official contracts for exclusive rights to collect and remove waste from Delhi's three train stations in 2011. This waste then enters SafaiSena's network and it is channeled into the recycling industry. In an interview with Mr. Imran Khan, associated with Chintan and SafaiSena, in a conversation about the organizations maintains,

*SafaiSena was organized by the wastepickers (waste pickers, doorstep waste collectors, itinerant and other small buyers, small junk dealers etc) themselves. Chintan aids in advocacy- for instance, if a letter/petition is to be filed on behalf of the organization to the minister, Chitan aids in such advocacy. The aim is to make them independent in their functioning and train them in their legal rights. The wastepickers initially asked for help in getting ration cards- now however, the SafaiSena does the work on its own. SafaiSena is made up of members from the wastepickers themselves and a meeting between members is held yearly, monthly and weekly. Leaders are elected democratically. They are responsible to help SafaiSena to solve local problems, to help network with local elected representatives and to share any news that is important.* (personal communication, 2017)

Similarly, AIKMM, formed in 2005, claims to have approximately 17,000 members in the Delhi metropolitan area. Shashi Bhushan, the director of AIKMM in their interaction with Demaria and Shidler (2016)  maintains,

"*We work with a trade union perspective. We organize wastepickers to get them their livelihood and fundamental rights as citizens. If one of us faces a problem [e.g. get harassed by the police], we call 50 or more members and run in his support. In this way we have managed to stop the demand for bribes by private companies at the transfer stations in the centre of Delhi. Nobody wants to hear our voice ... no policy makers reply to our letters of complaint. So we organize demonstrations with hundreds of our members in front of the public authorities' offices and sit there until they receive us. It is the only chance for us to meet and talk to them about our demands, starting from right to waste.*" (Demaria and schindler, 2016, p. 302)

These Unions have also vehemently opposed the WTE Plants in Delhi.  AIKMM, for instance, organized demonstration outside of the Delhi headquarters of the United Nations in 2011 to protest the inclusion of the Okhla and Ghazipur waste-to-energy plants in the Clean Development Mechanism's carbon credits scheme.

Interestingly, since access to waste becomes difficult to claim (as the legality of such a right becomes complicated), the new SWM Rules National Environmental Policy wand other legal laws and rules have been used to as a tool for advocacy. Any protests at the grassroot

level is however difficult as resources are scarce and wastepickers live hand-to-mouth and thus any day of protest translates into loss of subsistence for that day.

While all Unions and Wastepickers organisations have protested against privatization, the manner and the limits of such actions differ. This has led to tensions regarding attitudes towards private firms. Safai Sena, for instance, have in the past approached private firms with proposals to hire their members; AIKMM had steadfastly opposed any such bargaining with private sector firms for fear that this could lead to further privatization (Demaria et al, 2016). Imran Khan mentions,

*In one case the MCD had contracted with Ramky (Delhi MSW Solutions Ltd.) to exclusively collect and process waste in four zones of Delhi- Civil Lines, Vasant Kunj, Rohini and Dwarka. We already had members of SafaiSena working in those localities. Since the contract was already granted, we approached the company with a report on how many livelihoods were getting threatened and proposed that they hire the wastepickers as waged labourers. Similarly, SafaiSena approached the Gazipur WTE Plant with a similar proposal and got around 80 members who had lost its livelihood as a result of construction of WTE and removal of landfills, employed. The main aim is to ensure livelihood of wastepickers. At the same time we file petitions and take out data-backed reports on the environmental hazards of WTE Plants…One such report published is 'Waste-to-Energy or Waste-of-Energy.* (personal communication, 2017)

On the other hand, Organizations such as AIKMM on the other hand demands that privatization be halted altogether and most recently its demands have focused on door-to-door collection: 'Informal sector waste collectors should be given exclusive rights for door-to-door collection at the housing cluster and neighborhood levels. The private sector companies should be kept out of door-to-door waste collection.' (official website, AIKMM)

The inter- and intra-scalar relationships between organizations- local, national and international are not devoid of tension. The issues range from what approach is to be undertaken when confronting the government to territorial fights between organizations vying for the same "beneficiary" populations.

Such advocacy groups have however aided in safeguarding their livelihoods, often by entering into agreements with municipalities which allow waste pickers to continue making a living. In Delhi, Chintan has entered into such agreements with the NDMC and EDMC to provide doorstep waste collection services to a select number of households through SafaiSena. Such steps prevent the complete dispossession of the wastepickers of informal economy.

Right to waste as a common resource or private property has become a fundamental part of the struggle between the state and formal, informal economies of waste management in urban India. The privatization of this 'common resource' is mediated by the state.

The response of the Government to waste has resulted in some organization of the informal sector. As a result of the aid provided by NGO's, the wastepickers have organized themselves into unions with capability to bid for government contracts. This has led to a process of what can be called 'formalization' of the informal economy of urban waste. This is not the same as the traditional 'formal' sector as the work is causal. The wastepickers are not employees of the organization. They continue to retain ownership over waste- their means of subsistence. However, there is nevertheless a change in the nature of their work. While earlier they worked independently, at their own pace, the contracts now impose a time constraint on their 'service delivery'. The Safai Sena wastepickers for instance can be recognized by their uniform. The importance of the uniforms lay in presenting the bodies that were previously identified synonymous with dirt, a certain visibility as a group working with full respectability and permission by the authorities. They are also provided with an

Identity card that legitimizes their presence, conferring validity to previously unidentified and unidentifiable labor and laboring bodies. Further, any member of the union/organization (safai sena for instance) has to regularly attend meetings help monthly and yearly. Certain protocols of a professional job are now followed.

Such professionalization through implementing protocols, uniforms and identity card gives the wastepicker a legitimate space in the modern city. The impositions on the bodies and movements of the wastepicker also end up serving as technologies of discipline to tame an unruly people and appease middle-class anxieties. Such organisations also then work with certain boundaries. A representative of SafaiSena replied to my question on who could join the organization by saying, "*Any ragpicker can join. They only have to follow certain rules and guidelines of safaisena.*"  Whether or not the 'workers' then follow the right protocols becomes a potential point of inclusion/exclusion.

## 2.2 GARBAGE AS A POLITICAL TOOL

*"Garbage crisis in East Delhi: Workers on indefinite strike, waste piles up"* - headline published on Jan 07, 2017, Hindustan Times[23]

Recent protests against EDMC by 'safai karamcharis' took the form of garbage piling up in parts of the city and the karamcharis refusing to work until their salaries were paid and workers were regularized. Agitated workers protested outside the deputy chief minister Manish Sisodia's camp office in Khichripur and IP Extension. *Garbage was dumped inside and outside the office complex.*

Such 'garbage strikes' (Moore, 2009) demonstrate the efficacy of waste as an effective political tool for leveraging demands against the authorities. In this case for instance, as a

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[23] See http://www.hindustantimes.com/delhi-news/garbage-crisis-in-east-delhi-workers-on-indefinite-strike-waste-piles-up/story-QIYThx8Baj6EOlJX83vyqN.html

sign of protest, garbage is not collected from around the city, making the 'public secret' of waste more visible than ever. The dumping of waste in front of a minister's office further makes such demands difficult to ignore and pressurises the authorities to respond. Garbage thus becomes a political tool when it exploits the fraught relationship between city managers and urban waste. (Moore 2009, p. 427)

Modern Citizens expect a clean city that matches their aspiration of a 'Global City'- these expectations however cannot be fully met as modernization leads to certain unsolvable contradictions.  Sarah Moore (2009) refers to the "dual process through which modernity produces an imaginary environment of order, cleanliness and rational space; and at the same time relies on a production system (capitalism based on planned obsolescence and ever-expanding consumerism." Thus, the garbage generated as a result of increasing consumerism will always exceed the capacity of waste managers to "expel it and purify the space of the city" (p.427). The informal sector and the unregularised workers of the formal sector thus utilize this contradiction – between actual material conditions of the city and our vision for a clean, civilized city-space- to leverage their demands.

Waste further is a clear marker between the acceptable and unacceptable; creating certain hierarchies and thus 'threatens one's own and clean self' (Kristeva, 1982, p.65)

> *'[T]he danger of filth represents for the subject the risk to which the very symbolic order is permanently exposed to the extent that it is a device of discriminations, of differences. A threat issued from the prohibitions that found the inner and outer borders in which and through which the speaking subject is constituted.* (Kristeva 1982, 68–69)'

Since the boundary between the ritualistic, pure private and the dirty, polluting public no longer remains sacred; there is an almost aggressive attempt to reinforce an order that can never be achieved. This anxiety that leads us to enforce borders also creates opportunities for political acts that expose the unstable and fragile nature of the imposed category of modernity and the institutions upholding them. (Moore, 2009) The new politics of garbage thus becomes a site where the "modernity myth" reaches its own endpoint. (Ferguson 1999). The vision of a modern urban order is buried under the hyper-visible garbage.

The SBM aims for a well-developed city structure (smart city) where garbage is distanced both the city as well as its citizens. This requires the creation and participation of new urban subjects- who are clean and hygienic. Moore argues that modernity produces an imaginary environment of order, cleanliness and rational space, and at the same time is based on a capitalistic production system that encourages an ever-expanding consumerist society. The very 'excess material of modernity exceeds the capacity of waste manages to expel it and purify the pace of the city' (p. 427).

The visibility of garbage- piles of it on city streets- invokes outrage and disgust. Thus, dumping of garbage in front of the minister's office or refusing to work resulting in the stench of waste permeating the city- becomes a strong leveraging potential as political tools.

# CONCLUSION

The first chapter gave a general description of the secondary literature on the subject of waste/dirt in public areas. Mary Douglas provides a theoretical entry point into the study of waste as a subject of inquiry and its association with notions of taboo and pollution. The debate is taken to the contemporary times by Chakrabarty and Rodrigues who put forward opposing theories on the reason for the dismissive attitude towards wastes in public spaces in India. The chapter also demonstrated the landscapes of Waste in Delhi in specific and India in general- the approaches that have been popular is certain parts of the country. Centralised approach to SWM characterizes Delhi's waste policy. This chapter looked into the history of privatization of the waste sector in Delhi and its impact on the informal economy of waste. Further, it provides a brief analysis on the relationship between formal-informal sector in SWM and the actors and interests that have formed given the context of privatization.

The second chapter focuses on the alliances and contestations that emerge from policies around waste management. Waste-to-Energy Plant has been taken up as a case study to demonstrate that waste can bring together two groups of sometimes conflicting interests together. This section looks into the ways in which the middle-class residents and the wastepickers union form an opportunity-based alliance with the same objective, but very different motivations. While for the wastepicker, the materiality of everyday trash is essential for his/her livelihood; for the resident living in areas neighboring the WTE plant, the materiality of waste- in the form of toxic ash- exposes the impossible dream that modernity promises.

The chapter further discusses the response of the government to the 'waste problem'. The visibility of waste renders it a problem; when it is hidden away in areas away from the cities, then they do not threaten the rational order that pre-supposes a civilized modernity.

The last chapter looks at the waste-conflict from the perspective of the informal, disparate wastepickers. Waste-conflict arises out of conflicting interests in relations to the right of

access to waste. Privatisation created a conflict between the private firms and wastepickers; while the WTE plant created a struggle for high-calorific waste. The informal sector has responded by forming organisations, unions etc and use their environmental and economic contribution as the basis to make their claims over waste. Garbage has thus gained political significance in its performance as a negotiable resource. The anxiety that waste produces on the vision of a rational order has been used as a political tool to leverage demands.

Swachh Bharat Mission has brought waste management to the forefront of public debate and policy discussions. The linking of SBM with Gandhian values, without any reference to the caste politics that certainly is associated with Gandhis views on cleanliness, is interesting. The approaches undertaken by the government on SWM does not hold the waste generator responsible; further projects like WTE plants provides disincentives to any effort of controlling waste generation. At the same time, a campaign like SBM places the responsibility for waste on the individual- invoking the notion of a 'good', 'modern' citizen.

**Swachh Bharat Mission:  Locating The Responsibility For Waste**

*'I think our cities have the dubious distinction of being the dirtiest cities in the world. There is no doubt about it. But if there is a Nobel Prize for dirt and filth, India will win it hands down. There is no competition for that and we have to do something dramatic on municipal solid waste.'*
-Jairam Ramesh, Union Environment Minister at TERI, 2009

The fact that India is filthy is now accepted publicly by political representative. An online group called 'The Ugly Indians' lauds such declarations – 'We salute them for saying publicly what we all know privately! Let's face it. We Indians have abysmal standards of public hygiene. Will The Ugly Indian ever change? Is there any hope?' (TUI, n.d.)

*Look at any Indian street, we have pathetic civic standards.*
*We tolerate an incredible amount of filth.*
*This is not about money, knowhow, or systems.*

*This is about attitudes. About a rooted cultural behaviour.*

*The Ugly Indian can take the world's best systems*

*and find a way around it. Even outside India.*

*Streets in Indian-dominated suburbs overseas*

*are good indicators of this lack of civic sense.*

*Ask those who have visited Southall (London),*

*Edison (New Jersey) and Little India (Singapore)*

*It's time for us Ugly Indians to do something about this.*

*Only we can save us. From ourselves.*

(TUI, n.d.)

The hope, it seems, lies in individual consciousness and awareness about our responsibility to clean India. The notion of individual responsibility has also been reinforced by the Prime Minister in his speeches and regular 'Mann Ki Baat' radio Broadcast.    In his Independence Day Speech, Prime Minister Narendra Modi announced the launch of a National sanitation campaign- Swachch Bharat Abhiyan- to commemorate the 150th birth anniversary of Mahatma Gandhi who had "sanitation and cleanliness closest to his heart. He gave the mantra of 'Na gandagi karenge, Na karne denge' (people should neither litter, nor let others litter. Public officials and political representatives were asked to go out on the street with brooms to lend in the cleanliness drive.). The simplistic image if the ' broom' has been invoked to demonstrate the idea that waste of the city can be managed if all of us, as citizens,        decide        to        take        responsibility        of        our        own              'dirt'. On 2$^{nd}$ October, 2016, normally marked as a public holiday, the Prime Minister asked for the following pledge to be done in offices and schools as a kick-off to the campaign:

*Mahatma Gandhi dreamt of an India which was not only free but also clean and developed. Mahatma Gandhi secured freedom for Mother India. Now it is our duty to serve Mother India by keeping the country neat and clean. I take this pledge that I will remain committed towards cleanliness and devote time for this. I will devote 100 hours per year that is two hours per week to voluntary work for cleanliness. I will neither litter nor let others litter. I will initiate the quest for cleanliness with myself, my family, my locality, my village and my work place. I believe that the countries of the world that appear clean are so because their*

*citizens don't indulge in littering nor do they allow it to happen. With this firm belief, I will propagate the message of Swachh Bharat Mission in villages and towns. I will encourage 100 other persons to take this pledge which I am taking today. I will endeavour to make them devote their 100 hours for cleanliness. I am confident that every step I take towards cleanliness will help in making my country clean* (SBM, 2014).

Thus, 'good' citizens, who care about the progress of the country, would themselves take care of the waste that they generate- they will not litter and keep public spaces neat and clean. He/She will also spread this message to others to ensure that this becomes a community effort. While efforts towards addressing the problems of hygiene and sanitation have been taken up many times by preceding governments, it has failed to take root and create such publicity. Despite disagreements on the approach to waste management to be adopted; there is a general consensus that the problem of waste is a part of everyday living experience in India- it is a 'cultural' problem[24]. Lucy Ivimy, a councillor in London accused Indian migrants to throwing garbage from the windows of their homes- *I know that in India throwing rubbish out of a window and total disregard for the cleanliness of a public area is normal behaviour ... in London this is not acceptable behavior (*TUI, n.d.).There is an accepted belief that this lack of civic sense if deeply rooted in our 'national psyche' and can only be corrected through behavioral changes and building consciousness among the people of the country. The path towards becoming a developed nation requires removal of this 'waste habit' and becoming modern.

In one of the Business Summits held in 2015 , Modi even co-opted Gandhi's famous term "satyagraha" (the struggle for or insistence on truth) for his cleanliness campaign- *Like there was satyagraha to free us from colonialism, today there has to be Swachhagraha (struggle for cleanliness ) to make India free from dirt. And the warriors will be swachhatagrahis(the warriors in the struggle for cleanliness).* In this comparison, waste becomes the enemy that needs to be fought against. However merely moral claims have not underline SBM. The

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[24] As Lalit Bhanot said-"Indians have different standards of hygiene than westerners".

implications of waste on economy, health, tourism, developing jobs (waste-to-wealth) etc have also been discussed.

The SBM attempts to bring about these behavioural changes in individual citizens. Voluntary actions have been a hallmark of such campaigns. The lack of infrastructure in SWM has also been a cause for concern. The manner of disposability has been the focus of the thesis.

One of the attempts to materialize such individual voluntary acts has taken the form of NDMC set up of 'Reverse Vending Machines'. CannaughtPlacein New Delhi witnessed the city's first RVM, where the machine will transfer a monetary value of 1, 2, 5 and 10 to the e-wallet of a person depositing a plastic bottle or a can. Meenakshilekhi, MP, while inaugurating the machine talked about its potential in changing citizens attitude and motivating people to throw plastic bottles and cans here only. This would also ensure in segregating waste and discourage littering. The setting up of RVM machines is also a part of Smart City initiative.

While walking across Cannaught Place in the first few days since the launch of the RVM, it was evident that citizens were curious about the big fridge-sized machine located around the shopping centre. A few days later though one machine was out-of-order and the other two stood stranded. How much change in behavior it brings about in the mindset of citizens is difficult to analyze. The waste collected by these machines is however again contracted by private entities and the waste is taken directly to recycling depot.

The Prime Minister has attempted to inculcate a spirit of voluntarism through SBM- of civic duty as a citizen. The translation of such promises on ground is beyond the scope of the study.[25]

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[25]Different surveys have been taken up by think-tanks and NGOs to document individual responses to waste and its management. The Energy and Resources Institute (TERI), a

## GARBAGE/MODERNITY

The early 1990s mark a pivotal moment in India's developmental history. It bought along a new era of LPG (Liberalisation, Privatisation and Globalisation)that effected the policies and ideologies for years that followed. The problem of waste in India has assumed new proportions but what makes it a 'national' issue is its constant visibility and association with the 'idea of India'. Depiction of the country in worldwide media has usually been coated with a humour of 'shit' and 'dirt'. Such a depiction poses a threat to modernity and its aspirations[26].The project to remove this dirt was also a part of Nehru's project of Modernity. However, the nature of waste has changed dramatically from those times- its content, volume, metabolic density has changed as a result of increase in production and changing consumption patterns that allows for uninhibited consumption of disposable commodities.

The vision of a purified, modern India lives alongside the materiality of waste on street corners in major cities of India. The informal sector of waste – ragpickers- toil into this garbage to earn their livelihood as well as contribute to decreasing this waste through environmentally sustainable means. The inefficient civic agencies have been accused of corruption and reinforcing the waste problem. Thus, the past decades have witnessed a privatization drive in SWM arena.

This thesis has attempted to look into the ways in which modernity has been imposed on the city as well as the garbage.  The 'excess of modernity' in places like Delhi poses a direct threat to its global city project. The materially of garbage and the promise of modernity are incompatible to exist simultaneously as modernity is responsible for the very garbage it promises to vanquish.

Delhi-based environmental think tank, conducted such a survey across eight Indian cities and asked their opinions on overall environmental issues, water and waste and waste management.  See http://www.teriin.org/pdf/environmental_survey-report-2014.pdf

[26] See Douglas, 1965; Moore 2009 Chakrabarty, 2010

The research forms the basis for research on solid waste management practices in India and in the process opens up new avenues for debate.

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