CONFRONTED WITH MANAGING E-WASTE IN DELHI:

EMBEDDING THE DEVELOPMENTAL STATE IN

ENVIRONMENTAL JUSTICE RESEARCH

by

UJJAINI DAS

(Under the Direction of Hilda Kurtz)

ABSTRACT

The ever-increasing quantity of toxic electronic waste or e-waste has become a serious cause of concern for the 21st century developing state's hazardous waste management regimes. The developing countries suffer from a double burden of e-waste from domestically generated and imported e-waste from developed nations. This e-waste is recycled under hazardous working conditions by low-wage informal e-waste sector of the developing world in order to recover precious heavy metals. Recognizing the urgency of these conditions that produce a form of environmental injustice, the Indian state has recently framed a new e-waste law to manage e-waste efficiently.

This dissertation research examines the regulatory roles of the Indian state apparatus in relation to the roles of the other important constituencies in the e-waste regulatory process. Based on the analysis of the state roles, the study draws connection between state's roles and structural features. The study also explores how, through the performance of roles, visions of environmental justices in terms of distribution, recognition, and participation emerge among the various constituencies, which among those find reflection in the new e-waste law, and what

effects the new e-waste law are likely to have on the future of environmental justice of the e-waste sector.

The research demonstrates that the state' regulatory roles and structure are fluid, plural and subjective and emerge in relation to the roles of the other key stakeholders. It also highlights that different ideas of environmental justice emerge through the performance of roles in the e-waste lawmaking process. Among those environmental justice ideas, only distributive justice ideas find reflection in the e-waste law. In the absence of recognition and participation, or any alternative vision of environmental justice of the affected informal e-waste sector, the study concludes that when fully implemented, the law would reinforce distributive injustices in the affected community.

INDEX WORDS: Electronic Waste, Developmental State, Environmental Justice, India

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DEDICATION

Dedicated to my parents without whose relentless support and encouragement this journey would have been impossible. When I think of the pain that they have endured patiently for me, living oceans apart, my eyes fill with tears. Their tolerance, trust, and endless love have brought me where I am. This dissertation is my humble gift to them.

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TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER 1

INTRODUCTION

The rapidly growing quantity of electronic waste (e-waste) worldwide has become an urgent problem for developing states' hazardous waste management regimes. An enormous volume of e-waste is exported from the developed countries to the developing world. Additionally, the developing countries domestically generate a large amount of e-waste each year. This electronic garbage causes chronic occupational health problems to workers, communities, and contaminates the physical environment (Pellow, 2009). It is recycled by low-wage workers in the developing world for the recovery of valuable heavy metals. These conditions constitute a form of environmental injustice, in which a socially vulnerable population bears a disproportionate burden of industrial development, in this case, as exposure to hazardous metals being recovered in the recycling process. Such conditions are currently forcing the developing states to frame new e-waste management regimes.

Like other countries in the semi-periphery, India suffers from a double burden of e-waste in that the domestic e-waste industry produced approximately 2.7 million tons in 2012 (UNU and Huisman as cited in StEP Initiative E-waste World Map, 2014) and imported around 50,000 metric tons of e-waste annually from the developed countries (Manufacturers Association of Information Technology et al., report, 2007). In Delhi alone, 25,000 informal workers harvest heavy metals from as much as 20,000 tons of e-waste annually (Kishore and Kishore, 2010). Approximately ten to twelve informal e-waste recycling clusters are located in different parts of

the city (Agarwal and Wankhade, 2006; also see figure: 1) consisting of hundreds of recyclers in each cluster. Recycling[1] takes place in small poorly ventilated units where workers comprising mostly women and children separate products with only rudimentary equipment and are exposed to multiple toxics simultaneously (Agarwal and Wankhade, 2006; Fieldwork, summer 2012). In this process, the recycling owners reap enormous profit, and the workers are left with barely a few dollars a day (Agarwal and Wankhade, 2006). Laws that govern labor and environmental safety are not enforced (Agarwal and Wankhade, 2006). These conditions demonstrate the prevalence of environmental inequality since the workforce is comprised of some of the most vulnerable persons in Indian society, and e-waste recycling was not regulated until the Indian state framed new e-waste regulation in 2011.

E-waste imported from North America, United States, Europe, and Australia arrive in large container ships at transit centers in Singapore and Dubai from where the consignments are dispatched to different ports of India ("The great e-waste recycling circus" as cited in Research Unit Rajya Sabha Secretariat, 2011). According to Chowdhury (2010), the e-waste is unloaded from the ships in the major and intermediary ports located along the eastern and western coasts of India (as cited in Research Unit Rajya Sabha Secretariat, 2011). According to Chowdhury (2010), from the ports the consignments are resent to the "Inland Container Depots" that are located in different parts of the country (as cited in Research Unit Rajya Sabha Secretariat, 2011: 38). The informal e-waste dealers or operators collect e-waste from the depots. Most of the waste that is labeled as "waste or mixed waste paper consignments" is unloaded at the Jawaharlal Nehru port in Delhi and at the Mumbai port (Research Unit Rajya Sabha Secretariat, 2011: 36). The customs officials in these ports lack sufficient manpower and machinery to check each

[1] Recycling in the e-waste clusters of Delhi includes the use of acid baths, open burning and roasting of printed circuit boards to recover precious metals such as copper, aluminum, iron, and gold; and smelting to make new products (Toxics Link, 2007; Fieldwork, 2012).

consignment thoroughly, in the absence of which hazardous e-waste is illegally shipped into the country (Research Unit Rajya Sabha Secretariat, 2011).

Additionally, the bulk consumers of electronics in India such as the hospitals, government offices, and industries generate toxic e-waste that are collected by the e-waste recycling operators located in different metropolitan cities of India such as Mumbai, Delhi, Chennai, and Kolkata. In the city of Delhi, the individual e-waste operators or dealers purchase e-waste from the bulk consumers and carry the e-waste from different metropolitan centers to Delhi in small trucks. Also, some of the dealers engage in door to door collection of e-waste from the residential areas of Delhi. Further, the informal dealers sometimes purchase imported e-waste from the container depots located at Okhla in Delhi (Research Unit Rajya Sabha Secretariat, 2011). This e-waste is unloaded from the trucks outside the individual dismantling and recycling units situated in the e-waste recycling clusters of Delhi (see fig 2). The e-waste is dumped inside the individual units and when the units overflow, it is stored outside in the street (see fig 2). In a typical e-waste recycling market of Delhi, both sides of the street have small heaps of e-waste lined up in front of the dingy pocket-sized e-waste storage units (see fig 2). The dealers and the workers engage in separation, dismantling, and recycling of e-waste inside the individual units and sometimes they work outside in the street (see fig 4, 7, 8, 9, 10, 11, and 12). The floor above the individual units is resided in by the family members of the e-waste dealers (see fig 14 and 15).

The e-waste that piles up in the recycling clusters of Delhi includes computer parts, "mobile phones, television sets, photocopiers, DVD players, washing machines, [and] refrigerators" (EU-India report, 2010: 6) that are "destined for recovery, recycling or disposal" (Research Unit Rajya Sabha Secretariat, 2011: 3). It contains precious metals such as gold,

silver, aluminum, copper, palladium, and platinum that makes recycling attractive. At the same time, the e-waste is hazardous and carcinogenic because it contains multiple toxics such as mercury, lead, arsenic, cadmium, beryllium, and chromium. These hazardous substances are mainly concentrated in the "circuit boards, batteries, plastics, and LDCs (liquid crystal displays)" (Research Unit Rajya Sabha Secretariat, 2011: 20). These toxic elements are released into the physical environment during the process of dismantling and improper recycling and cause adverse health effects on the recyclers and their family members who are continuously exposed to it. For instance, heating of circuit boards release several toxics such as chromium, mercury, lead, and beryllium into the air (The EU-India report, 2010) and the residues from open burning are dumped into the open landfills that leach and contaminate the soil and ground water (The EU-India report, 2010). According to "Down to Earth" (2010), inhalation of chromium causes kidney and liver damage, mercury causes malfunctioning of the kidney and the nervous system, lead disrupts functioning of the reproductive system, the kidney, and brain development in children, and beryllium causes lung disorder (as cited in Research Unit Rajya Sabha Secretariat, 2011). According to "Down to Earth" (2010), mercury contamination in water bodies tends to form toxic methylated mercury that bio-accumulates and contaminates the food chain (as cited in Research Unit Rajya Sabha Secretariat, 2011). Also, workers use bare hands for washing and stripping of circuit boards with acids and caustic soda that cause pain and burning sensations (The EU-India report, 2010, field work, 2012). They do not wear protective gears and constantly inhale toxic fumes. Further, the hazardous working conditions are worsened by inadequate work spaces, poor ventilation, and inadequate sitting arrangements (The EU-India report, 2010).

Hazardous working conditions of the e-waste workers not only expose them to health risks of e-waste toxicity but also put the health of the family members of the operators at risk.

The hazardous consequences of toxic e-waste recycling were recognized by concerned environmental groups in India through several e-waste related studies and they pressured the Indian government to prepare e-waste specific law to govern it in an environmentally safe manner. The first national level e-waste law was published by the Indian government in May 2011 and became effective from May 2012. Also, at the state level, the state of Tamil Nadu was the first state to prepare an e-waste policy in May 2010 (StEP Initiative E-Waste World Map, 2014). I discuss the functioning of the Indian government and the process of lawmaking at the center and the state level in detail in chapter 2.

As e-waste became an increasingly large proportion of the hazardous waste stream, the Indian state developed a separate law for its management. In 2003, Toxics Link, a national level non-state organization and GIZ (Gesellschaft fur Internationale Zusammenarbeit)[2], a semi-state organization, launched what would become an 8-year process of devising separate e-waste management law for the rapidly growing, and qualitatively distinct, e-waste stream. The state authorities, sensitized by these groups, included e-waste in the amended "Hazardous Waste (Management and Handling) Rules" (HWMR) and published e-waste management guidelines in 2008. Later, the state finalized a separate e-waste law in 2011 that took effect in May 2012. This law shuffles authority over e-waste management amongst agencies and incorporates two major policy issues. First, the law requires the informal recycling operations to formalize by obtaining licenses, keeping records, and reporting annual statistics to relevant agencies. Second, it requires the electronic industries to establish a take-back system and to reduce toxics at the design stage. Thus the case of e-waste recycling in India brings the actions of a developmental state into analytic focus as a key factor in shaping conditions of environmental injustice. Given that the

[2] GIZ is a bilateral Indo-German semi-state organization. This organization works in partnership with both state (Indian and German governments) and with non-state organizations (Toxics Link).

problem of e-waste in India can be expected to grow in the years to come, it now becomes crucially important to understand the role of state regulations in shaping conditions of these workplaces and to evaluate possibilities for achieving more environmentally just working conditions for this large and ill-protected population.

While critical environmental justice (EJ) scholarship has long focused on the mal-distribution of hazardous waste, there has been little attention to the hazardous waste regulation as such as a factor shaping environmental injustice. The state as such is surprisingly undertheorized in EJ scholarship (Kurtz, 2010) but is the key actor here. Most of the limited EJ engagement in this regard has been with the western advanced capitalist states, which leaves the role of the developmental state unexamined. Pellow's (2000) framework of 'environmental inequality formation' regards the state as one among other multiple actors influencing inequality formation. Pellow (2000) argues that environmental inequality must be viewed as a socio-historical process that involves multiple stakeholders, including the state. Pellow's minimal engagement is with the advanced capitalist state and does not engage with the role of the developmental state in reproducing conditions of environmental inequality.

I address this major conceptual gap in critical EJ research by bringing the developmental state within the fold of EJ studies. Developmental state scholars have drawn a linkage between state roles and structure, and have developed concepts to explain the structural attributes of the state by studying developmental states' actions in managing the industrial sector in the 20th and the 21st century. I extend the developmental state paradigm into this novel state-society relationship, i.e., the state-e-waste sector relationship, which is marked by both state action and inaction. I then examine what combination of regulatory roles the Indian developmental state performs and what structural elements find reflection in the e-waste regulatory process.

Additionally, law and developmental state scholarship provide further insight into the connection between the developmental state and the legal system, more precisely, the economic legal system. I also extend this body of work into the realm of the Indian state and e-waste legal regime and examine their relationship in adequate detail. Further, developmental state and law and development scholars say little methodologically about how they understand state roles and its structure, and how linkages are drawn between the state structure and the law respectively. I address this methodological gap in each area of the literature by deploying Yanow's (2000) framework of interpretive policy analysis. Yanow's framework enables an understanding of how state roles are framed by multiple interpretive communities (that also includes the state authorities) differently in the e-waste policy documents (e-waste guidelines, 2008 and the final e-waste law, 2011). This approach also shows how interpretations of state roles change over time by the discourse communities in the lawmaking process (2003-2011). The structural features that can be discerned from the changing roles differ as well.

Once I theorize state roles in the e-waste legal system, I next analyze how the state impacts the reproduction of environmental injustices of distribution, recognition, and participation in the e-waste sector. Critical EJ scholars have given inadequate attention to how the pluralist notions of injustices are being reproduced by the state. Here, I primarily use Schlosberg's (2004, 2007, 2013) trivalent conceptions of justice and Whyte' (2011) standard of these ideas of justice in this new empirical context to examine whether and how these ideas emerge among the different interpretive communities through the performance of roles, how they shape the EJ visions of the state authorities, which among those visions find reflection in the new law, and what effects will it conceivably have for the future of environmental justice in the e-waste sector.

This project thereby asks two important questions that are further subdivided as follows:

1).What combination of roles has the Indian state units performed in framing the e-waste law?

1a). How are the e-waste policy issues and state regulatory roles framed by the interpretive communities in the e-waste policy documents? What inferences can be made about state structural features from the analysis?

1b). How has the framing of e-waste policy issues and state regulatory roles by the interpretive communities changed throughout the e-waste lawmaking process (2003-2011)? What kind of structural features can be discerned from such analysis?

2).What does the recent e-waste specific law auger for the future of environmental justice in the e-waste recycling sector?

2a). How, if at all, do ideas of environmental justice in terms of distribution, recognition, and participation find reflection in the performance of the roles of the different interpretive communities during the framing of policy issues that led to the publication of the law?

2b). How, if at all, do ideas of environmental justice finally become incorporated in the policy issues of the e-waste law?

2c). What effects can the new e-waste law be expected to have in regard to distributive, recognition, and participative dimensions of environmental justice?

Through a critical evaluation of state roles and structure and their possible impact on the reproduction of environmental injustices in the e-waste sector, this dissertation project contributes intellectually to developmental state, law and development, and environmental justice scholarship. This study also generates new knowledge about how the Indian state historically shaped and dealt with one of the most challenging waste management problems of

this century and will be of relevance in conducting further research on the Indian state's role in implementing the e-waste law. Apart from conceptual and empirical significance, this research has broader impact on Indian state agencies and specific environmentally-concerned groups. The study will enable the Indian state apparatus to evaluate their own roles and hence, will equip them to take more effective steps in forwarding e-waste policies. It will also serve as a frame of reference for environmental activist organizations, such as Toxics Link and Greenpeace India to recommend future e-waste policies to the Indian state.

Organization of the Dissertation

This dissertation has been organized into seven chapters. Following this introductory chapter, the second chapter lays out the background of the problem of e-waste in India with a description of the Indian government structure and with special attention to the working conditions in the informal e-waste recycling clusters in Delhi. Next, it narrates how the concern for e-waste management developed and how the key players emerged. Chronologically, I then describe the sequence of events that lead to the publication of the e-waste guidelines and the e-waste law in India and further elaborate on the sources of the new law and its major components. I identify two major policy issues that have been thoroughly debated, i.e., formalization of the informal sector and producer responsibility that forms the frame of reference of my ensuing analyses.

In chapter three, I develop the conceptual framework of this project. I discuss the relevant theoretical concepts and identify the gaps of the 20th and the 21st century developmental state literature and the law and development studies. I explain how I address them conceptually and methodologically. I use interpretive policy analysis to address the methodological gaps of both the developmental state and the law and development literature. I then, review the environmental

justice literature and identify lack of attention to the developmental state and lack of attention to the different notions of environmental justice as major theoretical blind spots. Finally, I explain how I bring the developmental state theory, the law and development literature, and interpretive policy analytic approach to address the conceptual lacunas of critical environmental justice research.

Chapter four discusses the project's research design and methodology. I start by explaining how the project is a single case study research. Next, I discuss in considerable detail the sources and methods of data collection. I then situate my project within the meta-theoretical perspective of social constructionism and elaborate on the data analysis methods. Here, I adequately focus on how I use narrative and discourse analysis for analyzing the two sets of research questions that I pose (mentioned on page 8) respectively. Following which, I explain how in this case study, research validity is achieved. Finally, I close by explaining my research positionality and how that made me an essential part of the data that I collected and later analyzed.

Chapter five presents the analysis of my first set of research questions using narrative analysis. In this chapter, I analyze the regulatory roles of the Indian state apparatus as the state authorities engage in framing the new e-waste law with other important constituencies. I identify the state roles based on how they are perceived by key stakeholders or interpretive communities including the state units. In addition, I examine state roles in relation to the performance of the roles of the other interpretive communities. I make inferences about state structural attributes on the basis of the interpretations of state roles. The analysis shows that state roles are not conducted in isolation but in conjunction with other associations. It also highlights that interpretation of state roles and structure are plural, fluid, and subjective.

Chapter six lays forward the results of the second set of research questions using discourse analysis. This chapter first examines how ideas of environmental justice developed among the different interpretive communities during the e-waste lawmaking process. Next, it explains which among those ideas find reflection in the final version of the e-waste law and finally, it evaluates the possible impact of the law on the affected e-waste community. The study concludes that the distributive justice ideas that are reflected in the law are unlikely to be implemented in the absence of the ideas of recognition and participation. Further, the study shows that the affected e-waste community lacked any alternative vision of environmental justice. In its absence, the disadvantaged communities would have to succumb to the environmental injustices that would affect them.

In the concluding chapter, i.e., chapter seven, I bring forth the empirical, conceptual, and methodological contributions of my analyses. I then discuss the directions for further research. Here, I focus on future studies that would help to strengthen the foundations of both critical environmental justice research and developmental state studies and would firmly situate the developmental state in critical EJ scholarship.

CHAPTER 2

THE PROBLEM OF E-WASTE & ITS REGULATORY PROCESS

Introduction

Electronic waste or e-waste emerged as a problem in India at the dawn of the twenty-first century. India's economic liberalization in the early 1990s and the subsequent rise of the middle class created an explosion in the production and consumption of electronic products which led to an increased accumulation of its byproduct–e-waste. The majority of the e-waste in India is managed by the informal sector that segregates, dismantles, and recycles the same to extract precious metals using low-cost rudimentary techniques. The presence of toxicity in e-waste along with valuable metals makes the recycling process both lucrative and hazardous for the informal workforce. Concerned partial-state (a bilateral Indo-German agency called GIZ) and non-state organizations (Toxics Link, Manufacturers Association of Information Technology (MAIT), and Greenpeace India) influenced by the European Union (EU) "Waste Electrical and Electronic Equipment (WEEE) Directive" and "Reduction of Hazardous Substances (RoHS) Directive" on e-waste, realized the urgent need to formulate e-waste specific law to manage it efficiently in India. These organizations were instrumental in pressuring the Indian government to recognize the importance of framing a new legislative framework specific to e-waste. With the consent of the government, these organizations drafted the e-waste law in 2009 which was modified by the Indian government. The final "e-waste (Management and Handling) Rules" was

ratified by the Indian parliament in May 2011 and came into effect in May 2012. These rules constitute the first e-waste law in India.

In this background chapter, I first present the problem of e-waste, including its toxic components, effects on human health and environment, and its status globally and in India and then portray a picture of the hazardous working conditions of the e-waste workforce in India. I next describe the parliamentary system of Indian government and how laws are made at the center and at the state level. Next, I describe how and when e-waste came to be recognized as a cause for concern in India, the way in which the key stakeholders became involved in e-waste lawmaking, the process of e-waste lawmaking, and the sources and components of the new e-waste law. Finally, I briefly state what I intend to achieve in the analysis chapters that follow.

The Problem of E-Waste

The irony of the problem of e-waste is that it is both hazardous and attractive. Although e-waste lacks any prescribed definition (GTZ and Indian Chambers of Commerce Kolkata report, 2010), WEEE Directives define e-waste as the "waste material consisting of any broken or unwanted electrical or electronic appliances" (GTZ and Indian Chambers of Commerce Kolkata report, 2010:15). E-waste contains different kinds of materials, including some toxic heavy metals and some precious metals. The toxic substances include lead, arsenic, cadmium, Polychlorinated Biphenyls (PCB), Poly Vinyl Chloride (PVC), mercury, Brominated Flame Retardants (BFR), barium, and beryllium (Toxics Link, 2007). These heavy metals can cause serious damage to human health and the environment. For instance, exposure to lead damage the central nervous system, reproductive organs, kidney, and affects brain development in children. Also, lead exposure has chronic negative effects on animal and plant life (Toxics Link, 2007). Similarly, the burning of circuit boards in order to recover chips and metals, releases

"brominated dioxins, beryllium, cadmium [and] mercury" into the atmosphere and contaminates the soil and water with tin and lead (Electronic Industries Association of India report, 2009: 66). These toxic components are present in small quantities but are capable of causing severe health risks (Toxics Link, 2007). On the other extreme, the presence of precious metals, such as gold, silver, iron, platinum, ruthenium, palladium, copper, plastic, glass, and aluminum (Agarwal, 2012) makes e-waste recycling a very lucrative enterprise.

"Solving the E-Waste Problem (StEP) Initiative" estimates that around 49 million tons of e-waste was generated globally in 2012 and by 2017, global e-waste production would increase to 65.4 million tons (Greenpeace India, 2014). The StEP Initiative study also shows that in 2012 the United States generated the maximum volume of e-waste, approximately 9.4 million tons (Greenpeace India, 2014). The majority of the e-waste produced in the developed countries of North America and Europe are exported to the developing nations of South Asia, Southeast Asia, and Africa (Chatterjee, 2012; Basel Convention Report, 2011). In addition, the developing nations produce their own e-waste (Chatterjee, 2012). The developing countries of China and India suffer from a dual burden of e-waste because of an increased domestic production of e-waste and because of the burden of e-waste from abroad. For instance, with economic liberalization, India emerged as a major generator and importer of e-waste. Also, the StEP Initiative study highlights that China domestically generated around 7.3 million tons of e-waste in 2012 (Greenpeace India, 2014) and additionally imported enormous volume illegally (StEP Green Paper Series, 2013). Both the imported and domestically generated e-waste is recycled by the urban poor using primitive techniques in India and China (Chatterjee, 2012).

With the opening up of India's market in 1991, there was a huge influx of multinational electronic industries in India. The year 1991 is considered as the start of economic liberalization

in India when a major shift in economic policy took place from an inward oriented to an outward-looking economy that integrated with the world market (Nayar, 2009; Kotwal et al., 2010). Prior to 1991, India was heavily reliant on foreign aid and economic growth stagnated (Nayar, 2009). A severe balance of payments crisis, economic stagnation, and pressures from the International Monetary Fund (IMF) have been responsible for this move (Nayar, 2009). During this time, the then Prime Minister P.V. Narasimha Rao made the decision to implement a radical shift in the economic policy by embracing economic liberalization (Nayar, 2009). As a result of liberalization, foreign direct investment was encouraged and the private sector gained enhanced economic scape and freedom since they did not have to secure licenses from the central government (Nayar, 2009). The growth rate increased with outward spread of business and with increase in exports (Nayar, 2009). In 2006, India emerged as a trillion dollar economy with a GDP of $ 4.156 trillion (Manufacturers Association of information Technology et al., report, 2007). The path to increased growth rate has been through transfer of technology from the developed countries which heightened the demand for skilled labor with accelerated wages (Kotwal et al., 2010). A result of it has been a dramatic rise in the middle class (Nayar, 2009).

India also became a major exporter of information technology-oriented services from 2000 onward (Nayar, 2009). A breakthrough in information technology brought about a change in the perception of information and in the use of electronic equipment in India. The computer industry boomed as India integrated with the globalized economy. Additionally, with the rise of the middle class, the consumption of electronics grew tremendously, the fallout of which was increased domestic production of e-waste. In 2007, India domestically generated approximately 332,000 tons of e-waste (GTZ and Indian Chambers of Commerce Kolkata report, 2010). It is

expected that the Indian middle class will rise to 583 million by 2025. This would place India globally as the fifth largest consumer electronic market (Toxics Link, 2007).

Furthermore, the burden of India's e-waste has increased exponentially due to the enormous import of e-waste from more developed countries (Chatterjee, 2012). As mentioned in chapter 1, as much as 50,000 metric tons of e-waste are imported annually (Manufacturers Association of Information Technology et al., report, 2007). The figures only provide a rough estimate of the volume of import since most of the e-waste is imported for reuse but through testing they are identified as not suitable for re-use (Manufacturers Association of Information Technology et al., Report, 2007). Of the domestically produced and imported e-waste in India, only around 144,000 metric tons of e-waste was available for recycling in 2007 due to improper collection, storage, and multiple reuse of e-waste (Manufacturers Association of Information Technology et al., Report, 2007). Of the recyclable items, 95% of them are recycled by the informal e-waste market (Agarwal, 2012) and the remaining 5% is recycled by the formal recycling centers in India (Manufacturers Association of Information Technology, et al., Report, 2007).

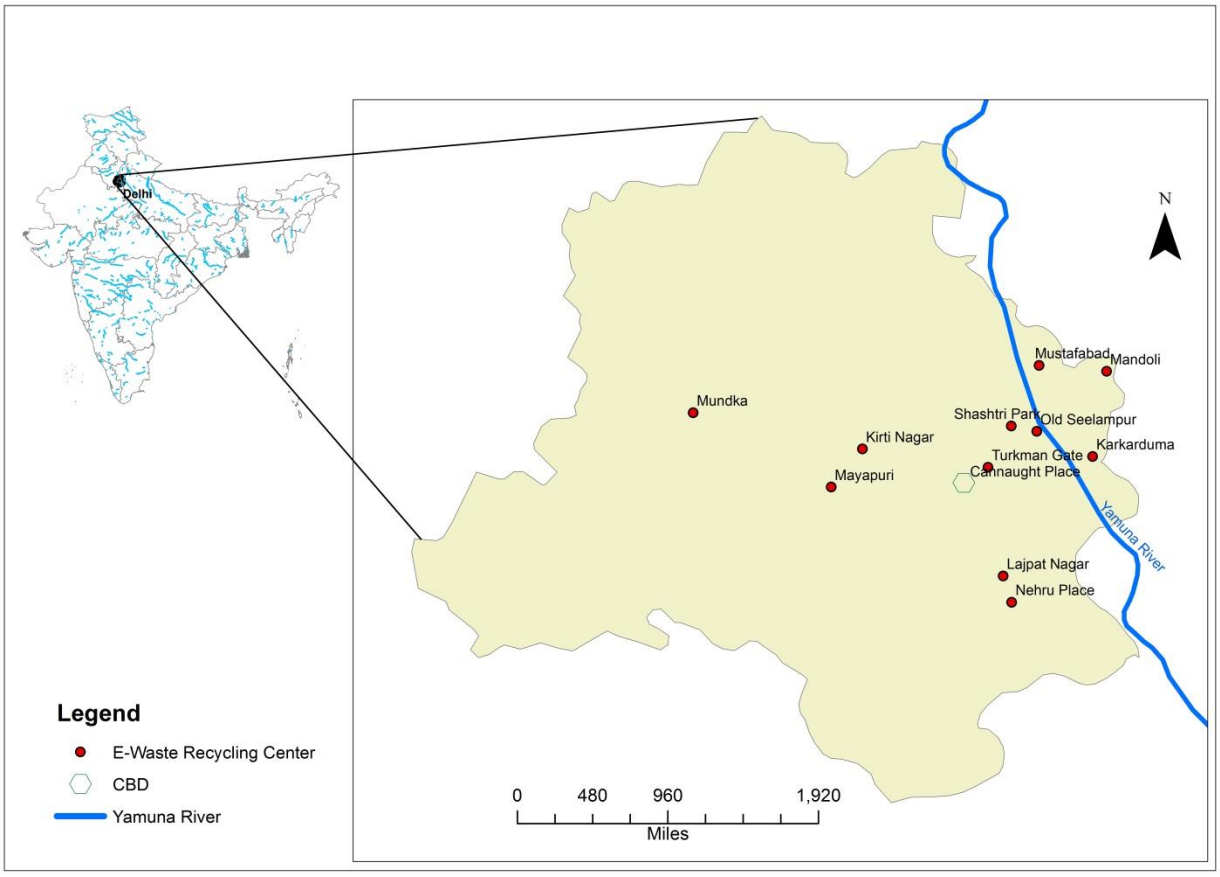
In the recent past, formal recycling centers have begun to emerge in India where some precious metal recovery is performed (Electronic Industries Association of India Report, 2009) and are certified by the respective state pollution control boards (Manufacturers Association of Information Technology et al., Report, 2007). The few formal e-waste recycling plants, such as Attero (Delhi), E-Parishara (Bangalore), and Polygenta (Mumbai) are located primarily in western and southern India and they lack the sophisticated technology and the capital to extract most of the precious metals (Electronic Industries Association of India Report, 2009). These plants deploy manual and mechanical processes in order to recover precious metals (Electronic

Industries Association of India Report, 2009), such as gold, copper, aluminum, plastic, and glass. The remaining unprocessed e-waste is sent for high-end recovery to recycling refineries in Belgium that possess the required resources for extraction of the remaining precious metals, such as ruthenium, silver, and platinum (Toxics Link and Greenpeace India interviewee; Electronic Industries Association of India Report, 2009; Manufacturers Association of Information Technology et al., Report, 2007). Compared to the formal units, the informal sector that performs the majority of e-waste recycling employs workers who operate under extremely hazardous working conditions, deploy low-cost primitive extraction techniques, and recover a much smaller variety of precious metals.

Working Conditions in the Informal E-Waste Sector

Imported and domestically produced e-waste is recycled by the informal e-waste centers in the major metropolitan cities of India. In the city of Delhi alone, there are several e-waste recycling hubs (see Fig 1). The recycling hotspots include "Turkman Gate, Mayapuri, Old Seelampur, Mandaka, Mandoli, Kirti Nagar, Shastri Park, Karkarduma" (Agarwal and Wankhade, 2006; 240) Mustafabad and Lajpat Nagar (Toxics Link, 2003; also see Fig 1). Recycling hubs or e-scrap markets consist of several individual recycling operations that range from 200 to 2000 in each market (see Fig 2, 3, 4, 5 and 6).

Fig 1: E-Waste Recycling Clusters in Delhi



Source: Shape files of Delhi and India taken from DIVA-GIS.org
Map prepared by Allison Howard, Ujjaini Das and Andria Presotto

Fig 2: E-Waste Collection and Dismantling Market, Delhi

Source: Fieldwork, summer 2012

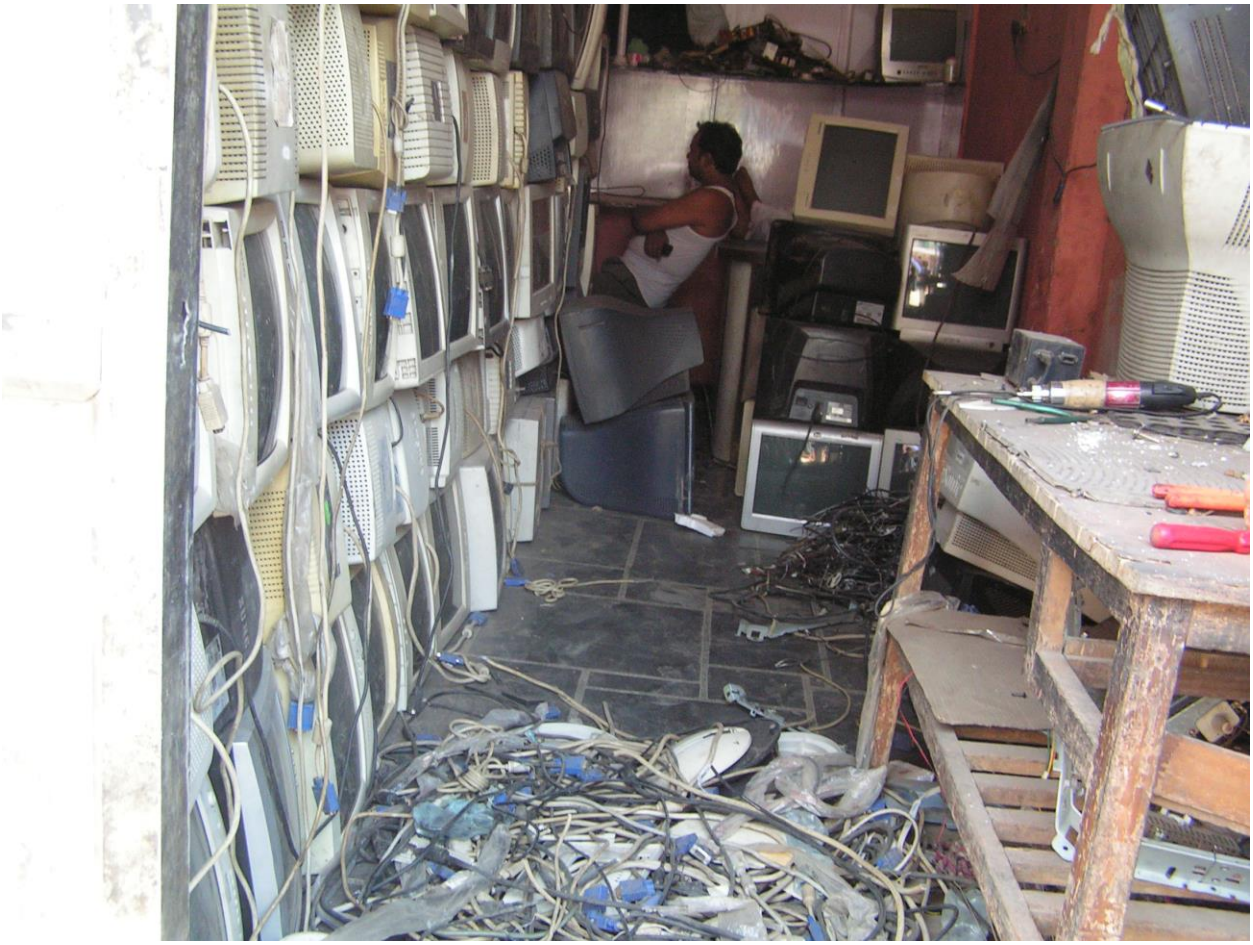
Fig 3: Seelampur – A Major E-Waste Recycling Hotspot in Delhi

Source: Fieldwork, summer 2012

Fig 4: A Typical E-Waste Recycling Operation, Delhi

Source: Fieldwork, summer 2012

Fig 5: An E-Waste Storage Unit, Delhi



Source: Fieldwork, summer 2012

Fig 6: An E-Waste Recycling Operation, Delhi

Source; Fieldwork, summer 2012

Generally, an e-waste operator engages in collection, storage, segregation, dismantling, and recycling of e-waste that is brought from different parts of India to Delhi. The informal dealers deploy cheap labor and low-cost equipment in the recycling process (Swiss Federal Laboratories for Materials Testing and Research (EMPA) et al., Draft Report, 2003-2004; Agarwal and Wankhade, 2006).

There is a general consensus among e-waste activists that collection, storage, and segregation of e-waste is not harmful but, dismantling with a hammer or burning for metal extraction is hazardous (Toxics Link interviewee, GIZ interviewee, Greenpeace India

interviewee). In the recycling centers, every single item is put to some use. Items that cannot be reused by any means are dumped in landfills or are openly burned (Swiss Federal Laboratories for Materials Testing and Research (EMPA) et al., Draft Report, 2003-2004). Recycling involves for instance, acid bath, burning and open roasting of PVC wires and circuit boards to extract copper; shredding of plastic, copper, and aluminum; extracting gold from pins; disassembling of computer monitors to extract glass and smelting to make new products (Toxics Link, 2007; Swiss Federal Laboratories for Materials Testing and Research (EMPA) et al., Draft Report, 2003-2004). The recyclers specialize only in a specific recycling activity (Swiss Federal Laboratories for Materials Testing and Research (EMPA) et al., Draft Report, 2003-2004) and the informal e-waste sector is only able to extract 25% of the precious metals and the rest becomes lost due to the rudimentary extraction techniques (GTZ and Indian Chambers of Commerce Kolkata report, 2010; Swiss Federal Laboratories for Materials Testing and Research (EMPA) Draft Report, 2003-2004). The instruments that are used in the crude process of e-waste recycling include hammers, screwdrivers, pliers, and furnaces without any basic precautionary safeguards, such as gloves and masks (Toxics Link, 2007; Swiss Federal Laboratories for Materials Testing and Research (EMPA) et al., Draft Report, 2003-2004). Thus, recycling in the true sense is not practiced in the recycling hubs of Delhi since the owners do not have the capital or the technology to fully recover precious metals. The majority of the recycling centers engage in dismantling of e-waste to extract copper (see Fig 12 and 13), aluminum, iron, glass, and plastic.

Dismantling of e-waste is performed mostly by children who are below the age of fourteen and women without any protective gear (interview with e-waste operators; Manufacturers Association of Information Technology and GTZ Report, 2007) (see Fig 7, 8, 9

and 10). These vulnerable age groups are exposed to hazardous working conditions for approximately 10 hours in exchange for approximately $ 3 dollars a day. However, working with e-waste is attractive since the job pays higher than other non-hazardous jobs, such as paid domestic work. In exchange for better wages, the vulnerable workforce is constantly exposed to lead, cadmium, mercury, brominated flame retardants and other toxic heavy metals and fumes during the open burning of circuit boards and PVC wires (Agarwal and Wankhade, 2006).

Fig 7: A Child E-Waste Worker Engaged in Separation of Computer Keyboards, Delhi

Source: Fieldwork, summer 2012

Fig 8: A Female Family Member of an E-Waste Dealer Engaged in Segregation and Dismantling, Delhi

Source: Fieldwork, summer 2012

Fig 9: Child E-Waste Workers Engaged in Dismantling, Delhi

Source: Fieldwork, summer 2012

Fig 10: Child E-Waste Dismantling Workers, Delhi

Source: Fieldwork, summer 2012

Fig 11: Burning of Circuit Boards, Delhi

Source: Fieldwork, summer 2012

Fig 12: A Dismantler Engaged in Copper Extraction, Delhi

Source: Fieldwork, summer 2012

Fig 13: A Bag of Extracted Copper, Delhi

Source: Fieldwork, summer 2012

Many e-scrap operations are located on the ground floor of the residences. On the floor immediately about them, the owners reside with their extended family members (see Fig 14). Their family members, including women and children are consistently exposed to e-waste toxins. The hazardous chemicals bond to their clothes, hands and feet and finally enter into their food chain. In addition to the workers, the shop owners and their extended family members are consistently exposed to toxic dust and fumes. Furthermore, e-waste toxics contaminate the soil, groundwater, and plant and animal life (Toxics Link report, 2003; EU-India project report,

2010). One of the e-scrap operators stated that in the Mandoli area in Delhi the color of the soil turned from red to white due to e-waste contamination.

Fig 14: Residents of E-Waste Shop Owners, Delhi

Source: Fieldwork, summer 2012

Fig 15: An E-Waste Collector and Dismantler with his Family Members, Delhi

Source: Fieldwork, summer 2012

The danger of e-waste toxicity to human health and the environment was recognized by concerned organizations in India who pressured the Indian government to frame law that specifically govern e-waste in an environmentally safe manner. Prior to explaining in detail the e-waste regulatory process, I discuss the basic structure of the Indian government and how laws are framed in India.

The Structure of the Indian Government

The constitution of India was brought into effect on 26th January 1950 (Pylee, 1979). The constitution is an amalgam of the US, British and the Irish constitutions and "the Government of

India Act, 1935" (Chandra et al., 2008: 82) and it lays out the powers of the different bodies of the Indian state structure.

The Indian government has a federal structure with a strong central government (Chandra et al., 2008). In this federal system, the legislative powers of the central or the union and the state governments have been clearly specified by the constitution (Pylee, 1979: Chandra et al., 2008). The union parliament legislates on the subjects specified under the Union List, the state assemblies legislate on subjects listed under the State List, and both the union parliament and the state legislatures legislate subjects mentioned under the Concurrent List (Chandra et al., 2008; Sharma, 1955). Unlike the presidential form of government in the United States, India has a parliamentary form where the elected president is the nominal head of the country, but the prime minister with his council of ministers governs the union parliament (Chandra et al., 2008). The union parliament and the state assemblies' elected members elect the president (Chandra et al., 2008). The leader of the majority party in the Lower House of the parliament or the Lok Sabha is appointed as the prime minister by the president (Chandra et al., 2008). The prime minster selects the members of the cabinet and then the president appoints them (Chandra et al., 2008). The prime minister "is the link between the President, the cabinet, and the parliament" (Chandra et al., 2008: 70). The Rajya Sabha or the Upper House and the Lok Sabha or the Lower House constitutes the two Houses of the parliament (Chandra et al., 2008). At the state level, the state legislative assemblies consist of state council of ministers headed by the chief minister. The governor of each state is the constitutional head similar to the president (Chandra et al., 2008). Also, the local government that is subdivided into three levels - village, block, and district level constitute an integral part of the government structure. The judicial system is hierarchical and is headed by the Supreme Court followed by the state high courts and the subordinate courts.

Finally, the Indian state apparatus comprise of the administrative services. The civil servants or the bureaucrats operate at the local, state, and the central levels of administration; have secure tenure (Chandra et al., 2008: Sharma, 1955); are appointed through merit based Indian Administrative Services examinations (Herring, 1999) and administer and also frame policy (Sharma, 1955).

The parliament has the legislative powers (Pylee, 1979). Bills can be initiated in either House of the parliament, but both Houses need to pass the bill and the president has to approve it in order to make it a law (Chandra et al., 2008). The bill or the proposed legislation can also be drafted by the concerned ministry and placed before the parliament. The introduction of the proposed legislation in either House of the parliament is called the "first reading of the Bill" or the first stage (Pylle, 1979: 229). After the introduction of the proposed law, the second stage begins when the chairperson of the House (where the bill has been introduced) sends it to a select committee, or a committee comprising of both the Houses, or is directly circulated for securing public opinion (Pylle, 1979). The select committee members are assigned based on their expertise on the issue under consideration (Pylle, 1979). The third stage begins when the committee submits its reports. During this time, the members of the House (where the legislation has been initiated) scrutinize it clause by clause and amendments are made accordingly (Pylle, 1979). Finally, when the bill is passed in one House, it is sent to the other House for approval (Pylle, 1979). The other House of the parliament follows the same procedure and is left with three options - it might approve the bill, or it might refer back the bill to the originating House for reconsideration, or it might decline altogether (Pylle, 1979). If not approved by the other House, the bill is returned to the originating House. The first House after making changes resends it back to the other House until an agreement is arrived, or a joint committee of both the

Houses is called upon to resolve the issues (Sharma, 1955). However, if both the Houses continue to disagree, the president might convene a joint sitting of both the Houses (Sharma, 1955). If passed by both the Houses, the president finally gives his approval (Sharma, 1955). The president might also choose to disagree and ask the Houses to reconsider (Sharma, 1955). After reconsideration by both the Houses, the president is bound to approve the bill after which it becomes a law.

The proposal for a separate e-waste law was raised by concerned organizations in India and they drafted the e-waste regulation on behalf of the Ministry of Environment and Forest and the Central Pollution Control Board. The Ministry and the Central Pollution Control Board after modifying the draft e-waste legislation placed their final version before the union parliament. Both the Houses of the union parliament passed the proposed legislation, published the final e-waste law in May 2011, and it came into effect in May 2012.

The state legislatures can also make laws in their respective states. Majority of the state have one chamber or the legislative assembly and few states have "two chambers, the legislative assembly and the legislative council" (Sharma, 1965: 223). Legislative proposals or bills can be introduced in the state legislative assembly by its members. When the motion for its introduction is approved by the assembly, the bill is published in the "Government Gazette" (Sharma, 1965: 226). After the bill has been printed, it is either distributed to seek public comments, or it is sent to a select or joint committee (where both chambers exist), or it is considered immediately (Sharma, 1965). Once the bill is approved by the assembly it is sent to the Governor of the state for his / her assent (Sharma, 1965). The governor might give assent or might send the bill back to the assembly with recommendations. Once reconsidered by the assembly, the bill is resent to the Governor and at this stage the Governor is bound to give assent, after which, it becomes a state

law (Sharma, 1965). In the states that have two chambers, the assembly sends the bill to the legislative council for approval. With the approval of both the chambers and with the consent of the Governor, the bill becomes a law (Sharma, 1965). Following these legislative procedures, the state of Tamil Nadu framed an e-waste law at the state level in May 2010. Since this dissertation project is solely devoted to analyzing the e-waste lawmaking process at the national level, I do not examine in further detail the procedure of law framing at the state level.

In the following section, I discuss how e-waste concerns were initiated at the national level and the series of events that lead to the crafting of the first e-waste law in India.

The Rise of E-Waste Concern in India

The growing concern about managing e-waste gradually evolved as a result of heightened production of e-waste since the beginning of India's economic liberalization in 1991. However, during the 1990s and early 2000s the concerned partial-state (GIZ) and non-state (Toxics Link, MAIT, and Greenpeace India) organizations were naive about the volume of e-waste and the locations and methods of e-waste disposal in India. No e-waste-specific law was prevalent at that time. E-waste was a part of the "Hazardous Waste (Management and Handling) Rules" of 1989 (Table 1) in which e-waste was treated at par with other kinds of hazardous waste. No separate clause existed on e-waste in the 1989 rules.

Toxics Link, an environmental activist group, first raised the issue of e-waste in 2003 (Table 1). In order to understand the trajectory of e-waste and its effects, they started to follow the e-waste chain backwards and documented the e-waste stream (Toxics Link interviewee). As a strategic intervention, Toxics Link raised the need for handling e-waste separately from other kinds of waste, such as municipal waste, since according to them e-waste consists of toxic components that upon their exposure become hazardous to human health and the environment.

From 2003 onward, Toxics Link conducted a series of studies on the status of e-waste in India and in other metropolitan cities of India to understand and document the status of the growing e-waste menace. For example, "Scrapping The Hi-Tech Myth", 2003; "E-Waste Factsheet", 2007; "E-Waste: Flooding the City of Joy", 2007; and "Mumbai; choking on e-waste", 2007 reports were prepared by Toxics Link on e-waste volume and the process of e-waste recycling nationally and in the metropolitan cities of Delhi, Kolkata, and Mumbai respectively. The studies estimated the quantity of e-waste generated and recycled by the informal recycling sector.

With the publication of Toxics Link reports, other environmental activist groups, such as Greenpeace India, GIZ and MAIT became interested in the issue and conducted further studies in different parts of urban India. These groups occasionally prepared pamphlets in order to create public awareness. For example, GIZ prepared pamphlets and posters for public meetings and for their website to sensitize the public about e-waste toxicity.

In 2008, the "Hazardous Waste (Management and Handling) Rules" were amended (see Table 1) and e-waste was incorporated in part 3 and part 4 of the amended rules (EU-India project report, 2010). However, e-waste was poorly defined in the hazardous waste rules and it did not cover all aspects of imported and domestically produced e-waste (Ram Mohan et al., 2008). Schedule 1 (31) of the amended hazardous waste rules, 2008 included only e-wastes generated from the electronic industry (Ram Mohan et al., 2008). The activist groups were not satisfied with the inclusion of e-waste in the amended hazardous waste rules. These groups felt that e-waste was distinct from other kinds of hazardous waste since e-waste was post-consumer waste whereas hazardous waste was only a bi-product of industry (GIZ interviewee). Therefore, the flow of hazardous waste was easy to determine but the flow of e-waste was not (GIZ

interviewee). The shortcomings in the amended hazardous waste rules of 2008 were instrumental in causing the concerned groups to realize the urgency of making a distinct e-waste law.

Table 1: Timeline of Relevant E-Waste Lawmaking Events in India and in the European Union

E-Waste Related Documents	**Year**
"Hazardous Waste (Management and Handling) Rules", India	1989
Toxics Link first raising e-waste concern in Indian	2003
"Waste Electrical and Electronic Equipment (WEEE) Directive" Passed by EU parliament	2003
"Reduction of Hazardous Substances (RoHS) Directive" ratified by EU	2003
MoEF realized that e-waste studies should be conducted in India	2004
"Reduction of Hazardous Substances (RoHS) Directive" became effective	2006
CPCB initiated the process of making e-waste management guidelines in India	2007
"Hazardous Waste (Management and Handling) Rules", India (3rd Amendment)	2008
Central Pollution Control Board (CPCB), India e-waste management guidelines	2008
"e-waste (Management and Handling) Rules", India (1st Draft) given to the Ministry of Environment and Forest (MoEF) by GIZ, Toxics Link, Greenpeace India and MAIT	2009
"e-waste (Management and Handling) Rules", India (final version of 1st Draft) prepared by MoEF	2010
"e-waste (Management and Handling) Rules", India notified	2011
"e-waste (Management and Handling) Rules", India became effective	2012
RoHS component of "e-waste (Management and Handling) Rules", India will be effective	2014

The Process of E-Waste Lawmaking

Once Greenpeace India, GIZ, Toxics Link and MAIT were on board and recognized that a separate e-waste law was the need of the hour, they approached the Ministry of Environment

and Forest (MoEF) to convince the officials to acknowledge that e-waste was a serious issue. The Ministry was initially reluctant to recognize that e-waste was an urgent problem.

In 2004, the MoEF officials felt that studies on e-waste should be conducted and asked GIZ and Greenpeace India to create inventories and assessments on e-waste (see Table 1). Since then several meetings, workshops, seminars, and awareness campaigns were organized by Toxics Link, Greenpeace India, and GIZ at the national and state level. The studies revealed the seriousness of the situation and strengthened the opinion of the organizations that a highly specific e-waste law should be formulated. However, the Ministry was not on board with the decision to parse out e-waste from the hazardous waste rules. The Ministry felt that the amended hazardous waste rules of 2008 with some modifications would address the problem of e-waste. However, with increased pressure from the activist groups gradually the Ministry recognized that e-waste needed separate attention and asked the organizations (MAIT, GIZ, Greenpeace India, and Toxics Link) to draft the new e-waste specific law.

During the drafting phase, the organizations faced serious objections from the electronic industry. The electronic manufacturing industry was not ready to recognize the problem of e-waste and did not want to manage their waste. They were primarily concerned with high-end electronic products. After several consultations with the industries, some agreed to the decision of having a separate law because in the international market the industries had to comply with Europe's WEEE legislations. A new e-waste law in India that followed the WEEE standards would allow them to abide by only one set of law and would make them more competitive in the global market.

The organizations relied heavily on the EU legislations on e-waste (WEEE Directives) to support their drafting of the e-waste law. The first draft was completed in Sept 2009 and was

placed before the Ministry of Environment and Forest (see Table 1). During the drafting phase, several arguments and counter arguments ensued among the group members. Some components of the law were removed and some were kept. Finally, the members of the four organizations arrived at some consensus on the draft law that was then placed before the Ministry. The organizations incorporated producer responsibility that included two core principles of the EU WEEE Directives – "Reduction of hazardous Substances (RoHS)" and "Extended Producer Responsibility (EPR)" principles in the draft e-waste law. Additionally, they included formalization of the informal sector in the draft law in order to bring the informal e-waste sector within the purview of the Indian state.

In 2009, when the draft was placed before the Ministry, a committee was formed comprised of some of the officials of the Hazardous Substance Division of MoEF and Central Pollution Control Board (CPCB). The Delhi Pollution Control Committee (DPCC) was invited to participate in some of the meetings. On the basis of the review of the draft law of 2009, a final version of the draft was prepared by the committee in May 2010 (Table 1). The final draft was kept in the public domain for a period of 60 days following which it was sent to the parliament. On May 1st 2011, the final e-waste law was approved by both the Houses of the parliament and came into effect on May 1st 2012. A one-year period was given to the electronic industry to comply with the EPR (Extended Producer Responsibility) component of the law. The RoHS (Reduction of Hazardous Substances) aspect of the new law is expected to be effective from May 2014 (Table 1). Here too, a two year time frame was provided for the electronic industry to initiate the process of reducing hazardous substances in the electronic products to permissible levels as specified in the law.

In the meanwhile in 2007, CPCB prepared e-waste guidelines which were published in 2008 for the management of e-waste (Table 1). The guidelines were the first published policy document on e-waste (GTZ and Indian Chambers of Commerce report, 2010). The CPCB guidelines introduced EPR and RoHS components of the EU regulations, but they did not specify the necessary steps that need to be taken by the e-waste recyclers in order to implement the EPR and RoHS components (GTZ and Indian Chambers of Commerce report, 2010). Furthermore, the guidelines did not mention anything about the need for formalizing the informal sector. It only discussed how e-waste is recycled by the informal and the formal sectors. The CPCB is currently in the process of making final step-by-step e-waste guidelines for the implementation of the new law.

The activist organizations were strongly inspired by the EU WEEE and RoHS Directives and framed the e-waste law based on them. Even though the content of the draft law was modified by the state officials, basic components of the draft remained intact in the final version of the law. Except for the formalization component, producer responsibility, including EPR and RoHS aspects of the new e-waste law was derived from the EU legislations.

Source of "e-waste (Management and Handling) Rules", 2011

Five years before India's "Hazardous Waste (Management and Handling) Rules" were amended in 2008 (Table 1); the EU parliament in Jan 27, 2003 passed the "Waste from Electrical and Electronic Equipment-WEEE)" Directives that required the electronic manufacturers to be responsible for e-waste recovery and recycling (Toxics Link, 2007: 12). The WEEE Directives have been implemented in 27 member states (The EU-India project report, 2010). The WEEE Directives define waste in accordance with the definition of the Basel Convention. Electronic

and Electrical Equipment "becomes waste once the holder discards or intends to or is required to discard it" (Levinson et al., 2008: 153).

The purpose of the WEEE Directives is to reduce "the total quantity of waste going to final disposal site by increased recycling of EEE" (Levinson et al., 2008: 152). According to the directives, the "producers are responsible for collecting, recycling, and implementing environmentally sound disposal methods of EEE at its end of life ('extended producer responsibility'). This is supposed to provide incentives to design EEE in an environmentally efficient way, which takes waste management aspects fully into account" (Levinson et al., 2008: 152). The WEEE Directives contains "Extended Producer Responsibility" (EPR) as its primary principle (The EU-India project report, 2010: 35). According to the EPR principle, the producers are in charge of taking discarded electronic waste from the consumers (The EU-India project report, 2010).

Additionally, the EU parliament formulated "The Reduction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment" RoHS Directive (GTZ and Indian Chambers of Commerce report, 2010: 24). The RoHS Directive complements the WEEE Directives (Levinson et al., 2008). The RoHS Directive was ratified in February 2003 and came into effect in July 2006 (Toxics Link, 2008) (Table 1). It requires that new electronic products in the EU market should be free of "lead, mercury, cadmium, hexavalent chromium, or the flame retardants PBB and PBDE" beyond permissible limits (GTZ and Indian Chambers of Commerce report, 2010: 24). "The applications which are exempt from the requirements of the Directive include mercury in certain types of fluorescent lamps, lead in the glass of cathode ray tubes, electronic components and fluorescent tubes, lead in electronic ceramic parts, and hexavalent

chromium as an anti-corrosion of the carbon steel cooling system in absorption refrigerators" (GTZ and Indian Chambers of Commerce report, 2010: 24).

The semi-state (GIZ) and non-state (Toxics Link, Greenpeace India, and Manufacturers Association of Information Technology) organizations included the RoHS and the EPR elements in the draft law. The reasons for deriving the source of these aspects from WEEE Directives and RoHS Directive are manifold. First, these stakeholders thought it would be beneficial if the transnational electronic manufacturing industries have one set of law to follow (Greenpeace India interviewee). Second, these organizations thought that an e-waste-specific law would enable the domestic industries to maintain their standards of production at par with international standards (Toxics Link interviewee). Third, India will impose legal restriction on the amount of hazardous substances in electronic items (Toxics Link, 2008; Greenpeace India interviewee). Finally, the European Union has funded studies on e-waste in India. Toxics Link for instance, conducted studies in 2003 ("Scrapping The High-Tech Myth" report) and 2007 ("E-Waste Flooding the City of Joy" and "Mumbai: Choking on e-waste" reports) on the status of e-waste in India and how EU legislations can be applied in the Indian context with funding from the EU. Thus, it is not surprising that when the government assigned the responsibility of framing the draft e-waste law to the environmental groups, they followed the EU WEEE and RoHS Directives directly in order to incorporate EPR and RoHS in the draft law.

Although, the source of formalization of the informal sector aspect of the law was not in the EU Directives, the EU indirectly influenced its incorporation through funding projects that would examine how the informal sector handles e-waste in India. The activist groups conducted several EU-funded studies to understand the informal e-waste sectors' role in managing e-waste.

Through these studies, the activist groups concluded that in order to ensure effective management of e-waste, the informal sector needs to be authorized by the Indian government.

In sum, there were two major components of the new e-waste law: a) producer responsibility, including EPR and RoHS, directly taken from the EU Directives and b) formalization of the informal sector, incorporated by Indian activist groups based on the findings of the EU-funded e-waste related studies in India.

Components of the "e-waste (Management and Handling) Rules", 2011

The WEEE Directives and RoHS Directive therefore directly and indirectly formed the foundation of the Indian "e-waste (Management and Handling) Rules", 2011. Following the directives, the new law defines e-waste as "waste electrical and electronic equipment, whole or in part or rejects from their manufacturing and repair process, which are intended to be discarded" (e-waste (Management and Handling) Rules, 2011: 28). The RoHS and EPR principles of the WEEE Directive constitute the producer responsibility component of the law. With respect to EPR, the law bestows responsibility on the producer of electronic products to collect their own post-consumer e-waste. The law asks the producers to establish their own collection facility i.e., a take-back service or send their e-waste to authorized collection centers. Second, the producers are required to send the e-waste to registered 'dismantlers' and 'recyclers'. The producers are also required to establish a financial mechanism either individually or jointly. If the producers choose to establish their own collection system, they are required to obtain authorization from the respective state or union territory pollution control board, keep transaction records, and file annual returns with the pollution control boards.

The second component of producer responsibility includes Reduction of Hazardous Substances in electronic products. The e-waste law states that "every producer of electrical and

electronic equipment listed in schedule I shall ensure that, new electrical and electronic equipment does not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers" (e-waste (Management and Handling) Rules, 2011: 35). The law allows a permissible limit of "0.1% by weight in homogenous materials [including] lead, mercury, hexavalent chromium, polybrominated biphenyls and polybrominated diphenyl ethers and of 0.01% by weight in homogeneous materials for cadmium" (e-waste (Management and Handling) Rules, 2011: 35). The law follows the same permissible levels that are specified in the RoHS Directive of the EU regulations.

The second component of the e-waste law includes formalization of the informal sector. The law requires the informal operators (who previously engaged in e-waste collection and segregation) or any individual or group of individuals who intend to start a new e-waste collection enterprise to seek authorization from their respective pollution control boards. The newly formalized groups can then establish e-waste collection centers and engage in e-waste collection, storage, and segregation. Beyond obtaining authorization from the pollution board, the collectors need to maintain records, file annual returns, and store e-waste in an environmentally sound manner.

However, unlike the EU legislation in which a government financial mechanism "covers each aspect of e-waste management, such as collection, transportation, and treatment costs of WEEE" (The EU- India project report, 2010: 38), the Indian e-waste law does not require the state to establish a financial mechanism; instead, the electronic industries and the newly formalized sector are supposed to establish their own financial systems, which would enable efficient management of electronic waste.

In sum, producer responsibility and formalization of the informal sector constitute the two major elements of the new Indian e-waste law. These two policy issues have been perceived differently by the various e-waste-related stakeholders in the e-waste law and in the process of e-waste lawmaking. Based on the framing of these issues, the stakeholders have assigned roles to themselves and to that of the state authorities. In my analysis chapters that follow, I analyze the roles of the state units and their patterns of involvement and non-involvement as framed by the various stakeholders and then draw a connection between state units' roles and structural features that can be discerned from the performance of roles. Next, I examine what environmental justice (EJ) concerns are reflected in the EJ discourses of the different stakeholders and how, if at all, they find reflection in the e-waste law and what effects they are likely to produce on the e-waste sector.

Conclusion

India's economic liberalization, the rise of the middle class and the boom in information technology worldwide condensed together to amplify not only the production and consumption of electronic items but also its end product – electronic waste. The shortcomings of the hazardous waste rules prompted some activist organizations to study the nature and magnitude of the e-waste menace in India and to pressure the Indian state to frame e-waste-specific policy. With the consent of the Indian government, the semi-state and non-state organizations prepared the draft law that was then finalized and ratified by the Indian state.

That said, in this background chapter, I have provided an overview of the problem of e-waste; its situation globally, in India and specifically in the city of Delhi; and the historical context of India's e-waste lawmaking. Primarily, the e-waste law and the lawmaking process form the basis of my subsequent analysis chapters. Although the policy issues did not take

precise shape in the CPCB e-waste management guidelines in 2008, I analyze the state roles in the guidelines as well since this document constitutes the first published government document on e-waste.

In the next chapter, I develop the conceptual framework of this dissertation research with the goal of understanding the roles and structural elements of the Indian state units in the e-waste policy documents and in the lawmaking process through the lens of multiple stakeholders and to examine the implications of the new law about the reproduction of environmental injustices in the e-waste industry. In my conceptual framework, I use developmental state theory, law and development studies, and interpretive policy analysis to study the state units' roles and structure and then bring developmental state theory within the fold of critical environmental justice scholarship to understand how the state units' through lawmaking impacts the reproduction of environmental injustices in the e-waste sector.

CHAPTER 3

CONCEPTUAL FRAMEWORK

Introduction

In the previous chapter, I discussed the context of e-waste management and its regulatory procedure in India. The chapter demonstrates the existence of environmental injustice in the e-waste sector. Additionally, it highlights the emerging role of India's developmental state in managing e-waste by framing new e-waste regulation. It now becomes necessary to conceptualize the context in order to understand how the developmental state through e-waste regulation influences the conditions of environmental injustice in the e-waste sector. To that end, I use developmental state theory and law and development studies to conceptualize the Indian state's role in e-waste lawmaking, and deploy interpretive policy analytic approach to methodologically embed the state in environmental justice research.

I discuss the relevant concepts of each theory and then identify the theoretical gaps and explain how I address them in my study. I begin with a review of the developmental state theory of the 20th and then the 21st century followed by a review of the literature on the developmental state and law. Next, I discuss how I deploy interpretive policy analytic approach to address methodological gaps in the developmental state and the law and development studies. Finally, I review the literature on environmental justice and explain how I bring the developmental state within the fold of critical environmental justice scholarship.

Developmental State Theory

Developmental state theory emerged in the 1980s and was based on the studies of post-World War II developmental states of East Asia and South East Asia. Several concepts were developed to support an understanding of the structural characteristics of these 20th century states, such as autonomy, embeddedness, capacity, power, moral ambition, and pathology. It was assumed that the states actively intervened to develop the key industries. In the process of developing the industrial sector, the state performed certain kinds of roles, such as custodian, producer, midwife, and husbander that were reflected in their structural attributes. Therefore, a close connection was drawn between state roles and state structure. Developmental states in the 21st century are recognized as having an interventionist role in forwarding not only economic development but also the development of welfare services, such as health and education. With the expansion of state functions, statists argue that the structural features of the 20th century states are expected to take a different form. In the following section, I discuss the structural concepts of the 20th century states and their connection with state roles that are relevant to my analysis.

20th Century Developmental State Theory

The developmental state paradigm emerged in the early 1980s when the term 'developmental state' was first coined by Chalmers Johnson (1982) in analyzing the growth of Japan's interventionist state (Woo-Cumings, 1999). The state emerged after World War II out of discontent with the dominations of free market economies and was actively instrumental in Japan's economic success (Woo-Cumings, 1999; Kohli, 1999). After the Second World War, the state's active intervention in economic activities as a reaction to Western imperialism was

observed in other East Asian states including South Korea and Taiwan and in the Latin Americans states of Brazil and Mexico (Woo-Cumings, 1999; Johnson, 1982).

Developmental statists conducted numerous studies to understand how these states advanced economic development. Scholars such as Theda Skocpol, Chalmes Johnson, Meredith Woo-Cumings, Peter Katzenstein, and Peter Evans found that the role of the state was instrumental in fostering political and economic development. Statists developed concepts such as autonomy, embeddedness, capacity, power, pathology, and moral ambition to examine the structural character of the developmental states that were born under certain historical circumstances setting them apart from other types of states. They argued that developmental states emerge in particular international contexts; consist of a kind of "actor, power and ambition" and perform different kinds of roles to accomplish goals (Loriaux, 1999: 270).

The goals of the developmental states that emerged in the post-World War II period were to modernize and to protect their nations against the threats of American hegemonic influence. The bureaucracy is the main 'actor', with specific characteristics (Loriaux, 1999; Pempel, 1999). To be developmental the bureaucracy should be comprised of elite meritocratic officials with 'autonomy', 'embeddedness' within societal sectors and 'capacity' to realize goals (Evans, 1995; Herring, 1999; Evans in Evans et al., 1985); have the 'power' to develop identified industries, encourage competition among industries (Johnson, 1999: 38); and have the 'ambition' to foster economic growth and protect and encourage national interests (Loriaux, 1999). Simultaneously, the bureaucracy suffers from certain 'pathologies' that threaten its survival. These characteristics find reflection in state roles. I elaborate on each of these concepts as follows.

The concept of 'embedded autonomy' was developed by Peter Evans (1995) to understand the effectiveness of the 20th century developmental states' in fostering economic

development. For Evans, the term 'autonomy' refers to the internal coherence among state units which enables them to achieve collective goals. He argues that a connected, coherent and competent bureaucratic structure is the key to a state's ability to bring about economic change in a particular industrial sector. To understand state autonomy, it is necessary to analyze how the bureaucrats undertake tactics and strategies to overcome contradictions that exist within different branches of the state (Jessop, 1990; Skocpol, 1985) and constraints posed by external societal forces to frame distinct policies. State autonomy increases if bureaucratic actions are coherent (Rueschemeyer and Evans, 1985), alliances between the dominant businesses and the bureaucrats are strong (Jessop, 1990), and the participation of non-state actors such as the media, and environmental organizations in policy-making is weak (Rajan, 1997; Jayal, 1999).

In addition to autonomy, embeddedness, which implies the linkages between the state and various societal groups invested in economic transformation, is necessary for efficient state involvement (Evans, 1995, 1989). Understanding of embeddedness can be achieved through analysis of the dynamics of specific state-society relationships (Evans, 1995). Embeddedness in societal sectors enables flow of information, which in turn raises the capacity of the bureaucrats to intervene efficiently. The embeddedness of Northeast Asian states such as Japan and South Korea in their societies enabled high levels of growth and social wellbeing (Pempel, 1999). However, too much embeddedness can lead to state capture by societal forces, which undermine bureaucratic autonomy (Rueschemeyer and Evans, 1985) and leads to inefficient intervention (Baer et al., 1999). Evans (1995) stresses that states can be regarded as "developmental" when autonomy and embeddedness balance each other.

Further, certain 'pathologies' prevail in developmental states including "authoritarianism, corruption and generation of rents" (Loriaux, 1999: 236), bureaucratic rigidity, arrogance, and

secrecy (Herring, 1999; Rajan, 1997; Leftwich, 1995; Pingle, 1999). Among these pathologies, corruption is particularly high in developmental states, which make them a parasite to industry (Woo-Cumings, 1999; Leftwich, 1995). Shortage of staff officials and frequent job transfers were also identified as state pathologies (Evans, 1995; Rajan, 1994; Pingle, 1999). These pathologies, in varying degrees, constrain bureaucrats from undertaking developmental projects.

'Capacity', another structural element, refers to the "ability to realize goals" (Evans in Evans et al., 1985: 204). Once the state knows what projects to undertake, its capacity becomes important (Herring, 1999). To understand state capacity, it is important to examine the state's autonomy, its relation with other non-state actors (Skocpol, 1985), and its bureaucratic pathologies. State capacity depends on how societal forces respond to state actions (Evans, 1995; Jessop, 1990); and the type and amount of revenue that the state has at its disposal to resolve specific issues (Skocpol, 1985). Capacity increases if bureaucracy is well-coordinated and autonomous from the dominant class to a certain extent (Rueschemeyer and Evans, 1985; Skocpol, 1985), while bureaucratic pathologies hinder capacity. Capacity determines state 'hardness' or 'softness' which differs across different state branches and across different state-society relationships (Herring, 1999). Bureaucratic incapacity produces 'soft' states, whereas coherent and autonomous bureaucrats produce 'strong' states (Herring, 1999).

Bureaucratic autonomy, embeddedness and capacity provide 'power' of a certain kind to fulfill the state's goals (Loriaux, 1999). The source of power comes from capacity, autonomy and dense ties with politicians and business elites, which enable the bureaucrats to perform an interventionist role in promoting economic transformation (Loriaux, 1999). Power of the state implies "the power of the forces acting in and through the state", i.e., the bureaucrats (Jessop,

1990: 270), to exercise power in undertaking certain kinds of projects (Herring, 1999) and in overcoming resistance to their interventionist role (Jessop, 1990).

Finally, developmental states' have a 'moral ambition' to "use the interventionist power of the state to guide investment in a way that promotes a certain solidaristic vision of the national economy" (Woo-Cumings, 1999: 24). In that respect, the same kind of developmental state that existed in post-World War II Japan was present in post-War France (Woo-Cumings, 1999). The moral ambition to foster economic development and social stability was present in Japan and other East Asian states (Loriaux, 1999). Developmental states share in common the moral ambition to protect their states against external threats (Loriaux, 1999) and are noted for the prevalence of a dominant 'development discourse' (Woo-Cumings, 1999).

These characteristics are reflected in the kind of 'roles' or combination of roles developmental states perform (Evans, 1995). Analysis of the roles demonstrates what the state has done and how, and roles bear implications about state's character or structure (Evans, 1995). "Structures create the potential for action; playing out roles translates the potential into real effects" (Evans, 1995: 77). The State's internal coherence and its relation to society determine the kind of roles that the state plays (Evans, 1995). The success of state involvement depends on how well the roles fit the context (Evans, 1995). Evans (1995) divides state roles into custodian, producer, midwife, and husbander in explaining the state's relation to the industrial sector and argues that most states combine these roles in promoting industrial growth. States play the role of custodian while formulating and implementing rules, the role of producer while taking direct ownership of production of goods, the role of a midwife while assisting new industries in emerging and existing ones in flourishing, and the role of a husbander while encouraging and supporting new firms in venturing forward (Evans, 1995).

These structural attributes and roles vary within different branches of the state and across developmental states (Skocpol, 1985; Evans, 1995; Jayal, 1999; Woo-Cumings, 1999; Pempel, 1999) and create different kinds of developmental states such as the predatory state (e.g., Zaire), the desarrollista state (e.g., Brazil and Mexico), the intermediately developmental state (e.g., India), and the ideal developmental state (e.g., Japan, South Korea, France, Finland and Austria). At one end of the spectrum are predatory states and at the other are ideal developmental states, while in between are desarrollista and intermediately developmental states. In predatory states such as Zaire, the civil society does not have any control over the bureaucrats and the bureaucrats pursue their own interests at the expense of the society, as a result of which economic transformation is impeded (Evans, 1995, 1989). The state lacks the autonomy to make collective goals and it directly engages in disorganizing civil society and in abandoning any commitment to joint projects (Evans, 1995). Desarrollista states are marked by 'appointed bureaucracy', where bureaucrats lack job security, do not seek long-term relations with the industry, hold unstable power, barely rule, and include only elites (Woo-Cumings, 1999: 13). Intermediately developmental states, such as India, are comprised of bureaucrats that are closer to Weberian bureaucracy in terms of bureaucratic autonomy and meritocracy; however, bureaucrats are marked by inconsistency, incompetence, lack of knowledge of industrial enterprises, lack of long-term goals due to frequent transfer by powerful politicians, and particularistic embeddedness that caters to the needs of particular capital (Herring, 1999; Evans, 1995; Pingle, 1999; Chibber, 2002). These structural features of intermediately developmental states create soft and porous states (Herring, 1999). Ideal developmental states, on the other end of the spectrum, are marked by Weberian bureaucracy, where bureaucrats are independent, insular, embedded in society, (Evans, 1995) and have job security (Schneider, 1999; Chibber,

2002). For instance, in Japan, the bureaucrats share Weberian features, which enable them to make laws and economic policy efficiently (Woo-Cumings, 1999).

By the turn of the 21st Century, questions have been raised by the developmental state scholars (Evans, 2008, 2010, 2011; Nayar, 2009) about whether and in what form these concepts of the 20th century paradigm prevail in the 21st century states.

21st Century Developmental State Theory

In the 21st century, the historical character of growth has changed and involves delivering intangible services (Evans, 2008: 2; 2014, 372). Evans (2008: 3) notes that "21st century development will depend on generating intangible assets (ideas, skills and networks) rather than on stimulating investment in machinery and physical assets oriented to the production of tangible goods" and the states' are expected to have dense network of connections with societal sectors other than industrial elites.

Despite these changes, Evans (2008, 2014) emphasizes the continuing 'role' of the developmental state in the 21st century. He argues that state "will continue to play a crucial role in economic growth and social transformation in the 21st century, just as it did in the latter half of the 20th century" (Evans, 2008: 1). Evans (2008: 1) further argues that "successful 21st century developmental states will have to depart fundamentally from existing models of the developmental state in order to achieve success. Growth strategies focused primarily on traditional capital accumulation will no longer suffice. State-society ties can no longer be focused narrowly on relations with capitalist elites." The state will provide welfare services including health and education instead of directly promoting industrial growth (Evans, 2008, 2014). Evans (2008: 11) argues that in a "bit-based economy" where the development of human capabilities is needed for them to flourish and to produce skills and ideas (intangible assets), the

state will be the primary investor in achieving such ends. Profit maximization from the development of intangible assets is not the interest of the industry (Evans, 2008, 2014). The success of welfare projects will depend on how well the needs of the societal sector (for whom the projects are being designed) are fulfilled (Evans, 2008, 2014). Evans (2008: 12) notes that "ideas are generated in human heads and through their interaction, expanding human capabilities is part and parcel of accelerating growth in the stock of ideas. Yet, for a private investigator, investing in a human being is a much riskier than investing in machines." "Therefore, markets will chronically fail to supply optimal levels of the "human capital" crucial to bit-drive growth" (Evans, 2008: 13). This calls for more aggressive state action to enhance capabilities that in turn will help to increase generation of ideas (Evans 2008: 13).

The 21st century developmental state is expected to have much broader "bottom-up" connections rather than porous networks only with the elite sections of the society (Evans, 2008, 2014). Therefore, "the specific kind of "embeddedness" or "state-society synergy" that was crucial to 20th century success – dense network of ties connecting the state to industrial elites – will have to be replaced by much broader, much more "bottom up" set of state-society ties to secure development success in the current century" (Evans, 2008: 3). In the 21st century, the state role should be to "enable societies to generate new skills, knowledge and ideas and the networks needed to diffuse and take advantage of them" (Evans, 2008: 4). According to Amartya Sen development is not only about increasing GDP but about expansion of capabilities of people to live and flourish the way they want to live and is a fundamental "means through which development is achieved" (Evans, 2008: 5). Since the 21st century requires a stronger public sector such as health and education, embeddedness as a concept implies formation of a different sort of networks (Evans, 2008: 15, 2014). "Efficient allocation of capability-expanding

investment requires a much broader set of information [that are large in number and less organized] than that required for the allocation of investments in plant and equipment" (Evans, 2008: 15). Here the worth of a project does not depend on the profit but on "how well its results correspond to the collective preferences of the communities being served" (Evans, 2008: 16).

Evans (2008: 18) arrives at a definition of the 21st century developmental state as being "agile, active, resourceful and able to act independently of private interests whose returns depend on restricting the flow of knowledge", able to ensure democratic deliberation and build broad based networks with the societal organizations. For a 21st century state to be developmental, it has to involve societal groups in the implementation of development projects and also secure information from them or in other words, capability increasing endeavors should be co-created by the receivers of those projects (Evans, 2008). For Sen "democratic deliberation is the only way of adequately defining what the desired economic ends might be" (Evans, 2008: 16).

Routley (2012: 32) analyzes Evans' (2010) 21st century "capability expanding state" and argues that the state in that capacity "is not seen solely as a developmental end, it is also a developmental means as it enhances growth in a global employment market place which requires skilled healthy workers." Therefore, "the focus on social development is not seen … to be at odds with growth but rather to compliment it." (Routley, 2012: 33). For Evans, a "social developmental state" can attain success through "democracy and public deliberation" (Routley, 2012: 33). The 21st century developmental state in a nutshell is one that "combines the motives of pursuing developmental ends with the state capacities to do so" (Routley, 2012: 36). Echoing Evans (2008, 2014) and Routley's (2012) analysis of Evans's work Nayar (2009: 225) regards that the main function of the 21st century developmental state would be to perform welfare role. Nayar (2009) further argues that the welfare function of the Indian state has not

been shrinking, instead with India's economic liberalization, the state has been endowed with renewed capacity to perform efficiently its welfare functions including provision of health and education to the Indian masses. He notes:

> "There has been no hollowing out of the state, and there has been no retrenchment of the state from either its economic role or its welfare role. Indeed, liberalization has been 'empowering' for the state; it has strengthened state capacity as a result of the increased resources that the state has been able to gain access to because of the growth acceleration that has accompanied liberalization. It is noteworthy that, as economic growth accelerated sharply in the first decade of the twenty-first century, the state made a significant shift to giving priority to its welfare role." (2009: 225)

In brief, according to the statists, the 21st century developmental state is expected to have the capacity to be embedded far and wide within society and should allow societal participation in decision-making processes in order to effectively deliver welfare functions. Evans (2008: 17) believes that "the centrality of dense connections to civil society and the construction of democratically deliberative institutions" could constitute the fundamental role of successful 21st century developmental states.

However, based on the predictions of these scholars it is unclear as to how and in what form the other 20th century concepts of the developmental state literature, including state autonomy, power, ambition, and pathology should exist in the 21st century developmental states and how they can be identified from the execution of state roles. Statists solely focus on how the states should be embedded in the broader society to perform their welfare functions. Thus, it can be said that conceptualization of the 21st century developmental states is yet to mature which would require observation of state attitudes in the present century over a considerable period of time. Evans (2008) admits that the theorization of the 21st century developmental state would mature when its results are seen.

Overall, the developmental state literature provides a strong theoretical basis for examining the 21st century Indian state's roles and its structural elements in managing the electronic waste sector. Although the electronic waste sector has not been studied by the statists, the conceptual linkage that the statists draw between state roles and structure by observing the developmental states is important. It helps to conceptualize the connection between the Indian state's roles and its structural elements in a different state-society relationship.

However, developmental state theory has certain conceptual and methodological limitations. Conceptually, statists assume that the state is always active and analyze state roles accordingly. They do not examine what forms state inaction can take and what kind of roles states can play in their inactive phases. Secondly, developmental statists have examined the relation between state roles and structures by studying states over a considerable period of time and across several states. They failed to analyze in adequate detail how a particular role; for instance, the regulatory role, comes into being and the ways in which such a role has been understood by the state and other key constituencies. Third, developmental state theory does not separately examine the connection between the state and the law. For the statists, lawmaking and implementation are among the multiple roles that states perform. Developmental statists (Evans, 1995; Johnson, 1982) acknowledge that the character of the state influences the framing and implementation of sound industrial law but are more interested in analyzing state roles and structural elements that contribute to economic development. For instance, Evans (1995) argues that 'embedded autonomy' of the state was the key toward the success of industrial policy in the 20th century, but he does not focus on understanding how state character was reflected in industrial policies. Methodologically, statists have arrived at definitive and objective conclusions

about the character of the developmental state but do not explain what procedures enable them to reach there.

In this research, I address these gaps in the developmental state scholarship. I examine the connection between the Indian state roles and structure over a much shorter span of time (2003-2011). This period extends from the time when electronic waste was identified as a matter of concern in India until the time when the e-waste regulations were published. In this short duration, the Indian state's primary role was that of a regulator. Therefore, I examine the ways in which the regulatory role of the state was performed and the structural elements of the 20th and the 21st century that can be closely discerned from the state's roles. Further, this state-society relationship is marked by state action and inaction. I also examine the forms in which inaction took place and the roles that the state played during periods of inaction. From 2003-2011, the state published two e-waste policy documents (e-waste management guidelines, 2008 and the e-waste rules, 2011) (Borthakur and Singh, 2012). The e-waste rules that were published and ratified by the Indian parliament in 2011 constituted the first e-waste law in India. The e-waste lawmaking process spanned from 2003-2011. I therefore examine state's regulatory role and its structural elements in a) the e-waste policy documents (i.e., the guidelines and the law); and b) the e-waste lawmaking process. It is here that law and development scholarship provide additional insight into the relationship between the developmental state and law that enables analysis of the Indian state's roles and structural features in the process of e-waste lawmaking.

Law and Development Studies

The literature on law and development complements developmental state theory by examining solely the legal systems of the developmental states. It primarily focuses on the role of law in economic development and on the relationship between law and the developmental

state (see Antons, 2003). Law and development researchers have therefore added additional insight into the developmental state literature by investigating several aspects of the legal system in the developmental states. They have studied the historical development of legal systems in the developmental states; different kinds of laws in developmental states, particularly economic and labor laws; and the changing relationship between the state character and economic law.

Scholars have studied how the legal systems in developmental states of Southeast Asia, including China, Japan, Korea and Singapore and South Asia, including India have emerged historically and how economic liberalization from the 1980s has led to the liberalization of the economic laws in these countries (Yasuda, 2003). In tracing the chronology of the legal systems, they have identified three kinds of laws: 'indigenous law', 'colonial law' and 'developmental law' in the Southeast Asian legal system which correspond to the state concepts of "'proto state', 'colonial state' and 'developmental state'" (ibid, 26). 'Indigenous law' existed in the pre-colonial or 'proto states' (ibid, 27). Later, 'colonial law' was brought by the Western colonial regimes (ibid, 27). Finally, 'developmental law' emerged as the "product of the developmental policies implemented after the independence of these countries following World War II" (ibid, 27). Additionally, Yasuda (2003: 42) examines the different kinds of economic laws in the developmental states, such as "foreign investment laws, company laws and transfer of technology regulations" and Jesse Wu Min Aun (2003) examines the legal system of the trade unions in the developmental states of Southeast Asia.

Furthermore, scholars examine the changing relation between the industrial laws and the developmental state before and after economic liberalization (Antons, 2003; Trubek, 2009). Bishop (2003) argues that the success of the industrial laws prior to liberalization required a certain kind of state that could provide significant guidance and supervision to the industries and

that the industrial laws extended the power of the state in order to attain economic development. Along similar lines, Trubek (2009) argues that the economic law at this period functioned as an instrument to make the state more interventionist and gave considerable powers to the state. Similarly, in a study of Japan, Singapore and Indonesia, Antons (2003: 15) emphasizes that in the decades following the World War II "the commercial laws of the three countries were largely instrumentalized for development purposes. Developmental ideology became incorporated into legislation and the bureaucracy was given a large discretion in implementing it. With similar emphasis on such administrative guidance, success depended largely on the quality of the administration and the absence of corruption." Boyd (2003: 170, 171) studied the role of law in Japan's economic development in the 1970s to understand the "efficacy of government policy, specifically industrial policy" and considers law "as an important aspect of the developmental state." With 'structural adjustment' or economic liberalization in the 1980s and in the early 1990s, these economic laws were amended as the states lost power significantly (Yasuda, 2003: 54). This undermined state capacity to implement the old style industrial laws (Bishop, 2003). During this time, economic law rendered protection to the market and prevented unintended state actions (Trubek, 2009).

By drawing a close connection between state structure and economic law, these scholars (Yasuda, 2003; Antons, 2003; Bishop, 2003; Trubek, 2009) regard that the character or the structural features of the state influences successful framing and implementation of the law and that the law simultaneously shapes the character of the state. However, this literature does not examine the connection between hazardous waste laws and the developmental state. I extend this notion in the analysis of the Indian state's role and its structural elements that become evident in the formation of e-waste law and in the analysis of the law itself. Although this scholarship has

studied the relationship between state structure and law over a considerable period of time, I examine very closely the Indian state's connection with the e-waste lawmaking process that spans only for a decade. The possibilities and the limitations of the e-waste law or the ways in which the law is accepted by the e-waste community and how it shapes the future character of the Indian state will unfold over time as it is implemented by the state authorities. Similar to the developmental state literature, law and development scholarship fail to discuss their analytic methods. I use interpretive policy analysis to address this methodological gap in both developmental state and law and development literature.

I discuss interpretive policy analysis in the following section because this approach helps to explain how I conceptualize state roles and structure from the perspective of multiple constituencies. In other words, this approach enables demonstration of how state roles and structure emerge in relation to the roles of the other constituencies. The discussion of interpretive policy analytic approach further lays the groundwork for conceptualizing how the multiple constituencies including the state through their performance of roles develop visions of environmental justice ideas in terms of distribution, recognition, and participation.

Interpretive Policy Analysis Literature

The purpose of policy analysis or policy research is to study the policies which can include law, order, rules and the processes of policy-making and to provide meaningful suggestions to the policy makers (Fischer et al., 2007). Policy analysis has been applied in evaluating policy documents prior to legislation, after enactment, or in analyzing the implementation processes (Yanow, 2000). The field of policy analysis started in the United States in the post-World War II period and later developed in Canada and Europe (Fischer et al., 2007). Training in policy research is provided in various social science departments, such as

education, public policy, and planning (Yanow, 2000). Although policy analysis is generally conducted in universities, it is also undertaken by private corporations and by independent agencies that have a stake in studying government regulations (Yanow, 2000). However, the discipline was largely dominated by positivist methodologies that aimed for objective, value-free, and generalizable findings (Fischer et al., 2007). Economic methods of cost-benefit analysis and risk-benefit analysis were widely used by policy analysts (Fischer et al., 2007; Fischer, 1995).

From 1970 onward, positivist policy analysis was severely criticized (Callahan and Jennings, 1983) and the critiques demanded "greater tolerance of differing viewpoints and ways of doing things professionally" (Roe, 1994: 11) through the incorporation of a qualitative aspect in policy analysis (Yanow, 2000). For the critics, quantitative or positivist policy analysis examined values, feelings, and beliefs either in cost-benefits terms or did not analyze them at all (Yanow, 2000). Scholars (Roe, 1994; Fischer and Forester, 1996; Callahan and Jennings, 1983; Fischer et al., 2007; Fischer, 1995; Yanow, 2000) began to view policy analysis as interpretive in nature with the presumption that policy arguments are often hidden, long-winded, biased and require a thoughtful interpretive analytic process to deconstruct policy arguments and the ways in which they are formulated. The focus of examination in interpretive analysis of policies therefore changes "from values as a set of costs, benefits, and choice points to a focus on values, beliefs, and feelings as a set of meanings, and from a view of human behavior as, ideally, instrumentally and technically rational to human action as expressive (of meaning)" (Yanow, 2000: ix). Interpretive policy analysis presumes that human meaning making is subjective and issue specific and its results cannot be generalized but its research validity is attained through the "rhetorical power of the orderly [and] seemingly finite steps" (Yanow, 2000: ix).

Yanow (2000) provides a very compelling procedure for conducting interpretive policy analysis. Yanow builds analytic tools on the premise that policy documents are always expressive of meanings which are subjective and contestable. Moreover, the analyst brings his/her own values and beliefs which significantly shape the analytic process. The purpose of the interpretive policy analyst is to study the multiple meanings that are expressed by policy-relevant groups in the policy documents and in the policy-making and implementing stages.

Yanow (2000:10) argues that it is first important to identify the 'interpretive communities' or 'discourse communities' or 'communities of meaning', including the policy-making and implementing authorities, and the directly and indirectly affected groups. Policy relevant groups having similar views about the policy under investigation constitute an 'interpretive community'. Yanow (2000) further notes that interpretive communities may not be fixed but may change with different policy issues and over time with respect to a specific issue. Also, the analyst has to identify the policy artifacts that are generally articulated through language, action or objects which "[are] the concrete manifestation or expression of the more abstract value, belief, feelings or meaning" (Yanow, 2000: 15) or are "significant carriers of meaning for the interpretive communities relative to a given policy issue" (20). The meanings or perceptions of the interpretive communities are embedded in the policy artifacts (Yanow, 2000). Meanings are also created when the analyst interprets the meanings that reside in the policy artifacts which makes the analyst inseparable from the analytic process. Identification of the interpretive communities and the policy artifacts can take place at the same time (Yanow, 2000).

Next, the analyst has to study how the policy issues or artifacts are being 'framed' by the identified interpretive communities (Yanow, 2000). Additionally, Yanow (2000: 13) argues that 'frame' can be treated "as a noun or as a verb". As a noun, analysis of 'framing' would imply a

comparison of how interpretive communities frame policy issues at fixed points in time. 'Framing' as a verb implies analyzing how interpretive communities frame policy issues over time. Analyzing the verb 'framing' enables an understanding of how the framing of a specific policy issue can change even within a single interpretive community.

Finally, the interpretive policy analyst has to compare and contrast across communities of meaning and present "the architecture of policy debates" (Yanow, 2000: 19). This interpretive process allows the analyst to "see the issue and its meanings from as many angles as possible" (38). At this point, analysis can stop if the researcher is content with the mapping of the policy issues or it may proceed to giving suggestions to the policy makers or the implementing agencies based on the multiple interpretations of the policy (Yanow, 2000).

Following Yanow's (2000) procedure, I first identified the interpretive communities and two policy artifacts: formalization of the informal sector and producer responsibility. I next tried to understand how the identified interpretive communities framed the two policy issues at fixed points in time in the e-waste law, 2011 and in the e-waste guidelines, 2008 and over time in the e-waste lawmaking process (2003-2011) using thematic and structural narrative analysis (see chapter 4). Data constituted the written language of the policy documents, field notes and other relevant documents and the spoken words of the policy-relevant groups used in framing the artifacts. Further, I examined how the communities of meaning assigned roles to the state units and kinds of state involvement with respect to their own roles and patterns of involvement. By treating 'frame' as both a noun and a verb, I was able to demonstrate how the two policy artifacts were framed differently across and within communities. Finally, on the basis of the differences in the framing of state roles and involvement, I made inferences about state units' structural features that could be closely understood from state roles.

Thus, Yanow's framework of interpretive policy analysis enabled me to conduct a fine-grained analysis of how state roles, its actions and inactions are framed by interpretive communities relative to the roles, actions and inactions of the community, and their relationship to state structure in the e-waste policy documents and in the e-waste lawmaking process.

Having conceptualized the connection between the state roles and state structural elements from the perspectives of multiple interpretive communities, it next becomes imperative to analyze how the state units impact the reproduction of environmental injustices in the e-waste sector. More precisely, it is necessary to examine how through the performance of roles, ideas of environmental justice emerge among the state apparatus and the other constituencies, which among those ideas become included in the e-waste law, and how the law would influence the reproduction of environmental injustices of distribution, recognition, and participation in the e-waste sector for primarily two reasons. First, from the perspective of developmental state theory (Evans, 2008, 2014; Nayar, 2009) it is argued that for a 21st century developmental state to succeed it has to ensure deliberative justice to the communities for whose welfare it frames and implements development projects. Therefore, it is necessary to understand whether and to what extent the Indian state units' allow fair participation of the affected informal communities along with just distribution and recognition. Second, the Indian state-e-waste sector relationship is a unique case of EJ analysis. Unlike Unites States, where some states have officially incorporated EJ in their policy framework (Dunn and Weiss, 2012), the inclusion of EJ principles in India's e-waste regulatory framework is not obvious. Moreover, the majority of the EJ issues in the US have involved EJ activism by grass root communities that seek to empower themselves by influencing EJ policies (Bullard and Johnson, 2000). On the contrary, the vast majority of the informal e-waste operators and the workers did not seem to have raised any form of resistance

against their exposure to the disproportionate burden of toxic e-waste. This suggests that the informal e-waste sector not only suffers from mal-distribution but also misrecognition and lack of participation in the processes of e-waste related decision-making.

Environmental Justice Theory

In this section, I briefly provide an overview of the trajectory of environmental justice (EJ) scholarship and then discuss the theoretical blind spots that have been identified by EJ theorists i.e., lack of attention to the analysis of the developmental state and the need to conceptualize different notions of EJ. I build on the works of Schlosberg (2004, 2007 and 2013) and Whyte (2011) to conceptualize how India's developmental state in the design of e-waste policies reinforces distributive, recognition, and participative dimensions of injustices.

The environmental justice movement began in the United States in the 1980s. It grew as a response to the disproportionate burden of environmental harm borne by people of color. Since then, the EJ movement has kindled innumerable struggles across United States for a just distribution of environmental goods and bads of industrial development (Bullard, 1992; Bullard et al., 1999; Pulido, 1996; McGurthy, 2000; Sze and London, 2008; Holifield et al., 2009). However, the trajectory of EJ scholarship has changed considerably since its inception. Based on the pattern of development of EJ studies, three different waves of scholarship evolved over the last three decades.

The first generation scholars (Goldman et al., 1985; Capek, 1993; Burke, 1993; Pollock and Vittas, 1995) were inspired by environmental racism movements that focused on the social environment in which colored communities "live, work and play" and they also influenced government policy (Bullard, 1990; also see Pellow, 2002; Pellow, 1998). EJ scholars were concerned until the mid-1990s in defining environmental justice in terms of environmental

racism which refers to the unequal distribution of environmental harm on colored communities (Sze and London, 2008; Pellow, 2000; Pulido, 1996; Bullard, 1990; Morello-Frosch, 2002). The first generation scholars searched for evidence of environmental inequality and debated the race versus class argument and aimed at changing public policy (Holifield et al., 2009; Sze and London, 2008). The scholarship failed to provide adequate explanation about the processes that reproduce environmental inequality (Walker, 2009).

In the mid-1990s, a second wave of EJ scholarship developed when researchers redefined the borders of EJ studies and initiated sophisticated conceptions of how environmental inequality is produced (Pellow, 2000, 2004; Pulido, 1996; Morello-Frosch, 2002; Holifield, 2004; Faber and McCarthy, 2003). These scholars laid the foundation of critical EJ research by examining how production of inequalities was related to broader structural forces (Holifield et al., 2009). Environmental injustice was redefined in terms of environmental inequality signifying a much broader connotation (Sze and London, 2008; Pellow, 2000). Environmental inequality refers to "more structural questions that focus on social inequality … unlike environmental racism … environmental inequalities include any form of environmental hazard that burdens a particular social group" (Pellow, 2000: 582). To understand the broader structural forces, EJ scholars incorporated other bodies of research such as critical race theory to produce a nuanced understanding of racism (Bullard, 1990; Pulido, 1996); legal and social theories to explain how political economy shapes environmental inequality (Morello-Frosch, 2002); theories of environmental history to analyze how present environmental inequality is rooted in history (Pellow and Park, 2003 in Sze and London, 2008); and theories of neoliberalism and globalization to understand how these processes reproduce inequality (Faber and McCarthy, 2003). However, scholars of the second generation were limited to theorizing multiple factors

that caused distributive injustice and discounted the significance of other notions of justice (Schlosberg, 2007; Walker, 2009) and majority of the studies were conducted within the context of United States.

Critical EJ scholarship proceeded to a third phase when studies were conducted beyond the US borders to analyze new empirical spaces in different national contexts, such as environmental injustice to gold miners in Ghana (Tschakert, 2009); the role of postcolonial state reform projects, public interest litigation, and environmental movements in environmental in/justice formation in India (Williams and Mawdsley, 2006); and environmental justice principles in UK municipal waste practices (Watson, et al., 2005). In addition**,** transnational environmental justice studies emerged that investigated issues such as trans-boundary trade in hazardous waste (Pellow, 2007, 2009; Smith et al., 2006). Furthermore, the focus of third generation EJ research included new sites of EJ conflict such as housing, transportation, health, and workplace (Sze and London, 2008; Pellow and Park, 2003; Smith et al., 2006; Pellow, 2007); new communities, such as Asians, Latino, and Native Americans (Sze and London, 2008; Pellow and Park, 2003; Smith et al., 2006; Pellow, 2007); injustices aligned with gender and immigrant status (Pellow and Park, 2003; Smith et al., 2006, Kurtz, 2007); new meanings of EJ (Pellow, 2000, 2004; Williams and Mawdsley, 2006); and diverse forms of environmental injustices (distribution, recognition, and participation) (Tscharkert, 2009; Schlosberg, 2007). These studies continued to draw from other theoretical concepts such as feminist theories (Kurtz, 2007; Buckingham and Kulcur, 2009); critical race theory (Kurtz, 2009); political philosophy (Schlosberg, 2007; Walker, 2009; Tschakert, 2009); ecological justice theories (Schlosberg, 2007) and social movement scholarship, risk society and ecological modernization theory (Pellow, 2007).

Even though the third wave of critical EJ research encompasses a broader scope in its present form, two significant gaps remain. First, scholars (Kurtz, 2009; Holifield et al., 2009; Schlosberg, 2007; Sze and London, 2008; Pellow, 2007; Pellow and Park, 2003, Williams and Mawdsley, 2006) criticize that EJ scholarship have paid insignificant attention toward the role of state; and second, they argue that EJ theory have failed to incorporate diverse notions of social justice (Schlosberg, 2004, 2007, 2013; Walker, 2009).

The role of state in critical EJ research

Although several theorists acknowledge the state's role (Lord and Shutkin, 1994; Pellow, 2000, 2004; Sze and London, 2008) only a few (Kurtz, 2009; Lake and Disch, 1992; Williams and Mawdsley, 2006; Pellow, 2007) interrogate the state in-depth. Kurtz (2009) urges the use of critical race theory (Goldberg's (2002) theory of "The Racial State" and Omi and Winant's (1994) theory of "Racial Formation") and state theory (Jessop, 1990 and Scott, 1998) as a framework for analyzing the role of the liberal racial state in the reproduction of environmental inequality. Lake and Disch (1992) make a connection between state theory and interest-group politics theory in explaining the structure of hazardous waste legislation in the United States. Lake and Disch (1992) examine the basic policy assumptions and the process of policy implementation. Their study reveals how the state allows the basic assumptions that regard hazardous waste as a problem of the state rather than the industry to remain unchallenged (Lake and Disch, 1992). Dunn and Weiss (2012) examine how state governments in Illinois, New York, and Connecticut developed EJ policies to resolve EJ related conflicts. However, these studies only focus on the advanced capitalist state and other forms of state still remain under-theorized.

Pellow (2000: 582) conceptualizes the advanced capitalist state in his 'environmental inequality formation'- (EIF)[3] model that regards environmental inequality as a process, and includes an amalgam of socio-historical analysis, study of the interests, actions and agency of multiple stakeholders, and life-cycle analysis of the material in question (products and their waste). Socio-historically, Pellow notes that environmental inequality has existed "since the dawn of human history" (2000:591), with vulnerable populations both living near and working with societies' waste. In Pellow's framework, environmental inequality, like other forms of social stratification, is not imposed unilaterally, pointing to the importance of considering the roles of multiple stakeholders with competing interests and resources. Among stakeholders, resistance to inequality on the part of people bearing undue environmental burdens plays a role in either delimiting or fostering environmental justice in some form. In recent decades, conflicts that emerge between the multiple players constitute an important dynamic of the process of EIF. The state in this approach is one among other stakeholders, keen to balance conflicting interests while maintaining its own legitimacy. However, the state isn't fully theorized as an actor, thereby limiting the applicability of the original model to other national contexts. In the Indian context, e-waste recycling workers (as mentioned earlier) have not raised concerns about their exposure to toxins, signaling that the informal workforce suffers not only from distributional inequality but also from inequalities of recognition and participation in decision-making processes that affect their well-being. This spurs the need to expand on the EIF framework to examine the role of a different form of a state–developmental state (Evans 1995) and how in the design of policies (Lake and Disch 1992) the state reproduces environmental injustices in a context (e-waste sector) in which the workforce silently bears the burdens of environmental bads.

[3] Pellow uses the tem environmental inequality to signal attention to structural factors shaping unequal distribution of power and resources that in turn shape access and exposure to environmental 'goods' and 'bads'.

Although I move beyond Pellow's model of EIF to conceptualize the developmental state, the contribution of his model has been significant. His model serves as an important starting point in identifying the need to theorize the state as an important actor.

I address these two major gaps in the third wave of critical EJ studies by incorporating other bodies of work, including developmental state theory, law and development studies, and interpretive policy analysis to create a nuanced understanding of developmental state's roles and structural elements. Developmental state scholarship of the 20th and the 21st century provides theoretical concepts to conceptualize the multiple roles of the state and their connection with state structure. Law and development studies give additional insight about state's relationship with e-waste law. Further, interpretive policy analysis provides methodological guidance for the analysis of state roles and the drawings of inferences about state's structural features from the perspective of multiple 'communities of meaning' who are involved in the e-waste regulatory process. Additionally, I use Schlosberg's (2004, 2007, 2013) trivalent conception of environmental justice and Whyte's (2011) standards of EJ notions in order to understand how through the performance of roles in the lawmaking process, the various interpretive communities including the state develop ideas of environmental justice, which among those EJ ideas are reflected in the e-waste law, and what effects can the new law be expected to have in regard to distributive, recognition, and participative dimensions of environmental justice in the e-waste sector.

Different dimensions of EJ

Schlosberg (2004, 2007, 2013) drawing from Young (1990) addresses the second theoretical blind spot of critical EJ research by developing a trivalent conception of environmental justice that is based on distribution, recognition, and participation. Additionally,

Schlosberg recognizes the importance of the capitalist state in influencing the distribution of environmental harm and in determining the recognition and participation of affected people in relevant decision-making processes (Schlosberg, 2007). Schlosberg's formulation provides a rich conceptual understanding of the trivalent notions of environmental justice and highlights the necessity of analyzing the role of the state in EJ-relevant decision-making arenas. Williams and Mawdsley (2006) draw on Schlosberg's notion of justice to argue that the postcolonial state of India reproduces distributive, recognition, and participative injustices through state reform projects, such as the Joint Forest Management, public interest litigation and social movements, such as the Narmada Banchao Andolam. Even though Williams and Mawdsley (2006) underscore the key role of the state in reproducing environmental injustices, they do not mention how EJ scholars should conceptualize the developmental state in analyzing its form and functions.

Whyte (2011) parses out these three dimensions of environmental justice further and makes a distinction between distributive, procedural, and recognition justice and emphasizes identification and analysis of standards of these dimensions and ways in which they get incorporated or fail to get incorporated into environmental policies. Whyte (2011) raises the question that in advancing a case for recognition justice in Indian County, standards are essential to assess whether institutional arrangements foster environmental justice. Furthermore, Whyte (2011: 200) argues that the views regarding standards of environmental justice differed in the Indian country and that the standard for evaluation of institutional programs and policies should be determined by the "standard of recognition justice." "Recognition justice requires that [environmental] policies and programs must meet the standard of fairly considering and representing the cultures, values, and situations of all affected parties" (Whyte, 2011: 200).

Alternatively, recognition justice is also referred to as 'political justice' that seeks concern and respect for disadvantaged communities while crafting and implementing environmental policies (Kaswan, 1997: 233). Distributive justice involves not only just distribution of environmental good and bad but also fair distribution of power among societal groups in decision-making processes (Whyte, 2011) and the "standard of procedural justice [has] to do with the fairness of who gets to participate, and to what extent, in the decision-making processes used to allocate risks and goods" (Whyte, 2011: 200). Most importantly, Whyte (2011: 200) argues that "[d]istributive, procedural … standards of justice, however, cannot be integrated into …policies … *without* respect for …values and genuine acknowledgement of [and being sensitive to the]…struggles" and needs of affected communities. Therefore, "the standard used to design …policies" should "fairly consider … and represent" the needs of disadvantaged communities (Whyte, 2011: 201) and "it is within participatory processes that recognition justice is affirmed or denied to various parties" (Whyte, 2011: 202). When the standards of environmental justice of the dominant groups are imposed on the affected communities there is hardly any scope for collaboration and the affected communities are required to adjust with the conditions of domination (Whyte, 2011). Thus recognition justice privileges the discourse of environmental justice of the affected communities (Whyte, 2011).

I use and extend Schlosberg's (2004, 2007, 2013) trivalent notions of justice in the context of the Indian state-e-waste sector synergy to examine the EJ discourses of the different stakeholders, including the state units, non-state and semi-state units, newly formalizing groups and the informal e-waste operators in terms of distribution, recognition, and participation. I then ask which among those discourses finds reflection in the e-waste law. The perceptions of the standards of EJ would differ among the various actors. Taylor (2000: 509) argues that the 'social

locations' of the actors influences the way in which they define and construct EJ discourses. For instance, variations in environmental experiences situate grass root EJ activists and the mainstream environmentalists in the US in disparate social locations (Taylor, 2000). Through a social constructionist lens, I analyze the multiple discourses and how the social locations of the actors shape these discourses. I also extend Whyte's (2011) conception of the standards of environmental justice in this novel relationship as I attempt to understand what standards of EJ are reflected in the various EJ discourses and in the e-waste law. Finally, I explain how the reflection of certain kinds of EJ discourses in the e-waste law will impact the reproduction of environmental injustices in the e-waste sector.

Bringing the Developmental State within EJ Research

In my conceptual framework, I regard e-waste, a sub-set of hazardous waste, as an important issue of environmental justice studies. However, the literature on environmental justice has two major lacunas – a) narrow emphasis on the role of the state in general and the developmental state in particular and b) inadequate attention to different notions of EJ. Of the EJ scholars who highlight the importance of the state in EJ-related conflicts, I draw from Pellow's framework of 'environmental inequality formation' that recognizes the state as an important actor. However, his framework does not assist an analysis of the role of a developmental state in which the affected communities are generally non-responsive to environmental injustices.

I bring developmental state theory into EJ scholarship. Developmental state theory provides insights into the structural features of the state in its relationship with the industrial sector in terms of state actions. I extend the 20th and 21st century developmental state concepts of state structure and roles to the state-e-waste sector relationship to find out what roles the Indian state performs through action and inaction and how structural elements are reflected in the state

roles. Law and development studies complement development state scholarship by emphasizing the connection between state structure and law. In my analysis, I interrogate how state structure is revealed through roles in the e-waste policy documents and in the lawmaking process by using interpretive policy analysis. Interpretive analytic approach creates a strong methodological grounding which promotes understanding of state roles and structure through the eyes of numerous communities of meaning.

Next, I address the second gap in EJ research by asking how the state impacts the reproduction of different forms of environmental injustices. Schlosberg (2004, 2007 and 2013) provides insights into the trivalent conception of justice in which the state plays a significant role. However, Schlosberg's formulation does not explain what the standards of distributive, recognition, and participative justices ought to be for analyzing the extent of injustices produced. Whyte (2011) distinguishes between distributive, procedural, and recognition justice and argues that recognition of affected communities' struggles in the design of environmental policies lies at the heart of achieving distributive and procedural justice. For Whyte, it is important to determine the standards of just distribution, recognition, and participation; to consider the different views about environmental justice standards and determine whose standards of environmental justice gets privileged over the others in the policy arenas. Schlosberg and Whyte together provide a strong conceptual basis to study how the Indian state units in their relation with other stakeholders reproduces distributive, recognition, and participative dimensions of injustices in the e-waste sector.

Conclusion

In sum, this conceptual chapter underscores the importance of theorizing the developmental state in environmental justice research and lays the foundation for the analysis

chapters that follows. In the next chapter, I discuss my dissertation research design and methodology. From a social constructionist perspective, I explain how I used a case study approach to collect and analyze a rich set of data. Finally, I explain how research validity is attained in this qualitative project and how my research positionality shaped my data collection and analysis.

CHAPTER 4

RESEARCH DESIGN & METHODOLOGY

Introduction

This dissertation research is a qualitative research project. Based on the philosophy of social constructionism, the project deploys a single case study research method. The case consists of the Indian state-e-waste relationship within the circumstance of e-waste lawmaking. A social constructionist perspective enables understanding of how the actors involved in this unique relationship frame and give meaning to the events of e-waste lawmaking. The fieldwork was conducted in the national capital of Delhi during the summer of 2012 to investigate the research case. Significant data were gathered through in-depth semi-structured interviews, archival sources, and field notes. The Data were analyzed using a combination of thematic and structural narrative analysis and an amalgam of critical discourse and constructivist discourse analysis. In interpretive policy analysis (discussed in chapter 3) narratives of policy actors and the policies themselves are regarded as important conveyors of meaning (Yanow, 2000). Narrative analysis was used to deconstruct the stories that were told by the identified stakeholders to understand the structural features of the Indian state units and the kind of roles that the state units played in the e-waste law, guidelines, and the e-waste lawmaking process. A blend of critical and constructivist discourse analysis was used to identify recurring themes and sub-themes in order to analyze the implications of e-waste lawmaking in fostering different dimensions of environmental justices in the e-waste sector. Discourse analysis enabled the investigation of how the discourse of environmental justice is constructed by multiple

stakeholders or interpretive communities, and how, if at all, any sensitivity toward any dimension of environmental justice is reflected in the text of the new e-waste law. The same data set including interview transcriptions, archival data and field notes were subject to narrative and discourse analysis in an effort to answer two different sets of research questions.

This chapter describes in detail the different stages of research methodology that were deployed in this dissertation research. First, I discuss the research case and how the study suits as a single case study research. Second, I enumerate the research questions, followed by a detailed description of the data sources, and the methods of data collection. Next, I explain what constitutes narrative analysis and discourse analysis and explain how I used each of these methods of data analysis to answer my research questions. Then, the chapter describes how rigor and validity of data collection and analysis was attained. Finally, I discuss how my research positionality shaped my study.

The Research Case

This is a single case study of e-waste handling and management by elements of the Indian state apparatus, civil society and semi-state organizations, and e-waste recyclers. The study illuminates "the particularity and complexity of a single case, coming to understand its activity within important circumstances" (Stake, 1995: xi). Here, the case consists of the relationships among three state agencies that are located in the national capital of Delhi, several dozen informal and a few formal e-waste recyclers, and environmental activist groups lobbying for safer and more efficient handling of e-waste in the city of Delhi. The important circumstances are the framing of new e-waste-specific law of 2011. The three government agencies are the national level Hazardous Substance Management (HSM) Division of the Ministry of Environment and Forest (MoEF), the Central Pollution Control Board (CPCB), and the union territory level Delhi Pollution Control Committee (DPCC). The environmental activist group

includes national level NGOs called Toxics Link, MAIT, and Greenpeace India; a bilateral agency (between Indian and German government) called GIZ; and a Delhi based NGO called Chintan. Unlike Toxics Link, MAIT, and Greenpeace India that are non-government organizations, GIZ is a semi-state or partial-state organization. GIZ works in partnership with the state governments (Indian and German governments) as well it works in partnership with non-government organizations such as Toxics Link and MAIT. There are currently two e-waste recyclers in the process of securing formalization from the Delhi Pollution Control Committee and numerous informal e-waste recyclers are situated in the various e-waste recycling hotspots of Delhi.

Sjoberg et al., (1991:56) argues that in order to effectively study how decisions are made by bureaucrats, a researcher should conduct "in-depth case studies that rely on personal documents and intensive interviews." Developmental state theorists, such as Chalmers Johnson, Peter Evans, Baldev Nayar, Pranab Bardhan, and Meredith Woo-Cumings have extensively used the case study method in understanding state structural features. These developmental state theorists have used the case study approach to understand state behavior in a 'case' comprising of a specific state-industry relationship. For instance, Johnson (1982) investigated the state structural features in its relationship with the industrial sector in Japan from 1925-1975.

In a case study, the researcher requires access to multiple data sources to achieve an in-depth understanding of the 'case'. According to Hays (2004: 218), the purpose of a case study is "to answer focused questions by producing in-depth description and interpretation." Additionally, EJ scholars (Pellow, 2000, 2004) have used the case study approach to understand EJ conflicts. This research follows the fundamental stages of conducting case study research that involves identification of the research case, framing of the research questions based on the

conceptual framework and meta-theoretical perspective, identification of appropriate data collection and data analysis methods that would be appropriate in answering the research questions, and finally providing a coherent and comprehensive interpretation of the research findings.

Delhi was selected as the case study site because it is the second largest e-waste recycling hub in the country after Mumbai ("Disposal of E-waste" Rajya Sabha Unstarred Question no (2009) and Sanjay Jog (2008) as cited in Research Unit Rajya Sabha Secretariat, 2011). Additionally, the problem of the e-waste menace was first identified by a Delhi-based environmental organization named Toxics Link. Delhi being the national capital and since the central level government offices are located in the city of Delhi, the process of e-waste lawmaking has been influenced directly by the local and national level environmental activist groups. Furthermore, the process of lawmaking had a direct effect on the informal e-waste sector and the pollution control board in Delhi compared to other metropolitan cities in India. The city of Delhi, therefore, presented itself as the most appropriate study site for understanding how environmental and industry groups at the national and local levels have shaped the law-framing process of the state and what effects the new law is likely to have in terms of environmental justice in the informal e-waste recycling sector in Delhi. Finally, my prior familiarity with the city and with the University of Delhi for a period of three years enormously aided in establishing contact with the research participants, in obtaining a permit to work at the University of Delhi library and in finding a suitable accommodation for three months during my field visit.

Research Questions

The following research questions are directed at understanding this dynamic phase of new e-waste lawmaking:

1).What combination of roles has the Indian state units performed in framing the e-waste law?

1a). How are the e-waste policy issues and state regulatory roles framed by the interpretive communities in the e-waste policy documents? What inferences can be made about state structural features from the analysis?

1b). How has the framing of e-waste policy issues and state regulatory roles by the interpretive communities changed throughout the e-waste lawmaking process (2003-2011)? What kind of structural features can be discerned from such analysis?

2).What does the recent e-waste-specific law auger for the future of environmental justice in the e-waste recycling sector?

2a). How, if at all, do ideas of environmental justice in terms of distribution, recognition and participation find reflection in the performance of the roles of the different interpretive communities during the framing of policy issues that led to the publication of the law?

2b). How, if at all, do ideas of environmental justice finally become incorporated in the policy issues of the e-waste law?

2c). What effects can the new e-waste law be expected to have in regard to distributive, recognition, and participative dimensions of environmental justice?

Data Collection

Data collection in a preliminary form began with my visit to Delhi in July 2010. During that time, I had informal conversations with the Ministry of Environment and Forest officials, Central Pollution Control Board officials, and Toxics Link employees about the nature of the e-waste problem and the steps that have been taken by the government and non-government organizations to mitigate the issue. After my return to the United States, I was able to retain

contact with some of these individuals. They enabled me to contact my interview participants during fieldwork in the summer of 2012. From May to July 2012, I stayed in Delhi and I conducted semi-structured interviews and collected archival data from the government offices, including the Ministry of Environment and Forest, the Central Pollution Control Board, and the Delhi Pollution Control Committee. I collected archival data from the Delhi Secretariat and the Department of Information Technology. Additionally, I interviewed and collected archival data from national level NGOs, including Toxics Link and Greenpeace India, a Delhi-based NGO called Chintan, GIZ, and a group that represents the electronic industry called Manufacturers Association of Information Technology (MAIT). I also interviewed and collected registration documents from several dozen informal e-waste recyclers and few newly formalized e-waste operators.

I finalized interview appointments primarily over the phone with government officials. State officials were reluctant to reply via email. However, interviews with the NGOs were established via email. I could not establish appointments with the formal and informal e-waste recyclers over the phone or by email since they were inaccessible to both means of communication. I directly visited the e-scrap markets and met with them at their respective shops. Some operators allowed me to audio-record the conversations and others did not.

All of the interviews were audio-taped except for those where the respondents refused the conversations to be recorded. Most of the government officials did not want their conversations to be recorded. I took notes during and after the conversations with the state officers. With the rest of the interviews, after each interview session, I took field notes. I used a digital audio tape-recorder to record the interviews.

I conducted the interviews in Hindi with Hindi speaking respondents. These included the informal and formal e-waste recyclers and a few government officials and the rest of the interviews were conducted in English. I performed 45 semi-structured interviews in total with the Government officers, NGOs, and the e-waste recyclers in the city of Delhi. The interviews were conducted in the government offices, offices of the NGOs, individual shops of the informal recyclers, and in the collection centers of the formal collectors. The semi-structured interviews generally lasted for one to one and a half hour.

Riessman (2008: 42) rightly states that the "politics of translation are rarely acknowledged" which requires tough interpretive decisions. He argues that the task of translating interviews is a technical issue and is mostly assigned to hired translators. In such instances, researchers are required to work closely with the translators (Riessman, 2008). My familiarity with the Hindi language provided me with an edge in performing the task of translating and transcribing the interviews that were conducted in Hindi.

I translated the interviews that were conducted in Hindi into English prior to transcription. Next, I transcribed the translated interviews and the other interviews that were conducted in English. The digital audio-tape-recorder assisted the process of transcription since I was able to feed the recordings directly into the computer. I did not use any software to speed up the transcription process. Although the transcription of each recording took considerable amount of time, this process provided me with the time to reflect on the conversations and allowed me to take additional notes based on my recollections of the interview settings and the conversations. As I transcribed, I wrote my preliminary findings based on my interview transcriptions. This process helped me to identify themes and sub-themes for data coding.

I tried as much as possible to transcribe the interviews immediately after the interviews were conducted. This process helped me to add information to my field notes because I had the content of a specific conversation fresh in mind. This strategy also helped me to frame the right questions in the subsequent interview that I failed to ask a previous interviewee. I was also able to ask additional questions to a following interviewee that appeared relevant in a particular interview. Moreover, simultaneous transcription and collection of interview data enabled me to determine a schedule for conducting interviews even though I had to follow the schedules of the interviewee. I tried to schedule an interview with a respondent who could specifically clarify a matter of concern that arose in a previous transcription. Finally, the process gradually enhanced understanding of the overall picture of my research case.

Field notes particularly helped the triangulation of interview data. I sometimes took written notes during and after the interviews and sometimes, I recorded my own voice as I described my reflections on the manner, content, and the setting of an interview. I later transcribed the recordings of my own field reflections. Those transcriptions added a vivid picture to the respective transcribed interview. In addition, those transcriptions were valuable sources of data in situations where I was not allowed to record the interviews particularly in government offices. As I read and re-read the transcriptions of my field recordings, I realized that with each subsequent recording my reflections depicted greater clarity of the problem.

As mentioned earlier, in addition to interview data, I collected archival materials from NGOs, the GIZ, government offices, and the newly formalized e-waste recyclers. NGOs and the GIZ provided me with documents, including annual and monthly reports and studies on e-waste by Toxics Link, GIZ, Greenpeace India, and Chintan. Some of the reports and e-waste specific studies were available directly from their respective websites. The e-waste draft law and the final

law were available from the Ministry of Environment and Forest's website. The draft e-waste guidelines of 2008 and reports that were prepared by the Central Pollution Control Board were provided by CPCB officials. Additionally, I purchased a compilation of environmental laws in India titled "Pollution Control Acts, Rules and Notifications Issued Thereunder" July 2010 from CPCB library. The Delhi Pollution Control Committee provided me with some registration documents. Some of the registration documents were given to me by the newly formalized e-waste collectors.

It is important to mention that during fieldwork, I did not interview the members of the electronic industry separately. At that time, I focused on gathering information about state actions and inactions from the concerned state officials and the stakeholders who were directly involved in the e-waste lawmaking process (Toxics Link, Greenpeace India, MAIT, and GIZ). Since the industry was not directly engaged in lawmaking, I did not seek their views about the process. In analyzing how the electronic industry framed the policy issues, I resorted to secondary data, including industry reports.

It was difficult to acquire government documents even though none of the documents were internal to them. The Ministry of Environment and Forest and the Delhi Pollution Committee were reluctant to give registration documents and public comments on the e-waste draft law. With the written permission of the Member Secretary of DPCC, I was able to obtain the registration documents. The Ministry of Environment and Forest officers who were in charge of making the e-waste law refused to provide public comments on the draft e-waste law.

In order to secure the public comments, I was forced to apply under the Right to Information Act, 2005. According to the Act, I applied to the Right to Information cell of the Ministry of Environment and Forest with a fee of Rs/ 25. After a period of nearly 2 months, I

received a letter from the Right to Information cell which stated that public comments on the e-waste draft law would be mailed to me in exchange for photo copying charges of Rs/ 2,500. I immediately sent the demand draft; following which, I was sent a packet of documents containing the public comments. This procedure was long and I had to pursue several phone calls to determine the status of my application although the public comments were not internal to the Ministry. The documents were not maintained online and the Ministry made it a point to make them available to the citizens of India only if they could sell the public comments.

The rich corpus of data that I collected through semi-structured interviews, archival sources, and field notes, were subject to both narrative and discourse analysis. Prior to explaining why and how both the analytic methods were used, I discuss the epistemological perspective that guided the choice of the methods of data analysis.

Meta-Theoretical Perspective - Social Constructionism

This dissertation project follows the epistemological perspective of social constructionism. Social constructionists are concerned with how social actors come to understand and give meaning to social events (Burningham and Cooper, 1999; Schwandt, 2000). Distinctions exist between mild and strong social constructionism (Proctor, 1998; Burningham and Cooper, 1999). Mild constructionists make a distinction between a socially constructed reality and a reality that exists independent of how actors socially identifies it (Burningham and Cooper, 1999), but radical constructionist consider that all reality is socially constituted. Environmental problems are mostly studied from a mild constructionist stance (Burningham and Cooper, 1999). For instance, mild social constructionists regard that there is a material existence of air pollution, but the ways in which air pollution is understood is a social construction (Bickerstaff and walker, 2003).

From a mild social constructionist standpoint, I regard that there is a material existence of the informal e-waste sector's being exposed to e-waste toxics directly and indirectly independent of how the state units and societal groups understand and define the e-waste hazard. However, the problem of e-waste toxicity is perceived by different actors in different ways. Accordingly, there have been actions and inactions on behalf of the state and societal actors which vary considerably. Therefore, the problem of e-waste is constructed differently by the various actors and so are the solutions that they propose to the problem of e-waste menace. From a social constructionist standpoint, narrative analysis and discourse analysis provide the philosophical justification to analyze: a) the role and structural characteristics of the state units and b) the discourses of environmental justice that emerge through the performance of roles of the state units and the other key groups respectively. I discuss the two methods of data analysis in-depth in the following sections.

Narrative Analysis

The discussion of interpretive policy analytic approach in the previous chapter has explained why the roles of the state units in the process of lawmaking and in the policy documents are to be interpreted from the perspective of multiple interpretive communities. I now explain how thematic and structural narrative analysis would help to analyze state roles and then draw connection between state roles and structure.

The term 'narrative' is synonymously used with the word 'story' (Riessman, 2008; Watson, 2006). Broadly, narrative analysis "refers to a family of methods for interpreting texts that have in common a storied form" (Riessman, 2008: 11). Similarly, for van Dijk (1993 in Phillips and Hardy, 2002: 31) narrative analysis is "an interpretive deconstruction of stories or retrospective analysis". Narrative analysis is also suited to the case study approach since the

analyst investigates cases (Riessman, 2008) and it rests on the meta-theoretical strand of social constructionism with the view that social construction of knowledge takes place in everyday life "through an ordinary communicative act – storytelling" (Riessman, 2008: 13, 14).

The concept of narrative has different meanings. At one end of a spectrum, social linguists define narrative as "a discrete unit of discourse, an extended answer by a research participant to a single question, topically centered and temporally organized" (Riessman, 2008: 5). In the field of social history and anthropology, on the other side, 'narrative' means "an entire life story, woven from threads of interviews, observations, and documents" (Riessman, 2008: 5). In the middle of the spectrum, in the field of sociology and psychology, 'narrative' is regarded as "long sections of talk – extended accounts of lives in context that develop over the course of single or multiple research interviews" (Riessman, 2008: 6).

In my analysis, I use the term 'narrative' that rests in the middle portion of the continuum including extended sections of text that provide accounts of the events in context. Overall, in the social sciences including human geography, Riessman (2008: 6) argues that 'narrative' implies "text at several levels that overlap: stories told by research participants …, interpretive accounts developed by an investigator based on interviews and fieldwork observation …, and even the narrative a reader constructs after engaging with the participant's and investigator's narratives." In concurrence with Riessman's argument, the narratives that I analyze include sections of the semi-structured interviews with the state units, environmental activist groups, electronic industry representative, and formal and informal e-waste recyclers in Delhi; field notes; and archival documents that explain the role of the state units in the e-waste policy documents and in the lawmaking procedure. Riessman (2008) argues that through storytelling individuals not only explain a particular event or series of events but also the narrations explain their identities.

In narrative analysis the analyst examines "*how* and *why* incidents are storied, not simply the content" of the stories (Riessman, 2008: 11). Thematic narrative analysis examines what is being told; and structural analysis examines the ways in which stories are told since there are multiple ways of storytelling, purpose behind telling stories in certain ways, the accomplishments of narrating stories in certain ways, the cultural resources that the stories draw upon, and gaps and silences in the stories that might offer counter-narratives (Riessman, 2008). "A good narrative analysis prompts the reader to think beyond the surface of a text, and there is a move toward a broader commentary" (Riessman, 2008: 13).

Developmental state theorists have widely used narrative analysis to understand state-industry interactions. For instance, Evans (1995) deployed narrative analysis to understand what the stories told by state officials conveyed about the state behavior in managing the electronic industrial sector in India, Brazil, and Korea. However, developmental state scholars do not explain how they used narrative analysis. Yanow (2000) argues that narrative analysis have been used in analyzing policy actors and policies themselves. Further, Yanow (2000: 58) argues that "[i]n their telling – their engagement and enactment – [actors in policy] also become, themselves, sources of meaning, even when their storied nature is neither explicit nor, at times, recognized".

Riessman (2008) thus provides a clear conception of what constitutes a narrative and ways to conduct narrative analysis. Narrative analysis is appropriate for analyzing the Indian state roles since the lawmaking process as told by the interviewees has a storied form. I draw on Riessman's (2008) procedure of conducting thematic and structural narrative analysis which helps to understand what constituted the contents of the policy issues and how the policy issues were being framed by different key constituencies. The policy documents are often viewed as "collective stories narrated by the polities (state, local and federal) through legislation and

implementation" (Yanow, 2000: 60). Riessman's (2008) thematic and structural narrative analytic approach is suitable for conducting interpretive policy analysis as discussed by Yanow (2000). I additionally, draw on Yanow's (2000: 58) idea that narrative policy analysis involves the investigation of "the structure either of the policy and agency stories told by various actors or of their content, allowing comparisons across different versions" to study how the framing of policy issues and assignment of state roles vary across key communities and within communities of meaning.

That said following Riessman (2008) and Yanow's (2000), I analyzed the first research question using narrative policy analysis:

1).What combination of roles has the Indian state units performed in framing the e-waste law?

> 1a). How are the e-waste policy issues and state regulatory roles framed by the interpretive communities in the e-waste policy documents? What inferences can be made about state structural features from the analysis?
>
> 1b). How has the framing of e-waste policy issues and state regulatory roles by the interpretive communities changed throughout the e-waste lawmaking process (2003-2011)? What kind of structural features can be discerned from such analysis?

Through narrative analysis, I deconstructed the different narrations of the e-waste law, the guidelines, and the lawmaking procedure by the elements of the Indian state apparatus, the environmental organizations, and the newly formalized e-waste recyclers in Delhi. Since narrations are co-created by the researcher and the participant during the course of an interview (Riessman, 2008; Watson, 2006) the narratives in my study were co-constructed by me and my participants as I conducted the interviews and then translated and transcribed them. The narrations of my participants created through my engagement in their experiences explained

multiple interpretations of state's roles and kinds of involvement vis-à-vis the roles and patterns of engagement of the interpretive communities in the law, the guidelines, and the process of law-framing. Deconstruction of the narrations provided clues about the state's structural characteristics in its relationship with the e-waste sector.

As Riessman (2008) notes that often researchers use structural narrative analysis in varying degree and a combination of thematic and structural analysis is conducted, I used a combination of thematic and structural narrative analysis in which I investigated the content of the stories and the structure of the narrative i.e., the ways in which the stories were being told. It was not always possible to discern clearly the purpose behind the narration. Therefore, I focused heavily on deciphering *what* and *how* a story was being said. The content of the narrations and how the events were being framed enabled me to pursue an interpretive policy analysis. I first conducted a thematic analysis of my data to understand the content of the narrations. Following Riessman's (2008) illustration of thematic analytic method, I read one interview transcription at a time, isolated and arranged important events chronologically. To triangulate my interview findings, I followed the same steps with archival data and field notes. Next, I analyzed the underlying assumptions of each narration and created themes. Finally, I compared the thematic assumptions across different narrations.

I divided the data into two broad themes – formalizing the informal sector and producer responsibility. Producer responsibility was further subdivided into extended producer responsibility and reduction of hazardous substances. I selected these two themes since they were the major policy issues in the e-waste law and the process of lawmaking. Moreover, while conducting policy analysis, I used these two policy issues as policy artifacts to understand how they were being framed by the key constituencies.

Once thematic analysis was completed, I re-read my data to conduct a structural narrative analysis by making sense of how different participants attempted to provide a compelling narrative; how the telling of the same series of events of e-waste lawmaking and the interpretations of the law and the guidelines varied across participants. Structural narrative analysis helped to triangulate the findings from thematic analysis. The standard structure that Riessman (2008: 84) describes i.e., "an abstract (summary and/or "point" of the story); orientation (to time place, characters, situation); complicating action (the event sequence, or plot, usually with a crisis or turning point); evaluation (where the narrator steps back from the action to comment on meaning and communicative emotions – the "soul" of the narrative); resolution (the outcome of the plot); and a coda (ending the story and bringing action back to the present)" was not present in my narratives. Riessman (2008: 100) further argues that narratives can sometimes include "long stretches that are not linear and neatly sequenced, nor do they necessarily have a "point" that is clearly stated and a plot that revolves. In working with this model of narratives, investigators make interpretive decisions about units of speech by careful listening to the audiotape." Since my narratives did not follow the standard structure, I paid careful attention to the audiotaped documents, field notes, and archival materials. I then reexamined the text of the identified policy artifacts that included the policies themselves and the extended accounts of the policy actors to understand the ways in which the accounts were depicted. The manner of expression of the different stakeholders contributes an understanding of *how* the identified issues are being framed and what kind of regulatory roles they assign to the state in relation to their roles. Although the narrations were being told to achieve certain goals, the purpose or *why* they were expressed was not always superficially obvious. Therefore, I relied on understanding *how* the events were being narrated. Finally, I compared and contrasted how

issues were framed and how state roles were assigned across narrations to infer about the structural features of the Indian state units.

Discourse Analysis

Discourse analysis rests on the meta-theoretical perspective of social constructionism since discourse analyst examines how language is socially constructed (Phillips and Hardy, 2002). Though the origin of discourse analysis lies in linguistics and psychology, it has been widely used in other disciplines (Tonkiss, 1998). In critical environmental justice studies, discourse analysis has been used since the mid-1990s when scholars tried to understand how environmental inequality is produced. Critical environmental justice scholars have analyzed how multiple discourses of environmental justice have come into being and how some discourses are sustained over the others.

The term "discourse" refers to "all forms of talk and texts, whether they are naturally occurring conversation, interview materials or written texts" (Gill, 1996: 141). In discourse analysis "the content and organization of talk and texts" are examined (Gill, 1996: 141). Discourse is also viewed as a social practice (Gill, 1996). "People use discourse in order to *do* things: to offer blame, to make excuse, to present themselves in a positive light and so on" (Gill, 1996: 142). Discourses give meaning to social interaction (Phillips and Hardy, 2002). Texts comprise of written text, verbal text, pictures, and artifacts and their interconnections give meaning to texts (Philips and Hardy, 2002).

"Discourse analysis involves a perspective on language which sees this not as *reflecting* reality in a transparent or straightforward way, but as *constructing* and organizing that social reality for us" (Tonkiss, 1998: 246). In discourse analysis "language is viewed as the *topic* of the

research" (Tonkiss, 1998: 247). Broadly, discourse analysis examines the interconnections between text and how text constitutes social reality (Phillips and Hardy, 2002).

There are different forms of discourse analysis and it ranges from 'constructivist discourse analysis' to 'critical discourse analysis' and there is no watertight boundary that separates one from the other. Discourses are entrenched in social structures and they come to surface through the interaction between the social agents and structure (Phillips and Hardy, 2002). Therefore, to understand how discourses emanate, it is important to understand the context that produces them (Phillips and Hardy, 2002). One dimension of discourse analysis examines text versus context (distal and proximate) and the other dimension examines constructivist processes versus relations of power (Phillips and Hardy, 2002). Since both dimensions of discourse analysis follow a continuum some studies combine both constructivist and critical discourse analysis and some studies focus on both text and context (Phillips and Hardy, 2002). Critical discourse analysis "focusses on the distal context- how it privileges some actors at the expense of others" and "adopt a more explicit analysis of how political strategies are shaped by and help to shape this context" (Phillips and Hardy, 2002: 25, 26).

This dissertation research uses a combination of constructivist and critical discourse analysis to understand how text constructs social reality and how power is used and abused by social actors including the relevant state units, the non-government organizations, the bilateral agency, and the informal and newly formalized e-waste recycling workforce to influence outcomes. I use this form of discourse analysis to examine my second research question and sub-questions:

2).What does the recent e-waste-specific law auger for the future of environmental justice in the e-waste recycling sector?

2a). How, if at all, do ideas of environmental justice in terms of distribution, recognition, and participation find reflection in the performance of the roles of the different interpretive communities during the framing of policy issues that led to the publication of the law?

2b). How, if at all, do ideas of environmental justice finally become incorporated in the policy issues of the e-waste law?

2c). What effects can the new e-waste law be expected to have in regard to distributive, recognition, and participative dimensions of environmental justice?

The above mentioned research question seeks to understand how environmental injustices of distribution, recognition, and participation are being reproduced by the state in its relationship with the e-waste sector. To that end, I use constructivist discourse analysis to analyze how different notions of environmental justice are understood by the multiple actors through their performance of roles, and I use a critical discourse analytic lens to find out how some of the discourses of environmental justice find reflection in the new law, and what effect such discourses are likely to have in fostering or delimiting environmental justice in the e-waste sector. In other words, critical discourse analysis will enable me to understand how diverse discourses of different forms of environmental justice are deployed by the state and societal actors to "sustain their arguments and to influence the outcome" (Phillips and Hardy, 2002: 33). While doing discourse analysis, the researcher should immerse himself in the text to look "for clues to the nature of the discourse because we can never find discourses in their entirety" (Phillips and Hardy, 2002: 5). The analyst must look for clues by referring "to bodies of texts because it is the interconnections between texts …that constitute a discourse over time" and

simultaneously pay close attention to the context that produces them (Phillips and Hardy, 2002: 5).

According to Gill (1996), the best way to start discourse analysis is to read and re-read the text in order to familiarize oneself with the data. In my study, the text consists of interview transcriptions, archival data, and field notes. Discourse analysis requires immersion into the data which is necessary to begin coding (Gill, 1996). Initial coding of data is guided by the research questions and the conceptual framework (Gill, 1996). "The process of analysis begins in a very inclusive way, selecting a number of themes and sections of data which appear relevant to the research question" (Tonkiss, 1998: 254). There are no predetermined rules of analysis and analysis involves "the selection of key words or themes; looking for variation in the text; reading for emphasis and detail; and paying attention to silences" and finally providing a coherent presentation of the analysis (Tonkiss, 1998: 254, 258). In discourse analysis a particular text can be analyzed in multiple ways and therefore what a discourse analyst does is to produce one version of the readings of the text (Gill, 1996; Fairclough and Wodak, 1997). In sum, discourse analysis involves the process of understanding how the social reality is constructed and sustained (Phillips and Hardy, 2002).

Following Gill (1996), I read and re-read me interview transcriptions and other data sets. I initially thought of using NVivo software to organize my interview data and field notes. I could not feed most of my archival data into the computer since I only had hard copies of those documents. I had used NVivo earlier and it helped me only to organize my data at the initial stage of analysis, i.e., in initial data coding process. However, I attained better grasp of my data in my earlier experience with NVivo, when I manually identified themes and established interconnections across text. In this research, I decided to organize my three sets of data i.e.,

interview data, field notes, and archival materials manually with the hope that through reading and re-reading my text, I would be able to immerse myself and feel connected with the text which is essential for discourse analysis. I used markers to code similar sets of data. I first, started coding interview transcriptions.

Based on my initial coding, I identified themes that relate to my theoretical conceptualization. For instance, one of the initial themes that I identified was 'environmental justice' and the sub-themes were 'sensitivity toward environmental justice' and 'incorporation of the environmental justice principles'. The further sub-themes within each were 'distribution', 'recognition' and 'participation'. I grouped data that dealt with the 'environmental justice' discourse and then sub-divided data that depicted 'sensitivity toward EJ' and those that represented 'inclusion of EJ principles'. Furthermore, within each sub-category of data, I searched for clusters of data that spoke of different notions of environmental justice, i.e., distribution, recognition, and participation. This process of data analysis finally enabled me to generate a coherent analysis of my data.

In the following sections, I discuss how through the use of qualitative methods of data collection and analysis I attained rigor and validity in my work and how my research positionality influenced the course of my data collection and analysis.

Research Validity

In this case study research, triangulation of diverse data sources and different methods of data analysis have helped to achieve research rigor and 'internal validity'. Multiple sources of data in case study research help to attain methodological rigor. In this project, in-depth semi-structured interviews, archival data, and field notes helped to provide a coherent and comprehensive understanding of the research case, i.e., to understand the complexity of the

relationship between the units of the Indian state apparatus and the e-waste sector. Triangulation of archival data with interview transcriptions and field notes enhanced thoroughness and rigor.

The entire data set was subject to both narrative and discourse analysis which helped to enhance thoroughness in data analysis. The use of narrative analysis in investigating state roles and state behavior within the boundaries of e-waste lawmaking provided a scope to attain 'external validity'. Riessman (2008: 13) argues that since case study research makes "conceptual inferences about a social process (the construction of an identity group, for example, from close observation of one community)" the findings of narrative analysis are valid and transferable to a certain extent to other cases. In my study, the specifics of state role and behavior with respect to the e-waste sector will form the basis of further research that interrogates future state roles and its structural characteristics as reflected in the period of implementation of the e-waste law. The study will also form the basis of future study that focus on understating state structural features in handing other environmental issues.

Additionally, the use of discourse analysis establishes rigor and 'internal validity' in this study by providing a "persuasive…insightful, useful and critical interpretation" (Tonkiss, 1998: 259) of the problem. In discourse analysis of a research 'case' since the findings of the analyst "may well be shaped by one's position in the power structure and by the ideological context within which one carries out social scientific activities" (Sjoberg et al., 1991: 36), the analytic process helps to achieve only 'internal validity'. It is difficult to attain 'external validity' since the analysis of specific research problem is unlikely to be generalized (Tonkiss, 1998). Overall, research validity has been achieved in this study by triangulating multiple data sources and through the use of narrative and discourse analytic methods.

Research Positionality

"All researchers are positioned…by age, gender, race, class, nationality, institutional affiliation [and] historical personal circumstance" argues Chiseri-Strater (1996: 115). Fieldwork is directly influenced by the researcher's positionality (England, 1994). My research work was significantly shaped by my position of being a female in her early 30s, an Indian national, a graduate student in the United States, a bi-lingual, and by my prior personal experiences with the city of Delhi. These personal attributes influenced the entire process of data collection, including the semi-structured interviews, field notes, and the kind of archival data that I was given access to by my participants. Chiseri-Strater (1996: 116) argues that the researcher's positionality determines "how we present ourselves to our informants [and] how we think our informants perceive us." Here too, my positionality shaped my understanding of how I was received by my respondents and also how I represented myself to them. I was treated differentially by the various participants because of my positionality. These attributes played out in various ways in diverse situations. I now discuss separately how each of them affected my data.

My age and gender brought about attitudinal differences between state officials, non-state and semi-state members, and the informal operators. The majority of the state officials were middle-aged males and they tried to control the course of the interviews. The MoEF officers boldly refused to provide me with any government information which instigated me to apply under the Right to Information Act to secure government data. On the other hand, the non-state and the semi-state units (although many of them were male employees) were very cooperative throughout the course of my fieldwork. My age and gender played an important role in my meetings with the HRA (Hareet Recycling Welfare Association), which is one of the newly formalizing organizations in Delhi. The association members were protective of me and one of

them accompanied me during my visits to the e-waste yards where they previously dumped e-waste. Also, when I visited the informal e-waste centers in Delhi, I had to present myself in a manner in which the community was accustomed. Since the informal e-waste markets are mostly Muslim dominated, I had to wear 'salwar kamiz' (dress that is worn by Muslim women) and cover myself with a veil in a manner similar to the ways in which the Muslim women in these communities present themselves. I was able to get responses from the informal operators largely because I presented myself in an acceptable fashion. Moreover, it seemed that because I was a female some of the operators were sympathetic toward me and directed me to sources from whom I could obtain more information.

Additionally, I was able to apply for access to government data to which I had been denied by the Ministry of Environment and Forest because I was an Indian national. I was able to avail the Right to Information Act, 2005 since it is only accessible to Indian citizens. In the absence of my citizenship, I would not have gathered additional data about what concerned stakeholders, including NGOs, the GIZ, and the state units thought about the process of e-waste lawmaking.

My affiliation with a US university was an important factor that influenced the nature of my data. Some state officers were very appreciative of the fact that I was pursuing a doctoral degree in the United States and they took time to explain all that I had to know. A few were very inquisitive to know about my status in the US and my future career plans. Since, I was a PhD student in the US, NGOs and the GIZ were more cooperative than if I had been a doctoral student in an Indian university. Some of the Toxics Link and GIZ participants were familiar with the higher education system in the US and that knowledge helped to get the conversation stated. One GIZ interviewee had obtained a doctoral degree from a US university and was very willing

to share his educational experiences both in India and in the US which made our conversation lively and less formal. However, my academic affiliation did not create any effect on the informal operators.

Moreover, my fluency in both Hindi and English worked to my advantage. Some of the officers preferred to converse in both English and Hindi and my familiarity enabled the conversation to flow steadily. All of the non-state and semi-state participants were conversant in English and I did not need to speak in Hindi. They allowed me to record the conversations and I was able to relieve my anxiety of losing any important information. Except for Chintan employees, who were well versed in English, Hareet Recycling Welfare Association members did not speak English. I recorded all my interviews with these members in Hindi. I always had to speak in Hindi with the informal operators. Both my ability to converse in Hindi and my dress code that matched that of their community's aided in obtaining ready acceptance.

Finally, my prior acquaintance with Delhi enabled me to travel around the city at ease. The government, non-state, and semi-state officers were located at convenient places, but the informal recycling hubs were located generally in slums that were situated in the city's outskirts. I was able to visit these places without having to spend considerable time in locating them because I had a fairly clear idea about how to reach these areas.

In brief, the kind of data that I collected during the course of my fieldwork was predominantly shaped by how I presented myself to my informants and how I was perceived by them. England (1994: 80) argues that "fieldwork is a dialogical process which is structured by the researcher and the participants." As a researcher, I became an integral part of the data which subsequently shaped the course of my analyses as well.

Conclusion

In this chapter, I discussed in-depth the stages of data collection and analysis. The chapter first outlined the research case, followed by stating the research questions, a detailed discussion of the methods of data collection, a brief discussion on the meta-theory of social constructionism as a prelude to the in-depth discussion on narrative and discourse analysis. Next, I explained how triangulation of multiple sources of data and the use of different data analysis methods enhanced methodological rigor in the study. Finally, I discussed how my research positionality led to the co-production of certain kind of data by my research participants and myself which then shaped the nature of my data analysis.

The following chapter presents a detailed analysis of my first research questions, i.e., to understand specific state unit's roles and structural features in their relationship with the e-waste sector using thematic and structural narrative analysis.

CHAPTER 5

THE DEVELOPMENTAL STATE & THE E-WASTE SECTOR'S ROLES IN E-WASTE REGULATION

Introduction

In this analysis chapter, I examine the combination of regulatory roles or the sub-regulatory roles[4] the Indian state units' performed and their implications for the state's structural character in the e-waste lawmaking process and in the e-waste policy documents. I discuss these roles in relation to the roles of the other key constituencies or interpretive communities. Developmental state scholars thus far, have not explained how state roles come into being. Further, statists provide singular interpretation of state's roles and structural elements. Therefore, the thrust of this chapter is to explain how state roles emerge, not in isolation, but in conjunction with that of the others engaged in the regulatory process; and to present multiple interpretations of state' roles and structure. I identify new roles of the state, the non-state and semi-state communities that have not been discussed by the state theorists. Based on the assignment of state roles by different interpretive communities vis-à-vis their own roles, I infer about the state structural features. By explaining how state roles and state's underlying structural attributes can be interpreted in numerous ways, this analysis underscores the plurality and fluidity of both roles and structure.

[4] In this analysis chapter, I identify different kinds of regulatory roles of the state that I refer to as sub-regulatory roles.

I analyze the multiple framings of state roles in the two policy issues i.e., formalization of the informal sector and producer responsibility at fixed points in time in the e-waste policy documents in order to demonstrated that when time is held constant, understanding of the policy issues, state roles, and structural features differ across interpretive communities. Additionally, I conduct a temporal analysis of the e-waste lawmaking process in order to explain how the framing of the policy artifacts, state roles in association with the other interpretive communities, and structural attributes change within and across communities over time.

I examine these key aspects by dividing the chapter into four major sections. In the first section, I discuss how over time different stakeholders got involved in the two policy issues, formed interpretive communities, and ascribed state functions in the lawmaking process (2003-2008) that led to the publication of the e-waste guidelines in 2008. In the second section, I examine how the state roles were framed at a fixed point in time in the 2008 guidelines. In the third section, I analyze how the interpretive communities changed as they continued to frame the policy issues in novel ways, and how state roles evolved in the process of lawmaking (2008-2011) that led to the publication of the first e-waste law in 2011. Finally, I explain how state roles were framed differently across communities in the e-waste law in 2011.

Prior to interrogating how the two policy issues were framed in the e-waste regulatory process, I briefly contextualize each to describe what these issues mean in the Indian context.

Producer Responsibility

The concept of 'producer responsibility' is defined as "an environmental protection strategy that makes the manufacturer of the product responsible for the entire life cycle of the product" (Lindhqvist, 2000 in Khetriwal et al., 2007: 2). The concept therefore extends the responsibility of the producer not only "to the end-of-life stage but also to other stages of the

product life cycle" i.e., to the product design stage since "most of the environmental impacts are (pre)determined when they design the products" (Manomaivibool, et al., 2007: 3). This notion has been applied particularly within the realm of the electrical and electronic industry worldwide because these products are composed of hazardous elements that are harmful to human health and environment. Producer responsibility as a policy approach has been adopted in developing countries, such as China and Thailand that aim to make the electronic and electrical manufacturers financially responsible for the life cycle of their products (Kojima et al., 2009).

This concept was adopted in India as a policy issue. With India's economic liberalization in 1991, the electronic industry progressed rapidly over the past two decades as a result of availability of skilled labor, reduced costs of manufacturing, and a rapidly expanding middle class population that created a demand for consumer electronics (Research Unit Rajya Sabha Secretariat, 2011). According to the "Electronics Industry in India: A report on Indian Electronics Industry" 2009, during the period of 2004-2009, the Indian electronics market moved from US $ 11.5 billion to US $ 32 billion respectively making the Indian electronics market as one of the top markets globally (as cited in Research Unit Rajya Sabha Secretariat, 2011). The Indian electronic industry is dominated by the production of personal computers, mobile phones, and televisions that have experienced not only enhanced growth but also accelerated replacement cycle (Research Unit Rajya Sabha Secretariat, 2011). As a result, significant volumes of electronic products are discarded as electronic waste each year. Producer responsibility was thus selected as a policy measure by the non-state and semi-state community and was later adopted by the state to make the manufacturers accountable for the sound management of their discarded products and for the re-designing of products to embody greater environmental safety.

Formalization of the Informal Sector

The existence of the informal sector was first identified by scholars in the beginning of the 1970s in Africa (Chen, 2007). Since then, researchers have proposed several definitions of what constitutes the informal and formal economy. Moreover, the meaning of formalization of the informal sector has been contested. My purpose here is not to delve into those conceptual debates but to provide general definitions of these concepts that provide context with regard to this policy issue in India.

The informal sector has been broadly defined by the Women in Informal Employment: Globalizing and Organizing (WIEGO) group and the International Labor Organization (ILO) experts as consisting of "all forms of 'informal employment' - that is, employment without labor or social protection – both inside and outside informal enterprises, including both self-employment in small unregistered enterprises and wage employment in unprotected jobs" (Chen, 2007: 2). The formal sector consists of "regulated economic units and protected workers" (Chen, 2007: 6) and formalization of the informal sector implies that "informal enterprises should obtain a license, register their accounts and pay taxes" (Chen, 2007: 11).

With India's economic liberalization, the informal sector has expanded considerably (White and Sinha, 2007). This resulted from the absence of both development and government support (Mishra and Shankar, 2013). India's GDP from the informal sector accounts for 50% of India's total GDP and the informal sector comprises 90% of the total workforce (Mishra and Shankar, 2013). Overall, the process of formalization has been very gradual (Mishra and Shankar, 2013). Currently, "agriculture, trade (primarily retail: small stores), hotels and restaurants, construction and transportation" are predominantly informal and the "public administration…, financial services, education, mining and manufacturing" are largely formal

(Mishra and Shankar, 2013: 6). Added to this list is the informal electronic waste sector that presently recycles 95% of India's domestically generated and imported electronic waste (Agarwal, 2012). To bring this unorganized e-waste sector within a legal framework, formalization was incorporated in the e-waste lawmaking debate.

With that said, in the section that follow, I analyze how these two policy issues were framed separately by multiple interpretive communities; how these communities perceived state's patterns of involvement or roles in these policy issues; and what can be inferred about the structural features of the state units.

E-Waste Lawmaking Process (2003-2008)

Formalization of the Informal Sector

In around 2003, Toxics Link and GIZ began to examine the issue of e-waste because no background information existed on the amount of e-waste that was generated in India, or on disposal techniques and their effects on human health and the environment. Lack of knowledge prompted them to become active. Toxics Link conducted a study on these aspects and published it in a report in 2003 called "Scrapping the High-Tech Myth". This study revealed that the majority of the e-waste in India was shifted to the informal e-waste sector for recycling. They also found that informal recycling was conducted by the urban poor in hazardous working conditions with rudimentary techniques. Together they started to frame the problems of informal e-waste recycling as an interconnected issue of urban poverty, sustenance, and waste. These two organizations formed an interpretive community since they framed the problem in a similar manner. Together, they realized the need to identify a system that protected the livelihood of the urban poor and simultaneously reduced the harmful effects of recycling on their health and the environment. At this stage, they were undecided as to what strategies should be taken to improve

the conditions of the informal sector whether by building capacity of the recycling communities or through a regulatory framework. Chintan, an NGO working for the informal e-waste pickers, wanted to intervene and organize the informal e-waste dealers but lacked necessary funds. According to this interpretive community comprising Toxics Link and GIZ, the state units' role was non-cooperative and the state refused to acknowledge the problem due to lack of information. In other words, the state units were not embedded in this community. Developmental state scholars (Evans, 1989, 1995) explain that linkages between state and societal sector enables exchange of information between them which makes the state embedded in that sector. Consequently, this community also convinced the state authorities to acknowledge the problems associated with unorganized recycling. On the other side, the state authorities, as an interpretive community, argued that they were active since 2004. In 2004, CPCB and MoEF participated in a national workshop with the semi-state (GIZ) and non-state (Toxics Link) community and produced a document called "Way Forward" in which the need to create e-waste inventory was recognized.

In around 2007, the semi-state and the non-state community stepped in to financially assist Chintan in studying the e-waste scenario in Delhi. Following which, Chintan tried to organize some of the informal e-waste dealers. GIZ organized meetings with some of the individual operators and financially assisted them in forming the Hareet Recycler Welfare Association (HRA). Once the association was formed, GIZ motivated them to apply for authorization with the Delhi Pollution Control Committee. These two associations were then connected through GIZ and they learned about each other's interest in seeking formalization and they framed formalization as a necessity. As a discourse community, Chintan and HRA opined that the state authorities did not play any role in inspiring them to form an association. On the

other side, the state community claimed to have performed a regulatory role by adding e-waste to the existing "Hazardous Waste (Management and Handling) Rules" (HWMR)[5] 2008 in schedule 4[6]. The HWMR created provision for seeking authorization from the pollution control boards. Additionally, an e-waste cell was constituted in the DPCC to conduct presentations, distribute pamphlets, and attend meetings with GIZ and Toxics Link in order to create e-waste awareness among the consumers and the unorganized operators in Delhi. The state officials regarded that through active engagement with Toxics Link and GIZ the state apparatus became embedded in them. However, the state units did not frame formalization in any concrete manner.

During this period three separate interpretive communities emerged. Toxics Link and GIZ, the newly formalizing group, and the state units formed distinct interpretive communities. The Toxics Link and GIZ, and the newly formalizing communities clearly framed formalization and assigned negative roles to the state in relation to theirs that signaled the state's non-embeddedness in either of these two communities. The state authorities were yet to form a focused vision of formalization, but they claimed to have played positive roles including reformative and advocacy functions indicating their partial embeddedness in the non-state and partial-state community.

Producer Responsibility

The composition and size of the interpretive communities that framed producer responsibility during the lawmaking process from 2003-2008 differed from those framing formalization at the same time period. With the initiation of Toxics Link's studies in 2003, GIZ and Greenpeace India felt that the producers should be involved in deciding on what their role should be in managing e-waste in India. As an interpretive community, Toxics link, GIZ, and

[5] The HWMR that first came into effect in 1989 were modified in 2003 and were further amended in 2008.
[6] Schedule 4 contained items that are recyclable hazardous waste.

Greenpeace India conducted studies that revealed that the electronic industry did not want to cooperate with the non-state and the semi-state organizations in handling e-waste since that might require financial investment on the part of the industries. Instead, the industry was interested in producing electronic products that generated high profit. Moreover, the multinational companies already complied with European Union regulations including "Reduction of Hazardous Substances (RoHS)" and "Extended Producer Responsibility (EPR)". Because India lacked any e-waste specific law they did not intend to take any additional responsibility (GIZ interviewee). The industries were therefore "finding comforts in following double standards" (GIZ interviewee). Manufacturers Association of Information Technology (MAIT), an industry representative, was taking sides with the electronic industries. Consequently, MAIT and the electronic companies formed a separate interpretive community. The industries were pressured by international NGOs, such as Greenpeace International. At the domestic level, Greenpeace India played an interventionist role in running campaigns to convince the Indian and the multinational companies to phase out toxics. GIZ sensitized MAIT by making presentations about their need to become involved in managing e-waste.

The awareness level of e-waste toxicity among the community of electronic manufacturers was very low (Electronic Industries Association of India, 2007). Viable solutions for effective management were not available to the industries due to a lack of any e-waste assessment study in India (Confederation of Indian Industries, 2004). Some individual voluntary industry initiatives to become RoHS compliant were present in India (Electronic Industries Association of India, 2007). Bharat Electronics Limited was one such Indian electronic company that had installed systems to reduce the use of toxics, such as tri-chloroethylene and isopropyl alcohol in designing electronics (Electronic Industries Association of India, 2007). However,

these initiatives were few and the majority of the industries remained silent. The Indian electronic industry and industry associations felt that the Indian government did not provide any supportive role in spreading e-waste awareness among them (Electronic Industries Association of India, 2007) because they lacked knowledge about e-waste and what role the producers should play.

From 2005 on, the state units gradually began to develop interest in the issue of producer's responsibility with pressure from Toxics Link, GIZ, and Greenpeace India. The state authorities regarded that they played an advocacy role in creating awareness among consumers, such as schools and hospitals. Moreover, the state authority's interest in the issue of producer responsibility led to the publication of the e-waste guidelines in 2008 that contained EU RoHS and EPR elements. Although this was a guideline, it created interest within the industry about these issues.

As follows, three interpretive communities began to develop in a rudimentary form in this early stage of e-waste lawmaking. These include: a) GIZ, Toxics Link, and Greenpeace India; b) MAIT and the electronic industry; and c) the state units. The non-state, semi-state, and the state authorities lacked any clear conception of what producer responsibility should be. The producers were largely against the idea of bearing any responsibility of e-waste management. The state as a community was regarded as non-supportive by the industry community. However, the state community argued to have played positive roles through awareness creation and in publishing the first e-waste policy document in 2008.

E-Waste Management Guidelines (2008)

The "Guidelines for Environmentally Sound Management of E-Waste", 2008 has not been critically evaluated by the different constituencies although this was the first published

government document. They have invested more time and thought in analyzing the final e-waste law, since the law was mandatory, but the guidelines were not. The guidelines were meant to be used as "reference document for the management, handling and disposal of e-wastes. These are intended to provide guidance and broad outline" (Guidelines for Environmentally Sound Management of E-Waste, 2008: 2). The guidelines discussed what constituted e-waste; e-waste recycling technologies, such as the mechanical, chemical, and thermal recycling processes that are generally used in formal recycling plants to recover plastic and copper; the responsibility of the producer; and the available e-waste management practices globally. It did not mention what the informal e-waste sector should do. Therefore, formalization of the informal sector as a policy issue did not appear in the guidelines except that the guideline discussed how e-waste was handled inappropriately by the informal sector. By producer's responsibility, it implied that the electronic manufacturers should be accountable for their e-waste.

The non-state and the semi-state (Toxics Link, Greenpeace India, and GIZ) stakeholders, the state authorities, the newly formalizing informal operators, and the electronic industry representative MAIT agreed that the guidelines were a technical document but subtle differences existed in how they framed the issues. Moreover, the guidelines had impacted them differently. In other words, four different interpretive communities interpreted the guidelines and were influenced by it differently.

By 2008, the non-state and the semi-state community had gathered sufficient knowledge about e-waste toxicity, international legislations, and how they are recycled in other countries. These guidelines did not provide any new information to them. According to them, the CPCB guidelines described the best e-waste practices and components of international legislations, including "Extended Producer Responsibility" and "Reduction of Hazardous Substances" and

listed the hazardous constituents in e-waste. "It did not give a regulatory or policy framework" (GIZ interviewee). The guidelines did not include the procedures that the informal operators or the electronic producers should follow in order to recycle e-waste.

The lack of regulatory framework in the guidelines compelled NGOs and the GIZ to take an interventionist role in developing an e-waste law subsequently that would precisely explain producer's responsibility and the process of formalization. The state units were content with the publication of the guidelines and they took pride in stating that the guidelines were the first published e-waste policy document. For them, this publication was a major regulatory step in providing guidance for environmentally sound management of e-waste. However, the state's regulatory role did not progress beyond the publication of the guidelines. The guidelines did not have any direct effect on the newly formalizing community because it did not identify formalization as a policy issue and they were already in the process of becoming formalized. The guidelines had an educational impact on them since it generated a comprehensive knowledge about e-waste and motivated them to realize that e-waste regulation should be designed by the state units that would clearly delineate procedures for seeking formalization. The guidelines also created pressure upon the producers because it stated that the producers should take charge of their e-waste, but they were unclear as to what specific steps they should take (MAIT interviewee).

The CPCB guidelines provided a general overview of the problem of e-waste and impacted the four separate discourse communities differently and shaped their subsequent roles accordingly. The state's regulatory role was understood differently. The NGOs and the GIZ considered the state's regulatory role to be missing in the guidelines. The state units conceived the guidelines as a significant regulatory step. The newly formalizing community thought that

the guidelines demonstrated the state's failure to identify formalization as a policy issue. The industry representative MAIT realized that the guidelines lacked directions. The analysis of the guidelines highlights that the two policy issues were framed in multiple ways and so were the roles of the state by the various interpretive communities at fixed points in time. However, these framings of state roles did not reflect any state unit's structural features. Based on the different interpretations of the state's regulatory roles it was not possible to discern any state pathology or to know whether the state authorities were autonomous or embedded in the non-state, semi-state or the industry communities when they prepared the guidelines. The multiple interpretations of the guidelines by these communities shaped their roles in the following period of e-waste lawmaking considerably.

E-Waste Lawmaking Process (2008-2011)

Formalization of the informal sector

Since formalization as a policy issue was not included in the 2008 guidelines, GIZ and Toxics Link, decided to bring the issue within the fold of a regulatory framework. Greenpeace India and MAIT joined hands with GIZ and Toxics Link and together as a discourse community they realized the urgency of formalizing the unorganized sector or else they would remain legally invisible. A Toxics Link interviewee explained why formalization was necessary:

> "They don't have a face when you say informal sector. Who are they? How do they operate? He operates from behind the closed doors. He does not come under any of the rules as long as he is not registered with the government. The government has no way of monitoring what they are doing. So you will have to get yourself registered."

By this time, the size and the composition of the original interpretive community comprising Toxics Link and GIZ that framed formalization differently in the early state of lawmaking (2003-2008) changed. The state units started to cooperate with this community by attending meetings that were organized by them. The state community entrusted the task of

drafting the new e-waste law to this non-state and semi-state community. In order to ensure that the informal operators receive legal recognition, the non-state and semi-state community incorporated formalization as a component in the draft e-waste law in 2009. Formalization, according to them, would provide the informal operators with formal authority and job security to engage in the business of e-waste collection and separation that is non-hazardous. The community argued that incorporating formalization in the draft law was a task that they prepared on behalf of the state units. Additionally, the community also provided training to HRA and Chintan to support improvement of their work.

A tension between autonomy and embeddedness was created during this time. State units' engagement with this community made them informed about the informal sector which embedded the state in a particularistic manner only in this community but not with the larger informal sector. But, the NGOs and the GIZ opined that the state authorities became autonomous when the draft law was placed before them in 2009. They composed a committee that was reluctant to incorporate feedback from the NGOs and the GIZ. The committee members were internally coherent in not seeking external feedback. Internal coherence provides autonomy to the states (Evans, 1995; 1989; Rueschemeyer and Evans, 1985). On a different note, the state community argued that once the draft was placed before them, meetings were organized by them on a regular basis to obtain feedback from the non-state and the partial-state stakeholders. The e-waste cell of DPCC continued to remain active in creating workshops and awareness programs. State units' interpretation of their roles shows that they continued to be embedded in the non-state and partial-state community. However, state autonomy could not be discerned from the state's depiction of their functions during this time.

In 2010, Chintan and HRA applied for the abnormally long and tedious authorization process from DPCC that eventually dampened the enthusiasm that they had gained from the non-state and the semi-state community signaling that the state's regulatory functions of granting authorization was not efficient. The unpleasant experiences that the newly formalizing community underwent made them conceive formalization as a long and tedious process. During this time, they continued to pay rent on the plot that they leased for storing e-waste without their having a functioning business. HRA obtained 'consent to establish' after one year and they were yet to obtain the 'consent to operate' without which they could not begin e-waste collection and storage. An HRA member explained how their process of securing authorization from DPCC was delayed:

> "Sometimes files used to get stuck somewhere, sometimes officers got transferred, sometimes officers retired. Only 3 to 4 officers were involved in giving this license. We started this in 2010. The government did not agree to give the 'consent to establish'. It took a lot of time."

State pathologies caused by frequent job transfers, delays in executing tasks and shortages of manpower prolonged the authorization process. These state units' pathologies mirror the 20th century Indian state pathologies as identified by the developmental statists (Evans, 1995: Rajan, 1997; Pingle, 1999). Realizing the importance of formalization, Chintan and HRA began to motivate other informal operators to initiate the formalizing process with the hope that the state officials might accelerate the authorization process if the size of applicants is increased.

Producer Responsibility

The publication of the e-waste guidelines also influenced several electronic producers to consent in preparing a new e-waste law similar to WEEE legislations that would enable them to be globally competitive. This is because in Europe, the WEEE legislations required them to reduce toxins (RoHS) and establish take-back systems (EPR) and most companies

(multinationals and Indian) made products for the European market. The NGOs and the GIZ maintained a sustained engagement with MAIT and the industry by organizing conferences and workshops. The continued efforts of Greenpeace India in convincing brands, including Wipro, Apple, and HP to phase out toxics brought them on board as well. As a result, MAIT joined the interpretive community comprising GIZ, Toxics Link, and Greenpeace India. GIZ explained why MAIT acceded in having new e-waste law: "MAIT realizes this as an interesting business proposition to get involved in e-waste because they got funding from the EU as well as the German government to do activities related to e-waste". Together as an interpretive community they decided to incorporate producer's responsibility into a regulatory framework by borrowing the RoHS and EPR components of the EU legislations. Since they believed that the state units were largely inactive, they assumed the role of drafting the producer responsibility component in the draft law. According to them, the state's regulatory role was limited to finalizing the e-waste law and in ratifying it. When the draft law was placed before the state units, they formed a committee and assumed an autonomous role. The state authorities did not entertain feedback from this community and finalized the law independently. Contrarily, the state community claimed to have invited MAIT and industry feedback. The state units' interpretation shows that the state units were embedded in the industrial sector which increased the flow of information between them.

The analysis of the lawmaking process helps to arrive at some major findings. First, the framing of each issue has changed within a single community and so has the character of the community's involvement with the topic. Each community has assigned roles to the state in relation to theirs. The state was assigned negative roles when it was inactive and positive roles when it was active. For instance, from 2003-2008, GIZ and Toxics Link, in terms of framing

formalization, viewed that the state units were inactive and performed a non-cooperative role. However, the state units from 2004-2008 in framing the same issue considered themselves to have been active and to have performed advocacy and reformative roles. The analysis additionally demonstrates the roles of the newly formalizing and the non-state and semi-state communities. For instance, Greenpeace India performed an interventionist role in motivating the producers to phase out toxics.

Second, these state roles or the sub-regulatory roles have been my coinage. Developmental state scholars generally do not examine state's regulatory role in depth. The presence of positive and negative roles of the state in this study highlights that the state's regulatory role can be performed in numerous ways at different periods in the lawmaking process. Moreover, statists do not analyze state roles through the lens of other key constituencies. Following Yanow's interpretive policy analytic approach, this analysis emphasizes that instead of arriving at singular interpretations of what the state has done and not done, it is important to examine state's functions from the perspective of different interpretive communities including the state. Hence, the roles of the non-state, semi-state, and the newly formalizing communities have been my coinages as well.

Third, the analysis demonstrates that the size and composition of the interpretive communities have not only been different with regard the two policy issues, but they have changed over time with respect to a particular issue. For instance, in 2003, Toxics Link and GIZ were interested in understanding how the informal sector handles e-waste and they framed formalization on the basis of the knowledge gained about them. At that time, Greenpeace India was more focused on convincing the producers to re-design their products. MAIT was a part of the electronic industry and was a separate community. However, from 2008 onward, Greenpeace

India and MAIT arrived at agreements about having e-waste regulations and they aligned with GIZ and Toxics Link. Since then, this group of stakeholders has shared similarities in framing the issue of formalization and represented a single interpretive community. Here, the size of the community grew as new members (Greenpeace India and MAIT) joined Toxics Link and GIZ suggesting that as the concept of the policy issue matured, the form of the community also changed.

Fourth, in the lawmaking process, different communities became involved in framing a policy issue at different stages of the process. For instance, Greenpeace India, Toxics Link, and GIZ were engaged in framing producer's responsibility since 2003, but MAIT became involved with the issue much later.

Fifth, state roles reflected some aspects of the state's structure. The state was found to be embedded, partially embedded, and at times not-embedded in either the informal or the electronic industries. Also frequent job transfers, delays in executing task, and shortages of manpower as pathologies came to the forefront at different points in time. Based on the framings of the non-state and partial-state community of both the policy issues, state autonomy was revealed as a feature when the state independently finalized the e-waste law. The other structural features, such as state power, capacity, and moral ambition could not be observed.

A temporal analysis of the lawmaking procedure underscores the fluidity of framing of policy artifacts, composition of a specific community, and the relative depiction of roles. The salient structural features of the state units that become obvious through the assignment of the state's roles by each community have changed as well.

Analysis of the E-Waste Law (2011)

The above-mentioned process culminated in the publication of the e-waste law in 2011 that included formalization and producer responsibility. The various interpretive communities framed these two aspects of the law in disparate ways and assigned roles to themselves and to the state accordingly.

Formalization of the Informal Sector

The issue of formalization has been framed differently by three distinct 'interpretive communities'. These include: a) the non-state (Toxics Link, Greenpeace India and MAIT) and semi-state (GIZ) community; b) the state units; and c) the newly formalizing operators in Delhi.

Members of the non-state and the partial-state community explained in interviews that formalizing called for in the e-waste law fell short of their expectations. The community framed the law as a way to "shift the whole material i.e., e-waste from the informal to the formal sector" (Toxics Link, interviewee). In other words, they perceived the law as "making the informal sector less legitimate and the formal sector more legitimate and shifting the relationship in favor of the formal sector" (Toxics Link, interviewee). According to this framing, the state's regulatory role was discriminatory and non-recognitional that made the state authorities non-interventionist. The state authorities intended to regulate the informal sector, but they were bent toward the formal without recognizing the potential and the limitations of the informal sector. The state regulatory authorities over-simplified the issue of formalization and overlooked the complexities involved in the transformation from informal to formal. The non-state and the semi-state community argued that non-intervention was due to lack of engagement of the state authorities with the informal sector.

Non-intervention of the state authorities has taken several forms. First, the law did not have any clause that listed the ways of identifying corrective measures in integrating the informal operators into the formal sector (GIZ interviewee; MAIT interviewee). Second, there has been under-utilization of state resources. Bringing the informal sector into the fold of the formal requires capital investment. For instance, a Toxics Link interviewee explained that educating the informal sector about the e-waste hazard requires long-term study that demonstrates the health effects of e-waste toxicity. The state pollution control boards should conduct such studies since they have the resources to do so. But there has not been any such initiative. In the absence of which, informal activities will continue to prevail. Third, the law did not state what regulatory measures should be taken if the informal operators fail to seek formalization (Greenpeace India interviewee). This leaves the implementing authorities (state pollution control boards) unguided and provides scope for the informal dealers to escape formalization. Non-engagement of the state units with the informal sector prevented flow of information about the sector. Here, the state unit's lack of engagement and absence of information produces a lack of embeddedness within the sector. Further, the state authorities delayed the process of granting authorization to those who applied. The non-state and semi-state community was apprehensive as to the extent to which the informal sector could be formalized and how much monitoring could be performed by the state authorities. They realized that making formalization mandatory would not be enough. To that extent the state's regulatory role was partial. A GIZ interviewee expressed apprehension as to how much formalization can be attained:

> "Now the point is how you do monitor 50,000 people who still recycle e-waste in an informal way in the city? … What will DPCC do about it so that they do not have to shut their shops? But then these guys will emerge again and they will open their shops somewhere else. So, what we are constantly saying is that there is a difference between saying that ok now that we have the law people will automatically formalize. That is not going to happen… If you want to exist in the eye of the regulator then you will have to

> formalize. Before the law came in you were not in the eye of the law. When the law comes in, there is the possibility that you still don't care … and you still exist as a risk taking entrepreneur and you say that I will see if the government in Delhi wants to shut me down then they will have to come down to Shastri Park and shut my unit down."

On the contrary, the NGOs and the GIZ community continued to perceive formalization as necessary and at the same time, they realized that the informal sector had enormous potential (they were well-connected and skilled to perform non-hazardous e-waste related activities) and limitations (lack of awareness of e-waste hazards and lack of finances to apply for authorization). The community argued that the informal e-waste sector's "livelihood issue needs new assertion from the ground" (Toxics Link interviewee) and there has to be planned intervention to tap their potential and overcome limitations. This community (specifically Toxics Link and GIZ) continued to play an interventionist and reformative role in educating the informal operators about the e-waste hazards, incentivizing and organizing them to form groups, and gradually preparing them to become formal participants. Prolonged engagement of this interpretive community with the informal operators has deeply informed them about the length and breadth of the issue. Information about the informal sector has empowered the community vis-à-vis the state authorities to exercise agency in the transformation process. A GIZ interviewee summarized the work that they were doing:

> "we ask them how to present their work, how to bring the best of the whole thing, how to make the application, what are the requirements that they have to fulfill. And we also give them business ideas… we sit with them to know what is the total quantity, what are the parameters, how much they can invest, what is the financial situation. Once all the inputs are gathered from these people, a business model is prepared for them such that they can put up their plants. So this is how they are graduating from informal to formalized-informal sector."

However, the NGOs and the GIZ regard that performing the role of a reformer was a tremendous task and they lacked adequate resources.

The state units' structural feature that comes to surface from this framing is that the state authorities were not embedded in the informal sector. The connection between state roles as being non-interventionist, discriminatory, and non-recognitional and structural feature of lack of embededness is that lack of engagement leaves the state authorities uninformed about the sector; as a result, they lack embededness in them.

The interpretive community comprised of the state authorities (MoEF, CPCB and DPCC) considered that with the ratification of the law, formalization became binding upon the informal sector. This community wanted to ensure that the "e-waste gets out of the city and the city [is] clean" (DPCC interviewee). Their role was to inspect that the formal collectors filed authorization and submitted annual reports (DPCC officer). The state authorities framed their regulatory role as being both restrictive and promotional (these two roles have been previously identified by Evans, 1995, see chapter 3) in the sense that they intended to control the informal e-waste sector and promote the growth of the formal sector. The state authorities attempted to demonstrate that they knew exactly what their responsibilities were, how to execute them, and they were equipped to do so. The implementing authorities argued "there is not much to see" (DPCC interviewee). In other words, even though there were few officers in the DPCC, monitoring of the formalization process could be done effectively since the workload was manageable. Further, under the supervision of the state pollution control boards, were the district-level and regional-level offices who could police the authorization process at a much smaller scale. Additionally, the pollution control boards at the state, district or regional-level could increase their manpower as the need presented itself. However, the state regulatory community also acknowledged that formalization will not take place at once. A CPCB officer said that "since it has been their business for thirty years suddenly one law cannot change the

livelihood of around 100, 000 people. But they will become formal". When the law was published, a new e-waste cell was created consisting of only a small number of new officers who were in charge of registering the informal operators. Although not specified in the law, DPCC and CPCB officers opined that if needed they would forcefully close the informal units signaling that the state authorities did not intend to confine their actions to granting authorization to those who were willing to formalize; and policing the post-formalization process, but would become interventionist by forcefully compelling the informal operators to apply for authorization.

It can be inferred that the state was not fully informed about the character of the informal sector. They considered that the sector could be tamed by the use of force if necessary and were reluctant to resort to any cooperative measures which imply that they were only partially embedded in the informal e-waste sector. To be embedded in the proper manner in a societal sector, the state has to be fully knowledgeable about the sector (Evans, 1989, 1995; Pemple, 1999) which was missing in this specific relationship. The state's roles as being restrictive, promotional, and interventionist and at the same time lacking clarity about ways to enhance the formalization process made the state partially embedded. Furthermore, it is evident that the DPCC's e-waste cell in-charge of implementation was short of manpower. Shortage of state officials has been identified as pathology of the Indian state apparatus by developmental statists (Rajan, 1997). There was no specific role that reflected state pathology, but the state admitted as they framed the formalization issue.

The third community–the newly formalizing group had very different perspectives from that of the state authorities. This discourse community consists of Chintan and Hareet Recycling Welfare Association (HRA). Being very critical about the formalization aspect of the e-waste law, the community felt that the informal sector had been depicted as "villains" in the law:

> "they are people who are in this desperate resilient position. They are clinging on to what they have, using the skills they have and they are living in underprivileged, marginal areas where they have very poor access to infrastructure, and then they are handling this e-waste. So there is complete brutal stigmatization, making the informal sector into villains" (Chintan interviewee)

According to them, the law demonstrated state's inactivity first, in providing incentives to the informal operators to formalize. An HRA operator said:

> "The law has not been made to benefit the public. It looks that the law asks the informal sector to fight [for themselves]…There is a big gap between the state policy and the public needs."

Second, the state has been inactive in providing funds in organizing the informal sector. They regard that funding is essential to motivate and organize the informal dealers, in the absence of which, they would continue to operate informally. A concerned Chintan interviewee explained this situation as:

> "I really feel that who is going to fund the informal sector. If you don't put in money for formalizing it will continue happening informally. And it will move from Delhi if the Delhi government gets tough to UP and from there if UP government gets tough to somewhere else."

The community argued that insufficiency of manpower and delays in the authorization process would lead to inefficiency in implementation. They believed that "it is not possible for DPCC to shut the shops of the *kabadiwalas*" (HRA operator) since they are very large in number and DPCC has very few staff members. In recognizing these bottlenecks, this community continued to perform an advocacy role, on behalf of the state. The two associations exercised agency by distributing information about e-waste hazards and the need for formalization. For instance, Chintan created awareness, assisted informal operators to form association individually or to collaborate with them. This role of Chintan is expressed in the words of one of its employees:

> "Our goal is to generate awareness… We meet them and convince them about the law, and what they can do … If they want to form association with those who have already taken the consent then also it is good… See, we have to increase our network. It is not

> necessary for every individual to take authorization individually. They can take help of NGOs like us. So, we can engage them in our collection unit… We keep on making the fliers, and keep on meeting them."

Similarly, HRA organized meetings with other informal operators. They claimed to have played a role in whistle blowing, gaining media attention, and in setting examples that inspired others to follow. They viewed themselves as pioneers in the process of obtaining formalization and in bringing new players into the formal e-waste market. Here as well, the state lacked embedded in the informal e-waste sector. The state did not cooperate with them to seek formalization, nor did the state provide financial assistance in speeding up the process.

The interpretations of formalization by the three discourse communities reflect two striking structural features of the state units. These features include a) both partial embeddedness and non-embeddedness of the state in the informal sector and b) state pathologies such as shortages of manpower and frequent job transfers. The state's regulatory roles that reflected these structural elements have been framed differently by the various communities in relation to their roles. For the non-state and semi-state units, the state was discriminatory, non-recognitional and non-interventionist, which reflected lack of embeddedness. This community performed interventionist and reformative roles. The state units regarded their role as restrictive, promotional and interventionist which made them partially embedded in the informal sector. The newly formalizing community perceived the state role as non-interventionist and highly exploitative of the informal sector, which caused the state to lack embeddedness but the formalizing sector played the role of advocacy. Finally, the non-interventionist role of the state was partly due state pathologies including shortages of manpower and frequent job transfers.

In the 20th century Indian state-industry relationship, the Indian state has been viewed as being embedded in the industrial sector in a particulatistic manner (Herring, 1999). To a certain

extent the Indian state unit's partial embeddedness with the informal e-waste sector is similar to the 20th century Indian state's embeddedness with the industrial sector. But at the same time, the Indian state is depicted as being non-embedded which fails to match the kind of embeddedness that the Indian state demonstrated with the industries. In the 21st century the Indian state is ought to develop bottom-up embeddedness with the larger society (Evans, 2008, 2010, 2011, 2014). This sort of embeddedness is completely absent in the above portrayal of state units' connection with the informal sector.

Producer Responsibility

Producer responsibility was framed differently by two interpretive communities in the law. These included a) semi-state (GIZ), non-state (Toxics Link, MAIT, and Greenpeace India) actors; and b) the state authorities (MoEF, CPCB, and DPCC). The non-state and the partial-state interpretive community viewed producer responsibility as having two components – a) 'Extended Producer Responsibility' or (EPR), and b) 'Reduction of Hazardous Substances' or RoHS in the e-waste law. For them, the state authorities have performed a regulatory role that accommodated the needs of the electronic industries. The state gave a range of flexibilities to the producers of electronic equipment. The electronic manufacturers could establish take-back systems either individually or collectively with other producers, or they could sell their e-waste to formal collection centers. A GIZ interviewee explained how excessive flexibility could be exploited by the producer as follows:

> "Now the law says that every producer should setup a take-back system and finance it. There are producers who actually said this to me that we already have a take-back system. So, why do we need to do anything? We have a website where consumers can check where to drop their waste. But you know very well that sort of thing is not going to have any sort of impact in a market like India where the informal sector is going to take the waste away. So, they will always out compete you. The producer response is that well I can't snatch the product away from the consumer they have to be willing to give it away. And that kind of a response kind of leaves me cold. Because then you are not

> really interested in dealing with the waste. You are just saying that well if you want me to set up a take-back system well I will set it up. I have it everywhere."

The regulatory role also has been non-interventionist in terms of a) not financing the take-back system, b) not enumerating incentives in the law that producers might follow in order to set-up collection system, and c) not establishing e-waste collection targets. Moreover, the task of incentivizing the consumers was bestowed upon the producers in the e-waste law. This discourse community regarded that:

> "it is a good move to let the brands decide what they want to do, but letting it too loose is not really proper. You don't even have a target … that you are required to have a collection system in every 1000 kilometers. Or, maybe you have to have 100 collection systems or may be a city which has a population of more than five lakhs, you have to have a collection system. You have to have certain things otherwise the producers can get away with anything and everything" (Toxics Link, interviewee)

Lack of intervention in the electronic industries reflected the state's lack of embeddedness in the sector. The members of this interpretive community have been proactive in influencing the producers to establish collection targets since in its absence a producer might establish a token EPR, but in practice fail to access the consumers and keep the system operational (Greenpeace India interviewee).

With respect to the issue of RoHS in the e-waste law, the non-state and the partial state community argued that the state authorities included the permissible limits of hazardous components in e-waste as prescribed by the EU WEEE Directives. They viewed that the international producers who were bound to follow the permissible limits in the WEEE Directives would continue to follow them, but were skeptical as to whether the national or local manufacturers would comply with the law. In this regard, Greenpeace India continued to perform the pioneer role in securing commitment from some of the national brands to remove toxics. The

non-state and the partial-state community additionally argued that state had not stated any measures as to how the electronic manufacturers could be required to follow the law.

The above portrayal of the state's regulatory roles demonstrates the state's lack of embeddedness in the electronic industries. On the contrary, the Indian developmental state was far more stringent and interventionist and therefore embedded in the 20th century in regulating the industrial sector (Evans, 1995; Bardhan, 1984; Herring, 1999) and statists (Evan, 2008, 2010, 2011, 2014; Nayar, 2009) argue that the state continue to remain interventionist and embedded within the industrial sector in the 21st century as well.

On the other end of the spectrum, the state authorities framed producer responsibility as being very categorical in the law. The responsibilities of the producers had been specified in the e-waste law and the producers had great responsibility in ensuring that they take-back their own e-waste. The producers should finance the take-back systems since they make significant profit from the entire process. To that extent, the state authorities preferred not to intervene in the electronic industries. A DPCC officer who was arguing as to what the role of the producer ought to be explained:

> "The producers have a very important role. And it is yet to see the extent to which they do that. The system has to be very transparent. They should clearly mention the price that they are going to pay to the consumers and it should be more compared to the amount that is being offered by the informal recyclers. That is the initiative that the producers will have to take."

The state authorities viewed that their regulatory function was, however, interventionist for multiple reasons. First, the hazardous elements that need to be removed have been listed in the law. Second, the law provided two years (2012-2014) for the industries to prepare themselves so that they could abide by the prescribed concentration limits. Finally, the state authorities extended their regulatory function toward conducting innovative research. The CPCB officials

actively upgraded their laboratories in order to effectively implement RoHS. The Department of Technology's laboratory, a government sponsored laboratory, in collaboration with the electronic manufacturing industries worked toward reducing hazardous components in the design of electronics. The state community was optimistic that with the improvement of the existing facilities and with collaborative research it would be possible to implement the RoHS element of the law successfully.

The state's structural features as reflected in the framing of producer responsibility by the state community include both lack of embeddedness and embeddedness in the electronic manufacturers. This community refused to intervene in establishing the take-back system and in exploring ways of implementing them in a collaborative manner indicating state's non-embeddedness with the industries. On the other side, the CPCB and the Department of Technology actively collaborated with the industries in upgrading their technologies and in eliminating hazards from the electronics. To that extent, the state units were embedded within the industry.

The interpretation of producer's responsibility by the above-mentioned communities reflects that state roles were defined differently. From the perspective of the NGOs and the GIZ, the state's regulatory role was accommodating of the industries and non-interventionist, necessitating proactive role for the NGOs and the GIZ. The view from this interpretive community suggests that the state was not embedded in the electronic industries. By contrast, members of the state apparatus, as an interpretive community, viewed their roles to have extended beyond incorporating producer responsibility in the law to being innovative in conducting collaborative research. Hence, in their view, the state units were interventionist and embedded in the electronic industries. However, they simultaneously believed in giving a range

of flexibilities to the industries in establishing collection targets and in incentivizing the consumers. These stances demonstrate a degree of non-intervention or non-embeddedness within the producers.

In total, the analysis of the e-waste law has expressed multiple interpretations of the Indian state's roles or sub-regulatory at fixed points in time. The state's structural features that could be closely inferred from the roles differed as well. In the view of the NGOs and the GIZ, the sub-regulatory roles of the state include discriminatory, non-recognitional, non-interventionist, accommodating of the industry needs, partial regulatory, and both non-cooperative and cooperative roles. By contrast, the members of the state community believed to have performed restrictive, promotional, interventionist, reformative, research-oriented, and advocacy roles. The formalizing community perceived the state to have played non-supportive and exploitative roles.

Some of these state roles have been previously identified by developmental state scholars. Statists concur that developmental states have played an interventionist role not only in framing and enforcing industrial regulations but at all stages of economic development, such as in establishing industries and in making industries competitive. Evans (1995) identified two sub-regulatory roles (although he did not use the word sub-regulatory): restrictive and promotional to explain how states, through industrial rule-making and implementation, could restrict the growth of some industries and promote the growth of others. The rest of the state roles enlisted above have been coined by me. These new sub-regulatory roles add to the list of already existing state roles in the developmental state literature. These new state roles highlight that a state's broader role of lawmaking can be performed and perceived by different interpretive communities in various ways.

As mentioned earlier, developmental statists have not examined state roles in relation to that of other relevant constituencies. For instance, Evans (1995) discussed different kinds of state roles without explaining how those roles were derived or whose interpretation produced certain kinds of roles. In my analysis of the law, the non-state and the semi-state community played supportive, interventionist, reformative, proactive, and pioneer roles. The newly formalizing community performed advocacy and pioneer roles as they defined the roles of the state apparatus. Here as well, I have named these roles. These new roles of the non-state, semi-state, and the formalizing communities show that the state roles are not performed in isolation, but in association with that the other concerned interpretive communities. Comparing state roles with that of the other interpretive communities enables a clear understanding of how the roles of both the state and the rest of the communities emerged.

I also make a distinction between positive and negative roles that reflected state action and inaction respectively. Statists have not given adequate attention to the negative roles of the state since they view the state to be constantly active. In this state-e-waste sector relationship, the state was both active and inactive. Non-cooperative, non-supportive, and non-interventionist roles were assigned to the state authorities by the other communities particularly when the state was inactive.

Further, I have drawn a connection between the state's roles and its structural characteristics wherever such could be closely discerned. Overall, the structural characteristics that stood out from the above analysis of the law were non-embeddedness in the informal sector, both non-embeddedness and embeddedness in the electronic industries and state pathologies, including shortages of manpower and frequent job transfers. It was not possible to discern other structural features that were identified by statists in the 20th century state-industry relationship,

such as state power (Loriaux, 1999; Jessop 1990), capacity (Evans, 1985; Herring, 1999), autonomy (Evans, 1995, 1989; Rueschemeyer and Evans, 1985; Jessop 1990; Skocpol, 1985; Rajan 1997; Jayal 1999), and moral ambition (Woo-Cumings, 1999; Loriaux, 1999).

Finally, developmental statists have focused on arriving at general and objective portrayal of state roles and structure in their study of state-industry relationship. My analysis demonstrates that state's structural character was perceived differently by varying groups at fixed points in time (in the law) which signals that the framing of policy issues and state roles and the structural characteristics are subjective, plural, and fluid. Therefore, a singular, universal depiction of state features is not feasible.

Conclusion

This interpretive e-waste policy analysis addresses both methodological and conceptual gaps in the developmental state literature and the law and development literature.

Methodologically, through interpretive policy analysis and narrative (thematic and structural) analysis, this study highlights the importance of analyzing the various constituencies' perceptions of the policy artifacts who are directly or indirectly related to it. Through a careful deconstruction of the narrations of the policy documents and the lawmaking process, I was able to examine how the policy artifacts were framed by the different interpretive communities. Yanow (2000: 5) argues that interpretive analysis is "based on the presupposition that we live in a social world characterized by the possibilities of multiple interpretations" and it requires "us to treat such differences as different ways of seeing, understanding, and doing, based on different prior experiences. This does not mean that all possible positions are necessarily "right," but it does call on the analyst … to accord different views and their underlying feelings serious respect" (Yanow, 2000: 8). In this study, the views of the different constituencies and their

assignment of state roles were crucially important because as Yanow (2000: 11) argues the purpose of the interpretive policy analyst is to present the contending views of the various constituencies and to create an architecture of meaning. This analysis confirms Yanow's (2000:11) assertion that interpretive policy analysis explains how contesting views of policy artifacts are produced differently by different communities instead of providing a "single correct formulation of a policy statement". Thus far, developmental statists have provided singular interpretations of state roles and structure without delving into the intricacies of how those roles originate and are contested among the various constituencies. This study through the use of interpretive policy analytic approach underscores how multiple interpretations of state roles and structure can co-exist across interpretive communities at fixed time and within a single community over time and illuminates the importance of recognizing those differences.

Through the use of interpretive policy analysis approach, the study also contributes to the law and development scholarship which fails to explain how methodologically scholars establish the connection between law and state structure or how state structure is reflected in the law. By using 'framing'; as a 'noun' and as a 'verb', this study has shown how in the e-waste law and in the lawmaking process, policy artifacts and state roles are perceived differently which reflect only certain elements of state structure. The structural features of the state that are reflected in the law and the lawmaking process are not fixed and vary across and within communities.

Conceptually, this study extends the law and development studies into the new realm of the Indian state's relationship with the e-waste law and the lawmaking process. Additionally, the study extends the realm of the 20^{th} and the 21^{st} developmental state theory by examining a unique state-society relationship in which state involvement is not given. State inaction was a salient feature of the Indian state-e-waste sector relationship. It has been found that when the

state was inactive, negative roles were assigned and vise-versa. I analyzed state roles in relation to the roles of the other interpretive communities that assigned such to the state. I coined new roles of both the state and other discourse communities. This process provides clarity in understanding how both roles come into being. Also, when the state was inactive, it largely reflected non-embeddedness and sometimes certain pathologies. During active stages, the state was regarded as sometimes being embedded or being embedded in a particularistic manner in the informal or in the electronic industrial sector. Pathologies were also revealed at times. Moreover, state autonomy was identified as a structural feature by the NGOs and the GIZ when the draft e-waste law was placed before the state authorities. The other structural features, including state capacity, power, and moral ambition could not be discerned from the state roles. Also, 21st century developmental state's structure of having broad-based embeddedness with the larger society (Evans, 2008, 2011, 2014) was not reflected in this analysis.

I draw a connection between framing of policy artifact, state roles, and state structure more explicitly in the e-waste law and the e-waste lawmaking process. This connection, however, could not be drawn clearly in the e-waste guidelines of 2008 since the policy artifacts in the guidelines were only vaguely raised. By concentrating only on e-waste regulation, a specific aspect of the relationship, the study has shown how the framing of the policy artifacts, patterns of state involvement and non-involvement, and the regulatory role of the state in association with the roles of other communities take shape disparately. Similarly, the structural characteristics that can be closely inferred from the examination of roles change significantly across communities and within a single community. The study thereby, highlights the fluidity and plurality of the state's roles and its structural elements and refutes the possibility of arriving at objective and universal conclusions about the overall character of India's developmental state.

In the following analysis chapter, I examine how the different interpretive communities through their performance of roles perceive different notions of environmental justices in the lawmaking process and how their ideas of EJ find reflection in the final e-waste law. I finally, discuss what effects the new e-waste law is likely to have on the reproduction of environmental injustices in the e-waste sector.

CHAPTER 6

THE IMPACT OF THE STATE & THE E-WASTE SECTOR'S ROLES ON THE REPRODUCTION OF ENVIRONMENTAL INJUSTICES

Introduction

In the preceding chapter, I analyzed the roles of the state units, as an interpretive community, in comparison to the roles of the other interpretive communities in the electronic waste regulatory procedure. Through the use of interpretive policy analysis, I was able to explain how the different communities of meaning framed the two policy issues i.e., formalization of the informal sector and producer responsibility, and assigned roles to the state and to themselves. This chapter builds on the findings of the previous chapter and examines three research questions. A) How, if at all, do ideas of environmental justice, in terms of distribution, recognition, and participation, find reflection in the performance of the roles of the different communities during the policy framing process with respect to the two policy issues that led to the publication of the law? B) How, if at all, do ideas of environmental justice finally get incorporated in the policy issues of the e-waste law? C) What impact the new e-waste law is likely to have on the reproduction of environmental injustices in the e-waste sector? A temporal analysis of the policymaking process (2003-2011) explains what EJ ideas are endorsed by the various communities and how the ideas have evolved as the composition, framing of the policy issues, and the roles of the communities changed. Such an analysis helps to trace how ideas of EJ emerged within and across communities.

I analyze the EJ visions of the interpretive communities (classified in chapter 5) and that of the informal operators and workers. It is important to mention here that while conducting interpretive policy analysis, I identified only those interpretive communities who were directly or indirectly engaged in lawmaking (see Chapter 5). I did not investigate how the informal operators and workers framed the policy artifacts as an interpretive community since they did not participate in the law-framing process in any form. Informal operators include those who engage in the e-waste recycling business without being formally registered by the state pollution control boards. The informal workers include mostly children and women who are employed by the informal operators in the e-waste recycling activities. The informal operators and the workers constitute the informal sector or the unorganized e-waste sector. In this chapter, I examine in addition to the communities identified earlier (in chapter 5) what, if at all, has been the vision of environmental justice of the informal e-waste sector and how their ideas have emerged in terms of distribution, recognition, and participation, because they have been historically impacted by environmental injustices and the outcomes of the e-waste law will have a direct effect on them. The newly formalizing group (see chapter 5) constitute a minor segment of the affected community since they previously belonged to the unorganized sector and are yet to graduate into the formal one.

I investigate the multiple ideas of environmental justice and their evolution in terms of Schlosberg's (2004, 2007) trivalent conception of justice – distribution, recognition, and participation. Additionally, Schlosberg (2012, 2013) and Schlosberg and Carruthers (2010) argue that the trivalent notions are intricately linked and that distributive justice cannot be attained without achieving recognition and participative justice of the affected parties. Following the works of Schlosberg, and Schlosberg and Carruthers, I examine how the pluralist ideas are

interconnected and how they are likely to influence the reconstruction of environmental injustices.

Whyte (2011) builds on Schlosberg's formulation and explains what the standard of distributive, recognition, and participative justices should be in policy-relevant arenas. Additionally, Whyte builds a case for recognition justice and argues that the standards of distributive and participative justice cannot be achieved in policies without recognizing the affected communities. To understand whether the affected communities (this includes the informal operators and workers and the newly formalizing group) have received recognition by the state and have been allowed to participate in the decision-making processes, I follow Whyte's (2011) idea of recognition justice, and examine what the vision of EJ of the affected groups are; how their ideas have come into being; and to what extent, if at all, they have being included in the e-waste policy framework.

Methodologically, I deploy a form of discourse analysis that incorporates both constructivist and critical discourse analysis. Discourse analysis enabled me to understand how the EJ concepts were constructed differently by the numerous communities and what forces shaped the construction of those ideas. Here, I examine primarily the local context that has shaped the production of the discourses of the various communities. I draw a connection between the pursuance of roles and the EJ ideas that are constructed through them. I do not focus on how the broader societal factors and relations have influenced the EJ visions of the communities. Doing so would entail understanding how the larger forces, such as the European funding sources (German and Swiss government organizations) have shaped the EJ visions of the e-waste policy-relevant groups in India such as the GIZ, Toxic Links, and Greenpeace. Such analysis is beyond the scope of this study. Discourse analysis also enabled me to examine what discourses

get privileged in the e-waste law and how that influences the reproduction of environmental injustices of distribution, recognition, and participation. I used interview transcriptions, field notes, archival documents including the draft e-waste law (2009 and 2010), the final e-waste law (2011), and the comments of the stakeholders to the publication of the 2010 draft law to analyze the multiple EJ discourses and their effects on the reproduction of environmental injustices.

I divide this analysis chapter into three sections. In the first section, I examine what the discourses of environmental justice have been in terms of distribution, recognition, and participation, how they have emerged as the roles of the interpretive communities changed, and what has been their standard as set by the various communities. In the second section, I analyze which among those discourses get invoked in the e-waste law, and the extent to which the law represents the views of the affected communities. Finally, I close by discussing how invocation of certain discourses in the law would influence the reproduction of environmental injustices in the e-waste sector.

Ideas of Environmental Justice

In this analytic section, I explain how distributive, recognition, and participative dimensions of justice emerged in the context of e-waste regulation and factors that shaped it during lawmaking that led to the publication of the first e-waste law among the different interpretive communities with respect to the issues of formalization and producer responsibility.

Distribution

From 2003 on, studies on the status of e-waste in India were conducted by Toxics Link and GIZ. These organizations increasingly realized that the informal e-waste sector was disproportionately burdened with toxic e-waste. Through the studies, these organizations learnt that mal-distribution of e-waste was caused by increased generation of e-waste, an aftermath of

excessive production and consumption of electronic items. India's integration with the globalized economy in the 1990s, the rapid growth of the electronic sector, and the rise of the Indian middle class contributed toward accelerated production and consumption of electronic goods. The rising middle class reaped the benefit of the expanding electronic industry, and the disadvantaged informal dealers and workers carried the burden of recycling harmful e-waste. It was at this time, that the desire to lessen the harmful effects of e-waste on the affected parties began to germinate among Toxics Link and GIZ. This vision of distributive justice is expressed by a Toxics Link interviewee as:

> "it is the people above a certain socio-economic background [in India] who can afford to use electronic products and produce waste. And it is the most marginalized poor who have no other livelihood opportunity deal with the e-waste … we are talking about the need to create a much better world for all these poor people."

They felt that the informal e-waste sector was unreasonably burdened with hazardous e-waste that was detrimental to their health and the physical environment. The concern for the health and wellbeing of the unorganized sector was expressed in the words of another Toxics Link interviewee:

> "The impact of this whole process on the people who are engaged here, their health and the environment at large, how we deal with them and protect the livelihood of these people who are the urban poor were important concerns for us. So, this is an issue of urban poverty, livelihood and waste. They got interlinked and it is important to understand that when we are dealing with these, how do we find a mechanism that we still use this resource, but also try and reduce their impacts on the environment and health?"

However, they were indecisive as to what measures should be taken to achieve distributive justice. From 2005 on, Toxics link and GIZ played an advocacy role by organizing several meetings to spread their idea of improving the conditions of the informal sector. Greenpeace India and MAIT joined hands with Toxics Link and GIZ. Together as an interpretive community,

they came to an agreement that exposure to hazards could be reduced in the informal recycling centers if the sector is formalized. This vision was expressed by a Toxics Link interviewee:

> "our proposal [was] that the hazard should be taken out of their work [and simultaneously] opportunities should be created in the stream… [The informal operators] will have a role in the collection and separation [of e-waste] which is not a hazardous procedure and requires some training. And the hazardous part that requires capital injection should to be done by a different set of players."

This interpretive community realized the need for a regulatory framework that would authorize currently informal operators to manage only the non-hazardous aspect of e-waste recycling including collection, storage, and segregation of e-waste. The community felt that the hazardous component i.e., dismantling and recycling of e-waste should be conducted by registered formal recycling centers. The inclination of the community to separate the hazard out of the workplaces was shaped by EU guidelines and EU funding.

From this time on, the idea of achieving fairness in distribution through separation of e-waste hazard from the workplace was picked up by the state community comprising the Ministry of Environment and Forest (MoEF), Central Pollution Control Board (CPCB), and Delhi Pollution Control Committee (DPCC). The state units were influenced by this notion of formalization by the NGOs and the GIZ community. Distributive justice idea matured as the state actively attended workshops and meetings organized by the Toxics Link and GIZ. Through continuous association with the NGOs and the GIZ over time, the state officials became structurally embedded in the NGOs and the GIZ. Embeddedness better informed the state community about the needs of the informal sector.

The NGOs and the GIZ community also influenced the newly formalizing community comprising Chintan and Hareet Recycler Welfare Association (HRA) with their vision of attaining just distribution through formalization. Chintan and HRA sensed the need to enter into

the formal e-waste collection system since that would capacitate them to deal with the non-hazardous aspect of e-waste business. Energized by primarily GIZ and Toxics Link since 2007, these two groups comprising Chintan and HRA applied for authorization, an opportunity created by the state under the existing Hazardous Waste Management Rules 2008, with the notion that participation in non-hazardous e-waste activity would protect their health and wellbeing. However, they experienced considerable delays in the authorization process. According to this newly formalizing community, state's non-embeddedness (in this community); and state pathologies including frequent job transfers and shortages of staff officials were responsible for such delays. State pathologies and non-embeddedness are structural features identified by developmental state scholars (Evans 1995; Woo-Cumings, 1999; Pingle, 1999). These structural impediments made this community (including Chintan and HRA) apprehensive about the prospect of formalizing the sector as a means toward attaining just distribution. In the absence of the state's active intervention in motivating the informal enterprises to formalize, HRA and Chintan performed a proactive and pioneer role in inspiring other informal operators to realize the benefits of formalization. Therefore, being a part of the affected community, HRA and Chintan not only understood how distributive justice could be fostered through formalization among the disadvantaged community, but communicated their idea of distribution to others in the affected community. A Chintan interviewee explained the type of advocacy work they were doing and their future plans:

> "we are trying to organize the informal sector who have been working with e-waste for decades…once we get authorization our plan is to …train them and provide them with green jobs in our e-waste collection business".

However, these efforts were minimal. The newly formalizing group was able to influence only a small segment of the informal e-waste dealers. The vast majority of the informal operators and specifically, the workers remained outside their sphere of influence.

The informal e-waste sector, that constitutes a significant portion of the affected community, was largely not sensitized by the NGOs and the GIZ, neither the state, nor the newly formalizing sector, and did not possess any vision of distributive justice. These informal operators and workers performed hazardous e-waste recycling in the different e-waste clusters of Delhi. Most of them lacked awareness of the problems of e-waste toxicity. Those who were aware of the hazards did not want to quit their job for lack of any alternative source of livelihood. They refused to cooperate with the NGOs because they felt that the NGOs would take away their means of sustenance. Hence, there was no form of resistance to the injustices of mal-distribution of e-waste that was affecting their lives.

Thus, the first goal of distributive justice was reflected in the framing of formalization as a policy issue that emerged among the NGOs and the GIZ through independent e-waste related studies and EU influence. This idea was later adopted by the state units. The idea of formalization was also diffused among the newly formalizing group who applied for formalization. Each of these interpretive communities tried to sensitize the informal e-waste sector with the idea of formalization within their limited capacity however; the vast section of the affected group remained outside their ambit and lacked any vision of distributive justice.

Two more ideas of distribution were reflected in the framing of the issue of producer responsibility. These ideas include a) making the electronic industry share the burden of e-waste management and b) distributing non-hazardous e-waste by eliminating hazardous components in the design phase. As the perception of this policy issue evolved, the conception of equitable

distribution matured among the NGOs and the GIZ. Around 2003-2004, the NGOs (Toxics Link and Greenpeace India) and GIZ felt that the electronic industry should be held responsible for their e-waste. The studies that they conducted during this time revealed how disproportionately the informal sector was burdened with hazardous e-waste. This interpretive community perceived that if the industries took charge of their e-waste then the informal sector's burden of e-waste management would be shared by the industry. Nevertheless, the NGOs (Toxics Link and Greenpeace India) and GIZ were unclear as to what actions should be taken to hold the industry accountable. MAIT, an industry representative refused to take any responsibility. Later, through various consultations, MAIT united with the NGOs and the GIZ and together as an interpretive community they decided to incorporate producer responsibility in the new e-waste law. The "Extended Producer Responsibility (EPR)" and "Reduction of Hazardous Substances (RoHS)" components of the European Union's "Waste Electrical and Electronic Equipment (WEEE)" legislations reflected distributive justice ideas. EPR intended to make the electronic industries accountable for taking charge of their own waste and RoHS proposed to eliminate hazardous elements in the design of electronics. This interpretive community was confident that these two principles of distributive justice should be included in the new e-waste paradigm. This conviction was expressed by a Toxics Link interviewee:

> "The responsibility of the industry [EPR] has to be a part of the paradigm of any new law... We felt that was very important because the idea of policing the environment was not very sufficient and we need to integrate it into the production chain somehow. So, natural resources if used should have some ways of extending the idea of afterlife of products and get into the economic chain of the product. So, that was an important thing for us… [Next was the] idea of making computers cleaner [or RoHS] that was to set limits on what constitutes the computer. These are not new ideas. Both the RoHS and EPR are old ideas already implemented in Europe… so these were the kinds of things that were non-negotiable for us"

These two ideas of distribution that were evident in EPR and RoHS principles of EU regulations were embraced by the state community as well. The state authorities intended to make the producers take ownership of their own e-waste that would relieve the informal sector from the excessive burden of e-waste and reduce e-waste toxicity at the design phase. These ideas that the state endorsed were inspired by the NGOs and the GIZ community. The state units' understanding of them developed as they played an advocacy and regulatory role in creating awareness among the consumers and in publishing the e-waste guidelines that sensitized the industries to a certain extent. A DPCC officer explained that they did a lot of workshops with the industries, in association with GIZ, Toxics Link, and MAIT and made the industries realize the importance of EPR and RoHS.

Producer responsibility in addition to the issue of formalization reflects ideas of distributive justice. Distributive justice ideas present in the EPR and RoHS principles of EU legislations were adopted by the NGOs and the GIZ. The state community too, with the NGOs and the GIZ's influence, adopted these two principles and participated with the industries in awareness creation. The state community also advised the NGOs and the GIZ to draft the new e-waste law in 2009 that incorporated EPR and RoHS principles. The state later made modifications to the draft law and published its final version in 2011 that contained these elements.

Recognition

The notion of recognition as an element of environmental justice emerged in some form among the non-state (Toxics Link, MAIT, and Greenpeace India) and the semi-state (GIZ) community when they understood that formalization of the informal sector would conjointly allow separation of the e-waste hazards from their workplaces and make the informal operators

legally visible. “Making the informal sector visible” was an important purpose of the formalization projects that would provide the informal operators with social acceptance (GIZ interviewee). They realized that the informal sector was subjected to mal-distribution of e-waste toxics because they were not recognized by the state. A drive toward legally recognizing the informal community evolved among the NGOs and the GIZ as they sought to persuade the state units to develop a new e-waste law that would incorporate formalization. This perception of bringing the informal sector within a regulatory system was also influenced by funding from Germany and Switzerland. GIZ, Toxics Link, and MAIT received funds for executing numerous e-waste related projects in various urban centers of India. For instance, in 2006, GIZ got funding for organizing the informal sector from the Swiss initiative called ‘PREMA GIZ 2 Profitable Environmental Management Training’. Inspired by the NGOs and the GIZ, the state units played an advocacy role in organizing workshops to create awareness among the informal dealers about e-waste hazard and motivated them to seek authorization under the hazardous waste rules.

The NGOs and the GIZ as an interpretive community also intervened actively in creating awareness and in incentivizing the informal operators to become formal. Through constant motivation, coordination, and assistance in establishing collection units, this community’s idea of attaining just recognition was strengthened. In their efforts to help the informal operators attain formal recognition, Toxics Link in partnership with GIZ, organized two groups in seeking authorization from the Delhi Pollution Control Board. As mentioned earlier, being a part of the affected community, HRA and Chintan (the newly formalizing group) felt that the state authorities were non-supportive of the formalization process and misrecognized their needs. They argued that although formalization would legally recognize the unorganized sector, state’s non-intervention would detain attainment of legal recognition of this sector considerably. This

prompted them to exercise agency by organizing other informal dealers to seek authorization. Nonetheless, those attempts were insubstantial compared to the vast number of informal operators in the city of Delhi.

It is important to mention here that in the entire process of framing the issue of formalization, these interpretive communities did not emphasize building awareness among the workers that comprised mostly women and children about e-waste hazards and in developing ways of employing them in the newly formalized collection centers. The community's efforts were solely confined to recognizing the informal operators. The majority of the affected informal operators and workers were not motivated by the concerned interpretive communities and lacked any idea of recognition justice. For some, recognition by the state would prevent them from pursuing their e-waste recycling job. In the absence of alternative means of livelihood, they felt that recognition would make them jobless. They believed that the licensing process would disrupt their work patterns and would jeopardize their source of livelihood. Most preferred to pursue their job informally done for years and refused to be legally visible and pay taxes to the government. For this community, misrecognition by the state did not appear as a problem partly because they were unaware of the structural misrecognition that they have been subjected to for generations and partly because they were accustomed to it. Therefore, the idea of recognizing the informal sector through formalization as conceived by the non-state, semi-state, and the state communities did not percolate down to the bottom sections of the affected community including the informal workers nor did it spread far enough to encompass the large majority of the informal operators.

Achieving recognition justice was not the primary goal of either the non-state and the semi-state community or the state community as they perceived the issue of producer

responsibility and exercised their roles. The idea of recognizing the informal sector was implied as the NGOs and the GIZ performed an interventionist role in implementing RoHS and EPR that would prevent the informal sector from dealing with toxics and make the industries share the burden of managing e-waste. The NGOs and the GIZ felt the urgency to ensure that the sector was not unduly loaded with the task of managing e-waste because they recognized the plight of the informal sector. The primary goal of the NGOs and the GIZ was to realize the ideas of distributive justice through successful enforcement of EPR and RoHS. Legal recognition of the informal sector was not the major objective in framing the issue of producer responsibility. Along similar lines, the state community did not portray any direct concern for recognizing the affected community as they framed EPR and RoHS.

Participation

In framing the issue of formalization, the non-state and the semi-state community provided some scope to the informal sector operators to participate. When this non-state and semi-state community influenced the informal sector operators to formalize they attempted to create a platform for the informal dealers to come forward and cooperate in the new scheme of things. The NGOs and the GIZ not only imparted their formalization ideas, but allowed the formalizing groups to express their own. As a mediator, a Toxics Link interviewee argued:

> "we have some role but … we are little hesitant about asserting that role too much and it becomes a part of the power play. So, we are really sensitive about it…we work very closely [with the formalizing units] but always on their terms."

Echoing this view of Toxics Link, a GIZ employee noted that they "try to give the informal operators a platform where they can come and share why they want to formalize." However, the NGOs and the GIZ did not express any effort to allow the informal workers to participate in any capacity in the formalization process. On the other side, the state units, as an interpretive

community, did not reflect any idea of attaining fairness in participation as they advocated in organizing e-waste awareness campaigns for the informal sector. Neither the informal operators' nor the workers' opinions were sought nor were they allowed to participate in lawmaking. The non-state and semi-state community agreed that the state did not create any platform for the informal operators to get together and collaborate in order to become formal enterprises. The newly formalizing group comprising Chintan and HRA reiterated that they were not allowed to participate in the lawmaking process in any form by the state authorities. However, the NGOs and the GIZ provided them with a space to express their opinions about ways of formalizing. Through this participatory process, Chintan and HRA developed their ideas of distribution and recognition. They understood the importance of creating hazard-free workspace and in becoming legal enterprises through formalization. Barring the newly formalizing group, most of the informal operators and the workers did not participate in any of the programs organized by the state and the non-state and the semi-state communities and were not consulted in the phases of e-waste lawmaking. The views of only a few were sought by the newly formalizing group in organizing themselves to seek formalization. One among those operators said that with some associates they were working with Chintan and were actively participating with them in obtaining authorization from the Delhi Pollution Control Committee.

Further, in framing the issue of producer responsibility, the non-state and the semi-state and the state community excluded the informal operators and the workers from determining any course of action. The NGOs and the GIZ did not seek the views of the informal sector or the views of the newly formalizing sector as to how the producers could be influenced to setup take-back systems and what, if any, role the newly formalizing groups could play to realize such goals. The state community too, did not allow the informal sector or the newly formalizing sector

to express concerns, if any, about ways of incorporating EPR and RoHS in the law. However, the state allowed some form of participation of the electronic industries in finalizing the e-waste law.

Therefore, participation of the affected community was largely absent in lawmaking. The NGOs and the GIZ only created some scope for participation for the newly formalizing group in the formalization process, but the state authorizes denied any possibility of attaining participatory justice. Consequently, the large body of informal operators and the workers remained outside the purview of the decision-making process.

Summary of the Ideas of Environmental Justice

Ideas of distribution, recognition, and participation in some form were reflected in the performance of the roles of the different interpretive communities with respect to the issues of formalization. The intent of achieving fairness in distributive terms through separation of the e-waste toxics from the workplaces was clearly evident in the roles of the non-state and the semi-state community in their framing of formalization. Influenced by EU funding, this community realized its urgency and included formalization in the draft e-waste law and vigorously incentivized the informal operators to formalize. In addition, this community aspired for legal recognition of the informal sector by the state and provided scope for participation. The state community imbued these ideas of distribution and recognition, but did not allow the informal operators to participate in lawmaking. Moreover, state pathologies including frequent job transfers, shortages of staff officials, and delays in executing task, and non-embeddedness in the informal sector prevented the state officials from fully recognizing the needs of the informal enterprises. The newly formalizing community acknowledged the ideas of distribution, recognition, and participation of the NGOs and the GIZ and played an active role in transforming few informal operators into formal businesses. However, none of the above communities build

awareness among the workers and developed ways of employing them in the newly formalized collection centers. The large informal workforce comprising operators and workers remained outside the reach of the other communities.

Further, the ideas of attaining fairness in distribution by making the producers' responsible for their e-waste and by reducing the production of toxics at the design phase were mirrored in the framing of the issue of producer responsibility. The non-state and the semi-state community influenced by the EU legislations and with funding from Germany and Switzerland adopted the principles of EPR and RoHS. The reasons as to why the European nations funded these organizations are unclear. It is possible that EU wanted to ensure that the e-waste from India returns to the EU nations (Belgium) for high-end recycling since India lacked resources and the technology to setup sophisticated recycling centers for precious metal recovery. Thus, EU funding and regulations streamlined the roles of the non-state and semi-state community by infusing in them ideas of distribution. The state authorities, under the influence of the NGOs and the GIZ, borrowed their ideas of distribution and performed an advocacy role in spreading those ideas among the consumers and industries. However, the roles of the NGOs and the GIZ and that of the state apparatus did not portray any direct attempt to recognize the informal sector nor did they provide any opportunity to the disadvantaged group to participate in the process of allocating responsibilities to the producers.

The majority of the informal operators and the workers were left out of the entire process of lawmaking and they lacked any vision of environmental justice due to ignorance and lack of alternative means of sustenance. Most of the informal recyclers and workers were unaware of the e-waste hazards and the new e-waste lawmaking process. Only few were aware, but refused to apply for authorization since the process was abnormally long. They intended to continue

business informally that they performed for years. Since e-waste segregation, dismantling, and recycling pay more than other informal work, they felt that due to state interventions their job was at threat. For this disadvantaged community, job was crucial for survival irrespective of its hazardous nature.

Reflection of EJ Discourses in the E-Waste Law

I now examine how the sensitivity of the different interpretive communities toward distributive, recognition, and participative dimensions of EJ finds impression in the final e-waste law. Here, I analyze whether and how these EJ ideas are present in the formalization and the producer responsibility component of the law.

Distribution

Formalization of the informal e-waste sector, a matter of concern for the NGOs and the GIZ, was incorporated in the final law. According to the law, the informal operators were obliged to obtain authorization from the State Pollution Control Boards in order to establish e-waste collection centers, maintain transaction records, and file annual returns with the state boards. In the collection centers, formal operators would only engage in e-waste collection, storage, and segregation i.e., the non-hazardous aspect of e-waste recycling whereas, formal recyclers in appropriate facility would engage in hazardous e-waste dismantling and recycling activities. This process would therefore, prevent the previously informal sector from handling harmful e-waste. The law thus reflected the idea of distributive justice that was earlier envisioned by the NGOs and the GIZ and was later accepted by the state community. At this time, DPCC assigned the task of enforcing formalization to a small number of its officials. This body of DPCC staff officials formed the e-waste cell. However, this implementing cell lacked embeddedness in either the non-state and the semi-state community or the informal sector.

Moreover, the cell suffered from insufficient staff officials. A GIZ interviewee identifying these structural bottlenecks said:

> "I have visited DPCC and it is very under-staffed. There are not many staff members to inspect the work done informally. They also lack knowledge about the informal sector."

The NGOs and the GIZ community felt that the state's non-embeddedness in the informal sector and state pathology, at this juncture, made the state perform a partial regulatory role that would deter the formalization process and hence delay realization of justice in distributive terms.

In addition, distributive justice ideas of the state units were reflected in the Extended Producer Responsibility (EPR) aspect of the new law which held the producers' responsible for collecting their e-waste from the individual and the bulk consumers and in financing them. The law invested the responsibility of creating awareness among the consumers on the producers "through publications, advertisements, posters, or by any other means of communication and information booklets accompanying the equipment" (e-waste (Management and Handling) Rules, 2011: 30). Critiquing the law, the NGOs and the GIZ argued that it did not finance the collection system, provide incentives to the producers to setup collection system and targets, and explain how the consumers should be motivated to dispose of their e-waste to the producers.

In addition, the Reduction of Hazardous Substances (RoHS) component in the law that aimed at reducing toxics at the design phase reflected distributive justice ideas of the state apparatus. Following the permissible limit prescribed in the EU WEEE Directives, the law provided a list of hazardous substances that were to be eliminated from electronic equipment and their permissible limits:

> "every producer of electrical and electronic equipment … shall ensure that, new electrical and electronic equipment does not contain Lead, Mercury, Cadmium, Hexavalent Chromium, polybrominated byphenyls or polybrominated diphenyl ethers: Provided that a maximum concentration value of 0.1% by weight in homogenous materials for lead, mercury, hexavalent chromium, polybrominated biphenyls and polybrominated diphenyl

> ethers and of 0.01% by weight in homogenous materials for cadmium shall be permitted." (e-waste (Management and Handling) Rules, 2011: pg 35)

Finally, the law provided two years (2012-2014) to the electronic manufacturer to abide by the RoHS prescriptions. Also, the state bodies continued to perform a collaborative research-oriented role with the industries in implementing RoHS. However, the non-state and the semi-state community viewed that the state failed to incorporate their vision of distributive justice in the law. The state authorities gave flexibility to the industries in being RoHS compliant that would delay attainment of fairness in distribution and the law did not mention how the electronic producers would be motivated to become RoHS compliant. In its absence, the non-state and the semi-state community, continued to perform a proactive and pioneering role in persuading the industries to reduce toxics with the view that in order to foment fairness in distribution, it is crucial to eliminate toxics at the outset. This belief was asserted by a Greenpeace activist as follows:

> "In e-waste campaigns our primary focus was toxics elimination from the electronic products. We think that it can only be done through producers because producers control the design. They decide what kind of element, what kind of chemical, what kind of component will be used to build new age equipment. Therefore, our focus was on the producers…who sell the product in the market. We think that e-waste at the downstream can't be safely and properly recycled in an environmentally sound manner if the toxic chemicals are not removed at the design stage."

Recognition

As per the law, the process of formalization required only the informal operators to collect authorization from the state pollution control board that would make them legally noticeable. Legal recognition of the informal operators was envisioned by the non-state and the semi-state, the newly formalizing group, and the state community as a way of promoting recognition justice. However, the law did not mention any procedure as to how the informal operators should be made aware and organized to apply for formalization as anticipated by the

other communities. Further, it did not allocate any funds to the state machinery to induce the operators to formalize and did not enlist sanctions in case the informal operators evaded formalization. In the absence of any incentives and penalties, the informal enterprises would explore ways of escaping the process (GIZ employees). A Toxics Link employee critiquing the e-waste law argued:

> "There is no specific clause in the law which looked at integrating the informal sector. Everybody can become formal…but there has to be certain incentives for them. Why would they want to come to a bracket? They are not paying taxes. So, you will have to look at those kinds of incentives. The informal sector does not have huge capital to invest. So, they can't compete with the formal sector which is coming in terms of individual entrepreneurs who can raise money and do a lot of marketing activity. So, for the existing informal sector these were the barriers…Right now some of the informal sector who applied took years to get license. It is a huge time for them, a huge investment for them, what are they going to do for such a long time?"

Moreover, the officers in the new e-waste cell in-charge of implementation did not demonstrate comprehension of the idea of recognizing the informal operators. Even though the operators are large in number and state pathology caused by shortages of manpower was a hindrance toward successfully converting them, the state apparatus firmly believed that the sector could be formalized and if required, by the use of force. This displayed the state's lack of knowledge of the informal sector and also their inability to discern that constant motivation and incentives were necessary to formalize them. Consequently, the NGOs and the GIZ, and the newly formalizing community felt that the law intended to formalize the informal operators without recognizing their potentials and limitations. Recognition of the informal operators as imagined by the non-state and the semi-state community and the formalizing group was not reflected in the language of the law, it only depicted the vision of the state authorities. The non-state and the semi-state community strongly envisioned that to legally recognize, mere incorporation of

formalization in the regulatory framework would not suffice; instead the unauthorized entities needed to be energized to graduate into the formal collection system.

Also, the formalizing community decidedly felt that the state units should perform a supportive role in recognizing the difficulties of the informal community including the informal workers. The Pollution Control Board abstained from making the informal workforce conscious about the e-waste menace and from taking any measures toward exposing the workers to alternative sources of livelihood. The law failed to recognize the needs of the e-waste workers and remained silent about improving their working conditions. An HRA member mentioned that "the law does not say anything about the workers. It appears that the law asks the workers to fight with the well-off entrepreneurs." A Toxics Link employee believed that the workers have been disregarded in the law due to the absence of sufficient data on the health effects of e-waste on the workers. Therefore, the law only marginally recognized the informal operators and failed to recognize the workers. Lastly, the incorporation of EPR and RoHS elements in the law did not demonstrate any conception of recognizing the affected community as it directly emphasized in securing distributive justice.

Participation

The law failed to create any avenue for the informal operators and the workers to participate with the state authorities in determining ways of formalizing. Despite the concern of the NGOs and the GIZ in accelerating the formalization process, the law did not provide any forum for the workers to participate in deciding their role in the formalization process. Most of the workforce was unaware about the new law. When I asked an e-waste dealer about the new law he replied:

> "there can be no law on old stuff. We deal with scrap and there can be no law on that. We deal with waste. The product that is dead cannot have a law that governs it."

Moreover, EPR aspects of the law did not produce any scope for the informal sector to participate with the electronic industries in deciding how the producers could establish collection system individually or in conjunction with them as they formalize. No provision for participation of the disadvantaged community in implementing the policy issues was reflected in the law.

Summary of the EJ Ideas in the E-Waste Law

The ideas of distributive justice embraced by the NGOs and the GIZ, the newly formalizing sector, and the state community were reflected in the formalization component of the new law that aimed at preventing the formal collection centers from performing hazardous metal extraction activities. Further, distributive justice ideas of the NGOs and the GIZ and the state authorities were mirrored in the two other components of the law: a) EPR that aimed at making the industries share the burden of managing e-waste and; b) RoHS that intended to reduce toxics at the design stage. Additionally, the law endorsed the principle of recognition justice advocated by the NGOs and the GIZ, and Chintan and HRA by incorporating the formalizing component, but it did so only partially. It failed to build the capacity of the informal operators by creating awareness, organizing, and incentivizing them to formalize as envisioned by these interpretive communities. Also, it failed to recognize the needs of the workers and sensitize them about the e-waste hazards. Finally, the spirit of the law to recognize the informal units through formalization was dampened by absolute lack of participation of the informal operators and workers in determining their role in the new legal e-waste regime.

Reproduction of Environmental Injustices in the E-Waste Sector

The discourse of environmental justice endorsed by the NGOs and the GIZ and later adopted by the newly formalizing group was only reflected in the text of the e-waste law in part. The principle of distributive justice is present directly in the RoHS, EPR, and the formalization

aspects of the law, but the vision of recognition justice is only partially represented and scope for the participation of the informal sector is absent. In the absence of participation and with marginal recognition of the affected sector, attainment of distributive justice is unlikely to succeed.

With the enforcement of the law, those informal enterprises who fail to secure registration would thrive as illegal entities. State pathologies including delays in executing tasks, frequent job transfers and shortages of staff officials; and non-embeddedness within the informal sector (discussed earlier in chapter 5) have been the primary impediments in the formalization process. These structural attributes have made the process abnormally long and would make effective monitoring of implementation difficult. As a result, the informal operators would readily escape formalization and will exist as illegal enterprises. Few formalized centers will have access to an abundant supply of e-waste and the illegal enterprises will be under constant pressure to secure enough materials. At one end, scarcity of e-waste will eventually reduce the profit margins of the illegal enterprises and on the other; the business of the formalized collection sector will flourish. The formalized e-waste traders will become richer and the informal sector will become poorer. Therefore, sensitivity toward achieving environmental justice in distributive terms through removing the hazard from the workplaces as depicted in the law is less likely to be achieved. Further, the benefits of producing less toxic e-waste and making the producer share the burden of e-waste will not be achieved without the state's efforts to motivate them to do so.

Recognition of the informal operators by the state through formalization will be minimal due to abnormal delays in granting authorization and inept monitoring caused by structural deterrents. Moreover, historically, the informal sector in general has been misrecognized by the

state. Various laws have been formulated periodically to regulate the working conditions of the factory workers. The Factory Act of 1948 regulates the health and wellbeing of the factory workers and the Child Labor Act of 1986 prohibits any form of employment of children below the age of fourteen. Due to the lack of proper implementation of these acts, they have been violated time and again (Weiner, 1991). Not only has the state remained inactive in taking necessary steps against such violations, the state has refrained from enforcing the Right to Education Act of 2009 that guarantees free primary education to all children below the age of fourteen (Ojha, 2013). There are laws that govern the rights of the industrial workers. These include Factory's Act, the Provident Fund Act, Employees State Insurance Act, and the Workmen's Compensation Act (Toxics Link, 2007). There are also limits set to the amount of chemical exposure in the workspaces (Toxics Link, 2007). These laws are not implemented in the informal e-waste sector since they are not legally recognized by the state. Structural misrecognition of the informal e-waste sector has deprived them of their basic right to education and participation in decision-making processes. The informal workforce has been rendered invisible by the state. Schlosberg (2004, 2007) emphasizes that structural misrecognition and mal-distribution are intricately linked and distributional inequality is produced through structural domination and oppression of a group (Young, 1990). In the absence of any e-waste regulation, the state did not maintain any record of the demographics, socio-economic status, and working conditions of the informal workforce and made no effort toward ameliorating their status. In accordance with the new law, records of only the formalized units will be maintained. The law thereby has liberated the state apparatus from bearing any responsibility toward improving the wellbeing of the informal workforce by denoting them as illegal. The state will pretend that the informal sector does not exist. For Fraser (2000 in Schlosberg, 2007, 2012) and Whyte (2011),

the practice of rendering a group as invisible is a form of misrecognition. The present law reestablishes structural misrecognition and lack of participation of this sector. The minimal regulatory attempt to produce distributive justice by the state is unlikely to succeed due to lack of recognition and participation of the sector. Historical misrecognition and lack of participation lies at the core of the e-waste law that will reproduce distributive injustice in the e-waste sector. This analysis reestablishes Schlosberg (2004, 2007, 2012, 2013), Schlosberg and Carrathers' (2010) and Whyte' (2011) argument that the trivalent notions are interlinked and without recognition and participation, distributive justice cannot be fostered among disadvantaged groups.

Moreover, the vast majority of the informal e-waste sector lacks any alternative vision of environmental justice. Consequently, the vision of EJ adopted in the law is likely to prevail and will be unilaterally imposed upon the marginalized people. The intensity of environmental injustices of mal-distribution, misrecognition, and non-participation will magnify due to the lack of any form of resistance of the informal recyclers to the injustices reproduced by the state apparatus. Thus far, in EJ struggles in the Unites States, the marginalized communities have possessed an alternative discourse of EJ that evolved from within or by drawing from external discourses for instance, EJ ideas of the environmental activist organizations. The alternative EJ visions have provided them with the voice to resist the environmental injustices. EJ scholars (Pellow, 1998, 2002, 2004; Pellow and Park, 2003) have analyzed how conflicts are shaped by diverging discourses of environmental justice in waste recycling workplaces of Chicago and in the electronic manufacturing workplaces of the Silicon Valley. Schlosberg (2013) explains that the EJ concerns of the communities find expression in environmental justice movements, and that EJ studies and movements have been closely connected in all the three waves of EJ research

(Schlosberg, 2013). Schlosberg (2013: 50) believes that the "various experiences and articulations of injustice, inform how the concept is used, understood, articulated, and demanded in practice … is of crucial value to our understanding and development of the concepts we study". On the contrary, this study demonstrates a unique case where distributive injustice is being reproduced through reinforcement of structural misrecognition and lack of participation among an affected community that lacks any vision of environmental justice. In the absence of any alternative EJ vision, there is no resistance of the affected communities to attain environmental justice. Whyte (2011: 203) argues that when the dominant environmental justice discourse is imposed upon the affected communities there will be no scope for collaboration and the affected parties will have "to adapt to the conditions of domination." Here too, environmental injustices of mal-distribution, structural misrecognition, and lack of participation will be implemented by the e-waste law and the e-waste community will have to succumb to those forces until any alternative vision of EJ is formulated by them in the coming years.

Conclusion

In sum, the ideas of distribution, recognition, and participation of the different interpretive communities evolved as their framing of the policy issues matured and they performed various roles to realize their policy objectives. These pluralist ideas initially developed among the non-state and the semi-state community and were later adopted by the state units and the newly formalizing community. But, the state authorities failed to perform a positive role in recognizing the informal operators and in enabling them to participate as envisioned by the non-state and the semi-state community. The state's EJ ideas were reflected in the final e-waste law. The e-waste law emphasized on securing just distribution of e-waste, but marginally focused on recognizing the affected community and completely failed to foster participation.

Recognition, in the law, was limited to the informal operators who are able to secure formalization from the state pollution boards. State pathologies and non-embeddedness will create scope for the informal operators to escape formalization. When implemented, the principle of distributive justice (in the absence of complete recognition and participation of the affected communities) is unlikely to be realized since the law will reinforce structural misrecognition of the informal workforce by rendering the informal sector as invisible. Historically, structural misrecognition has deprived the informal e-waste sector of their basic right to education and participation in relevant decision-making processes. Although, it is not clear how efficiently the industries will setup EPR and become RoHS compliant in the absence of state units' efforts to motivate and finance them, lack of formalization will prevent the benefits of both to reach far and wide across the e-waste sector. Structural bottlenecks including state pathologies and non-embeddedness accompanied by structural misrecognition and lack of participation of the informal workforce will prevent the state from fostering distributive justice. Finally, the informal e-waste community lacks any alternative discourse of environmental justice and do not demonstrate any form of resistance. Consequently, the discourse of environmental justice reflected in the law will be unilaterally imposed upon the e-waste community without any scope for collaboration. Environmental injustices of mal-distribution, misrecognition, and lack of participation will therefore, not only sustain but possibly intensify.

Empirically, this case study makes several key contributions to EJ studies. First, it sheds light into how the Indian state apparatus through e-waste policy-making reproduces environmental injustices of distribution, recognition, and participation in the e-waste industry – a topic of critical EJ research unexplored thus far. Second, it shows how environmental injustices are being reproduced through the new e-waste regulation on a community that have been

silenced through continued structural misrecognition and lack of participation. Third, this study expands the sphere of environmental justice studies by adding the unorganized e-waste sector into the list of under-studied affected groups such as workers, women, and children in the developing countries. Since this study solely examines the e-waste regulatory process; it opens up new pathways for further investigating how injustices are reinforced during periods of e-waste law implementation. Future analysis of how the Indian state perpetuates and intensifies distributive, recognition, and participative injustices in the e-waste sector; and how the sector adjusts to such injustices will be essential to achieve a robust understanding of how the state apparatus through lawmaking and implementation reconstructs environmental injustices in the e-waste industry.

Conceptually, this analysis chapter has addressed two major gaps in critical EJ research. First, the study has examined how the Indian developmental state through the process of e-waste lawmaking affects the reproduction of environmental injustices of distribution, recognition, and participation in the electronic waste sector. By drawing a connection between the performance of the roles of the interpretive communities and their pluralist ideas, the analysis explains how the EJ visions emerged and which among those ideas got incorporated in the new law. Second, the analysis underscores that the three conceptions - distributive, recognition, and participative justices are intricately linked and that one cannot be attained without the others. Additionally, the analysis brings to focus a unique case of environmental injustice in which the affected community lacks any alternate vision of environmental justice due to structural misrecognition, ignorance, and extreme poverty signaling that environmental injustices reproduced by the developmental state will be single-directionally imposed upon them and is likely to persist and intensify. However, it is early to explain how environmental injustices will prevail and intensify;

and how the e-waste sector will adjust to the forces of structural domination in the coming years. This analysis advances the theory of environmental justice research into a new territory and calls for the need to examine other cases of environmental injustices reproduced by different forms of developmental state's to conceptualize a) how developmental states reproduce environmental injustices in their relationship with specific societal sectors, b) how lack of alternative EJ discourse of the affected parties prolong and magnify the environmental injustices reinforced by the developmental state, and c) how the affected communities respond to the structural forces of domination.

CHAPTER 7

CONCLUSION

The analysis of the e-waste policy documents and the law framing process has significant empirical, conceptual, and methodological contributions to both the developmental state and the law and development scholarship. Additionally, the study of the pluralist notions of environmental justice in e-waste regulation and their probable impact on the reproduction of environmental injustices in the e-waste industry makes important empirical and conceptual contributions to critical EJ research. In this chapter, I discuss the contributions of my study to the developmental state, law and development, and critical EJ research and then, I explain how the realm of the developmental state scholarship can be broadened and embedded in critical EJ studies through further studies.

Summary of Research Findings

Empirically, the analysis of the policy documents and the regulatory process highlights that the sub-regulatory roles of the Indian state apparatus were framed differently by the interpretive communities in the two policy issues – formalizing the informal sector and producer responsibility. Next, each community performed certain roles as they framed the policy issues and ascribed regulatory roles to the state authorities. Further, the Indian state authorities were assigned negative roles when they were inactive and positive roles when the state was active. Also, state roles reflected certain elements of state structure. These roles and structural elements varied across interpretive communities at fixed points in time and within communities over time.

State roles were interpreted differently at fixed times in the e-waste law. For instance, formalization in the law was framed by the semi-state and the non-state units as being a way to "shift the whole material i.e., e-waste from the informal to the formal sector" and they perceived the state roles as discriminatory, non-recognitional, and non-interventionist. In sharp contrast, this interpretive community regarded that the informal e-waste sector's "livelihood issue needs new assertion from the ground" and viewed their own role as being interventionist and reformative. Further, the state structural features that could be discerned from the interpretation of state roles by the discourse communities have varied. For instance, the non-state and semi-state community considered that the state authorities were non-interventionist in making the producer's responsible in the law. The state's non-interventionist role indicated state's non-embeddedness in the electronic companies. On the other side, the Central Pollution Control Board and the Department of Technology regarded that they performed collaborative and research-oriented roles with the electronic industries. These state units' stance demonstrated that the state was embedded in the industry. This finding underscores that understandings of state roles and structural elements are plural and subjective at fixed time periods.

Additionally, a temporal analysis of the e-waste lawmaking process shows that over time the size and composition of the interpretive communities changed except for the state community that remained unified as an interpretive community throughout the process. Also, the different stakeholders emerged as interpretive communities at different periods of lawmaking. For instance, the state units became engaged in the issue of producer responsibility from 2005 on, whereas Toxics Link, Greenpeace India, and GIZ had been engaged since 2003. Moreover, the framing of each policy issue, performance of roles, assignment of state roles, and the structural characteristics that can be discerned from the state roles changed within and across interpretive

communities over time. For instance, formalization was framed by the NGOs and the GIZ in the first lawmaking phase (2003-2008) as a matter of "urban poverty, livelihood and waste". They perceived the state role as non-cooperative. In the second stage (2008- 2011), they performed an advocacy and regulatory role in bringing the informal sector within the fold of a regulatory framework. At this stage, they framed the state's role as being partially regulatory, which signaled the state's partial embeddedness in the non-state and in the semi-state community. Finally, this community felt that the state was privileging the formal sector without recognizing the needs of the informal sector. They framed the state's roles in the e-waste law as discriminatory, non-recognitional, and non-interventionist which suggested the state's non-embeddedness in this interpretive community and in the informal sector. Contrarily, this interpretive community played interventionist and advocacy roles in incentivizing the informal sector to formalize.

Conceptually, this study has significantly extended the realm of the 20th and the 21st century developmental state theory. First, this study analyzes a novel state-society relationship i.e., the Indian state-e-waste sector relationship. Second, through a fine grained analysis of the e-waste regulatory framework, this study illustrates the diversity of state's regulatory roles and its structural features in periods of both state action and inaction. Developmental statists have solely studied state's roles and structure during state action. This study demonstrates how both positive and negative roles were assigned to the state apparatus during state action as well as inaction. Third, the analysis emphasizes that the roles of the state cannot be studied in isolation. State roles are assigned and performed in relation to the roles of the other key interpretive communities. Fourth, in studying state roles in association with the roles of the other constituencies, I coined new state roles or sub-regulatory roles beyond those that were already identified in the

developmental state literature. I also named all the roles of the other interpretive communities. Fifth, developmental statists provide singular and objective explanations of state roles and structure. The analysis of the policy documents at fixed points in time demonstrates how the policy issues are conceived differently by key constituencies and illuminates the need to pay careful attention to the multiple interpretations of each issue at hand. Additionally, a temporal analysis of the e-waste lawmaking process highlights that the morphology of the communities, the framing of policy artifacts, the assignment of state roles and the performance of the roles of the interpretive communities, and the structural attributes of the state are evolutionary. The analysis thus; highlights the fluidity, subjectivity, and plurality of interpretations of policy artifacts, state roles, and structural characteristics. Therefore, the attainment of objective, universal, and singular claims about state roles and their structural features is not feasible. Finally, by investigating how the Indian state's structural features are reflected in e-waste law and the lawmaking process, the study has extended law and development scholarship's notion of the close connection between state character and law into a new empirical context.

This study also fills the methodological gap in developmental state and the law and development literature. These bodies of work do not explain how state roles and structural features are to be understood methodologically and how the connection between state structure and law should be drawn. By deploying Yanow's (2000) interpretive policy analytic approach, I was able to demonstrate systematically how in the policy documents and in lawmaking, state roles emerge and how structural features find reflection in the roles through the lens of disparate interpretive communities. This analysis thus calls for the need to carefully consider the numerous policy interpretations in order to show how differential views are produced and can co-exist at fixed time and over time.

Further, this research case emerges as a novel empirical site of EJ inquiry. The analysis of the Indian state's role in reproducing environmental injustices in the e-waste sector during e-waste lawmaking adds new empirical insight to the third generation of EJ research. The unorganized e-waste sector in India appears as a new marginalized group unexplored in earlier EJ studies. This project broadens the range of EJ scholarship by investigating their role in the e-waste lawmaking process. The study thereby expands the boundary of the field by adding new sites, issues, and populations to its list.

Next, the study shows how the pluralist ideas of justice have evolved through the performance of the state roles in association to the roles of the other interpretive communities. By tracing the evolution of their EJ ideas, the findings suggest that the EJ vision of the state apparatus was shaped by the concerned non-state and semi-state community. Also, the case highlights that the interpretive communities attempted to foster distributive justice in diverse ways by framing the two policy issues differently. For instance, the issue of formalization was framed to separate the hazard from the workplaces; and the topic of producer responsibility was framed to make the electronic industries share the burden of e-waste and to eliminate toxics at the design stage. The ulterior purpose of each was to ensure fairness in the distribution of e-waste. Further, findings suggest that the trivalent conceptions of justice are intricately linked and distributive justice cannot be achieved without recognition of the unorganized enterprises and the workers by the state and without their participation in determining their role in the new e-waste regime. Next, the analysis brings to attention a unique case of environmental injustice in which the vast section of the affected group, including the informal enterprises and the workers are silent about the injustices of mal-distribution, misrecognition, and lack of participation. They were ignorant about the harmful effects of e-waste and were oblivious about the new e-waste

law. The analysis underscores that the marginalized community lacked any standard of justice because they were not sensitized by the other interpretive communities, suffered from structural misrecognition for generations, and lacked any alternative means of sustenance. Hence, the new law did not reflect any EJ view of the marginalized people. In its absence, the study predicts that when implemented, the law would uni-directionally reinforce environmental injustices of distribution, recognition, and participation in this sector, and the affected group would have to succumb to the forces of domination.

The analysis of the Indian state's role in reproducing environmental injustices in the e-waste sector makes important conceptual contributions. First, the study brings the developmental state theory into the fold of critical EJ studies by examining how the Indian state apparatus in conjunction with other interpretive communities perceived the ideas of distribution, recognition and participation; how their ideas finally became partially incorporated in the e-waste law; and their likely consequences on the affected sector. The analysis emphasizes that the state's role in reconstructing environmental injustices through in/actions has to be understood in relation to that of the other discourse communities since the state doesn't perform roles in isolation. Moreover, it explains how the state structural features reflected in the performance of roles could delimit or foster environmental justices. Second, the study extends Schlosberg's (2004, 2007) trivalent conception of justice into the realm of state-e-waste sector relationship and draws attention to how the developmental state reproduces injustices of distribution, recognition, and participation. In doing so, this study addresses two major gaps in critical EJ scholarship: a) its insufficient attention to the role of the developmental state and b) the lack of focus on the pluralist conceptions of justice. Third, the analysis confirms Schlosberg's (2004, 2007, 2012 and 2013) and Schlosberg and Carrathers' (2010) notion that the pluralist conceptions are intricately linked

and that fairness in distribution cannot be attained without recognition and participation of the affected people. Fourth, the study explains how rendering a group invisible by the state is a form of misrecognition as argued by Fraser (in Schlosberg, 2012). Fifth, the analysis extends critical EJ research into a new arena in which the marginalized group does not raise their voice against environmental injustices. EJ scholarship thus far, has been influenced largely by the justice claims of the affected people. A major focus of the scholars has been to understand how EJ conflicts take shape through the collision of alternating discourses of environmental justice. This case opens a new dimension of critical EJ studies that calls for the need to theorize the implications of environmental injustices on affected communities that lack any conception of justice and do not protest in any form.

Directions for Further Research

These research findings open up several avenues for future research. A detailed analysis of the e-waste law implementation process would be necessary to understand what combination of roles the Indian state units and the other constituencies perform and what structural characteristics find reflection in them. Such an analysis will create a robust understanding of the relationship between state roles, structure, and the e-waste legal regime. Moreover, a study of the roles of the key constituencies will reveal how the informal sector, including the e-waste dealers and workers respond to state roles. Developmental statists argue that to understand state-society relationship in full, it is necessary to examine how the societal groups respond to state action. In this research case, since the state's role has been marked by action and inaction, the e-waste sector's response to both in/action in the implementation process would add new empirical and theoretical insight into the developmental state literature. The manner in which the informal sector responds will determine the future role of the state. A study of their interrelationship will

expand the scope of developmental state scholarship that has paid inadequate attention to such relationship. Next, a study of how environmental injustices of distribution, recognition, and participation are being reproduced in the e-waste sector during law implementation phases would be important in order to conceptualize how the Indian state apparatus influences its reproduction through law enforcement. Also, it is imperative to analyze how the affected people, including informal operators and workers adjust to the environmental injustices. More precisely, a future study should examine closely how, if at all, the affected community develops ways of responding to the forces of domination; how, if at all, the non-state, the semi-state and the newly organized groups sensitize the unorganized sector; and how, if at all, the affected people are able to be sensitive, organize themselves, and articulate their demands against the dominant forces. Further research should conceptualize the unique workspace dynamics of the informal operators and workers that blend home, work, family, and hazard together. Also, it is necessary to analyze how gender, age, and religion of the affected community have prevented them from demonstrating any visible form of resistance for generations and how that shapes the community's response to the e-waste law. The work of Javier Auyero and Debora Swistun (2009) that investigates how environmental injustices are reproduced on an impoverished community that has remained silent in the shantytown of Argentina would be an important starting point.

Further, it is essential to study e-waste regulatory regimes in other kinds of developmental states because e-waste management is increasingly becoming a growing concern in the developing world and it's crucial to see how effectively states are handling them. It would be important to find out what roles such states perform in regulating e-waste, who constitute the key non-state constituencies, how they get involved, what roles they perform, and what structural features are revealed in the process. Studies of different kinds of developmental states would

enhance the scope for comparing and contrasting across developmental state roles and structure in managing e-waste. To comprehend state-e-waste sector relationship in full, it would also be important to study how the e-waste sector in other countries react to state's roles or how the sector's response elicits further action or inaction from the state authorities. The scope of the developmental state scholarship can be further broadened if state's roles and structure are studied in relation to other waste sectors, such as municipal waste and hospital waste. So far, waste scholarship mostly focuses on the historical analysis of the waste management practices in the developed countries (Strausser, 1999; Melosi, 2005; Hawkins, 2006; Pellow, 2002, 2004). An in-depth study of the developmental state's roles in crafting and implementing waste management policies will advance understanding of developmental state and waste studies.

Finally, with the broadening of the scope of developmental state and waste studies, a better grasp of understanding EJ conflicts in the global South can be achieved since a seminal issue of EJ studies has been the politics of waste (Pellow, 2002, 2004). The developmental state can be rigorously embedded in critical EJ research through such studies. Future studies should ask how developmental states reconstruct environmental injustices of mal-distribution, non-recognition, and lack of participation through waste management policy making and implementation. Also, novel cases should be investigated in which the affected people have historically remained silent to the forces of structural control. Such studies should ask how structural forces have led to misrecognition and lack of participation of the marginalized groups that have been rendered them silent; and how their silence in turn magnifies and intensifies the environmental injustices that affect them.

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APPENDIX A

List of Acronyms

WEEE	Waste Electrical and Electronic Equipment
EU	European Union
GIZ	Gesellschaft fur Internationale Zusammenarbeit
MAIT	Manufacturer Association of Information Technology
MoEF	Ministry of Environment and Forest
CPCB	Central Pollution Control Board
DPCC	Delhi Pollution Control Committee
HRA	Hareet Recycler Welfare Association
RoHS	Reduction of Hazardous Substances
EPR	Extended Producer Responsibility
NGO	Non-Government Organization
HWMR	Hazardous Waste (Management and Handling) Rules

APPENDIX B

List of Interviews

Toxics Link

Greenpeace India

Chintan

GIZ

MAIT

MoEF

CPCB

DPCC

HRA

Informal e-waste recyclers

APPENDIX C

Consent Form

I, _____, agree to take part in a research project titled "Confronted with Managing E-Waste in Delhi: Embedding the Developmental State in Environmental Justice Research" undertaken by Ujjaini Das from the Department of Geography at the University of Georgia (706-542-2388) under the supervision of Dr. Hilda Kurtz (706-542-2329), Department of Geography at the University of Georgia. I understand that I can decline to participate without reason at any time. I understand that my participation is voluntary. I can refuse to participate or stop taking part at any time without giving any reason, and without penalty or loss of benefits to which I am otherwise entitled. I can ask to have all of the information that can be identified as mine returned to me, removed from the research records, or erased.

The aim of this research project is to understand the complex relations between state bureaucracies and social actors, within the circumstances of framing and implementing new e-waste rules and in defining the role of an emerging cadre of street-level bureaucrats in Delhi.

I will not get any material benefits from this project. If I willingly participate in this study, I will take part in a semi-structured interview that will last for approximately one and a half hour that will be audiotaped. The transcripts will be labelled with a code and the key linking real names and the codes will be kept for one year. I understand that with the completion of the research study, the audiotapes will be destroyed. The audio tapes will be kept for one year. If I participate in the study there are no known risks involved.

The information that will be gathered by the researcher in the course of this study that can identify with me will not be disclosed without my permission unless required by law. The information will remain confidential unless I provide written permission to disclose to the public. Please check whether or not the researcher can use real name: Yes / No
If I have any further questions about the research project, the researcher will provide with answers either at present or during the research period. The researcher can be reached at: 706-372-2746.

With my signature on this form, I agree to participate in the research study. I will get a signed copy of this form for my records.

_____ _____

Name of Researcher Signature Date

Telephone: _____

Email: _____

_____ _____

Name of Participant Signature Date

Please sign both copies, keep one and return one to the researcher

Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 629 Boyd Graduate Studies Research Center, Athens, Georgia 30602; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu.

APPENDIX D

Recruitment by Email

Dear Sir/ Maam,

I am the Co-PI of the research titled "Confronted with Managing E-Waste in Delhi: Embedding the Developmental State in Environmental Justice Research". I am a PhD Candidate at the Department of Geography, University of Georgia. The PI for this research project is Dr. Hilda E Kurtz, Associate Professor, Department of Geography, University of Georgia. You can reach me at ujjaini@uga.edu or by phone at (706-542-2388). You can reach Dr. Kurtz at hkurtz@uga.edu or by phone at (706-542-2329).

The aim of this research project is to understand the complex relations between state bureaucracies and social actors, within the circumstances of framing and implementing new e-waste rules and in defining the role of an emerging cadre of street-level bureaucrats in Delhi.

I would like you to participate in a semi-structured interview which will last for approximately one and half hour. I would provide you a consent form prior to the beginning of the interview that explains in detail the consent procedure. The interview will be audio-taped. Both male and female in the working age group who have been involved in the process of framing and in implementing e-waste regulations are eligible for the interview.

Your contact information was obtained from public records. Please kindly let me know when I can see you and also your preferred location.

Regards,

Ujjaini Das

APPENDIX E

Recruitment by Phone / In-person

I am the Co-PI of the research titled "Confronted with Managing E-Waste in Delhi: Embedding the Developmental State in Environmental Justice Research". I am a PhD Candidate at the Department of Geography, University of Georgia. The PI for this research project is Dr. Hilda E Kurtz, Associate Professor, Department of Geography, University of Georgia. You can reach me at ujjaini@uga.edu or by phone at (706-542-2388). You can reach Dr. Kurtz at hkurtz@uga.edu or by phone at (706-542-2329).

The aim of this research project is to understand the complex relations between state bureaucracies and social actors, within the circumstances of framing and implementing new e-waste rules and in defining the role of an emerging cadre of street-level bureaucrats in Delhi.

I would like you to participate in a semi-structured interview which will last for approximately one and half hour. I would provide you a consent form prior to the beginning of the interview that explains in detail the consent procedure. The interview will be audio-taped. Both male and female in the working age group who have been involved in the process of framing and in implementing e-waste regulations are eligible for the interview.

Your contact information was obtained from public records. Please kindly let me know when I can see you and also your preferred location.