Graduate School of Development Studies

(AD)JUSTING THE POOR:
Differentiated Service Delivery in Solid Waste Management
A Case of Sambalpur City, India

A Research Paper presented by:

Upasana Choudhry
(India)

in partial fulfillment of the requirements for obtaining the degree of
MASTERS OF ARTS IN DEVELOPMENT STUDIES

Specialization:
Environment and Sustainable Development
(ESD)

Members of the examining committee:

Dr. Joop de Wit
Dr. Anirban Dasgupta

The Hague, The Netherlands
November, 2010

Disclaimer:

This document represents part of the author's study programme while at the Institute of Social Studies. The views stated therein are those of the author and not necessarily those of the Institute.

Inquiries:

Postal address:	Institute of Social Studies P.O. Box 29776 2502 LT The Hague The Netherlands
Location:	Kortenaerkade 12 2518 AX The Hague The Netherlands
Telephone:	+31 70 426 0460
Fax:	+31 70 426 0799

Contents

List of Tables

List of Figures

List of Maps

List of Acronyms

BISWA:	Bharat Integrated Social Welfare Agency (BISWA)
BJD:	Biju Janata Dal
BJP:	Bhartiya Janta Party
BMW:	Bio medical Waste
CBO:	Community Based Organisation
DTDC:	Door-to-door Collection
EIA:	Environment Impact Assessment
EPA	Environment Protection Agency
FC:	Finance Commission
GoI:	Government of India
GoO:	Government of Orissa
H&UDD	Housing and Urban Development Department
ISWM:	Integrated Sustainable Waste Management
MoEF:	Ministry of Environment and Forest
MLA	Member of Legislative Assembly
MP	Member of Parliament
MSW:	Municipal Solid Waste
MSWM:	Municipal Solid Waste Management
NGO:	Non-governmental Organisation
NSSO:	National Sample Survey Organisation
OBC	Other Backward Classes
PSP:	Public Sector Partnership
PWD	Public Works Department
SC	Scheduled Castes
SMC:	Sambalpur Municipal Council
SPCB:	State Pollution Control Board
ST	Scheduled Tribe
SWM:	Solid Waste Management
TCPO:	Town and Country Planning Organisation
ULB:	Urban Local Bodies
UNDP:	United Nations Development Program
UNEP	United Nations Environment Program

Abbreviations

gm	Grams
Kg	Kilogram
Km	Kilometre
m	Metre
Rs.	Indian Rupees
sq. km	Square Kilometre
T	Tonne

Abstract

In view of fast paced economic growth accompanied with rapid urbanisation, management of municipal solid waste has emerged as one of the major environmental challenges of present times. Not many cities are however ready to meet this challenge. This is especially true for smaller cities, such as Sambalpur since these have been entrusted with the huge responsibility of managing city's waste without enhancing their capacities to effectively perform the role. There hence is an evident gap between the demand for waste management and the services provided in these cities. Under such circumstances, it is often the poor that are left out. The economically disadvantaged face disproportionate burdens – both environmental and health. Among the several factors that determine unequal distribution of benefits and costs, the most pertinent ones are the decision making process and the role of power relations in affecting the cost benefit structure.

Keywords

Municipal Solid Waste Management, Urban poor, Environmental justice, India, Urban Local Bodies,

Chapter 1
Contextualising the Problem

1.1 Background

Fast paced economic growth accompanied with rapid urbanisation, although a global phenomenon, their ramifications are more pronounced in developing countries. These are likely to account for 90% of the growth in urban population estimated to double between 1975 and 2015 (UNEP-GRID. 2008). Such rapid, unplanned and haphazard urbanisation brings challenges in the form of expansion of slums and additional pressure on the already overburdened urban infrastructure. One direct outcome of growth in urban population is the corresponding increase in the generation of municipal solid waste (MSW).

Globally, of the estimated 12 billion tonnes of waste generated in 2002, 1.6 billion tonnes was municipal solid wastes. By 2025 this is expected to reach 19 billion tonnes annually (Yoshizawa et al. 2004). Similarly, in Asia 790 million tonnes of the total 4.4 billion tonnes of the solid waste generated in 2002 was MSW (ibid). However, many fast growing urban centres lack adequate capacity to cater to the increasing demand for municipal waste management resulting in widespread pollution that poses risk to human health and the environment. Unfortunately, MSW receives little attention within the policy circles as well as academics in comparison to other urban environmental issues. For these reasons waste management has emerged as one of the major challenges today and will remain so in the future.

Similarly at 8%, India is experiencing rapid economic growth and urbanisation. According to the India Urban Poverty Report (2009), over 41% of India's population will live in the cities by 2030 - a significant increase from the current 28% (UNDP-Ministry of Housing and Urban Poverty Alleviation 2009). Massive urbanisation and a changing life style in Indian cities have resulted in generation of eight times more waste than in 1947. India's contribution to MSW generation in Asia was 48 million tonnes or nearly 6% of the total waste generated in the region in 2002 and is expected to reach 300 million tonnes by 2047 (Yoshizawa et al. 2004, Central Pollution Control Board 2000). Per capita generation of municipal waste in India ranges from 200 am to 500 gm per day and is estimated to grow at the rate of 1–1.33% per annum (Bhide and Shekdar 1998, Kansal 2002, Pappu et al. 2007, Sharholy et al. 2008, Shekdar 1999, Siddiqui et al. 2006, Singh and Singh 1998). The per capita waste generation in 2025 is therefore expected to rise to 700 gm per day (Government of India 2005). This may seem low in comparison to developed countries, but the aggregated volume for the entire population will be much higher.

The 74th Amendment of the Indian Constitution regulating decentralisation has transferred significant responsibilities for managing urban development, including solid-waste management (SWM), from the state government to urban local bodies (ULBs) and has recognized them as the third tier of governance. However, continued and unplanned urbanisation makes waste management difficult and expensive. With very little effort put in strengthening the economic base and resource generating capacity of ULBs, the pitiable state of

current urban public services is often attributed to their poor financial health. (Siddiqui et al. 2006, Ahsan 1999, Raje et al. 2001, Mor et al. 2006). Investment in urban development has clearly not matched pace with rapid growth thus creating deficits in the availability of infrastructure and basic amenities to urban population, particularly the poor.

There is a disparity in the income of ULBs across size class cities with the per capita revenue for cities with population over 500,000 being over 3.5 times more than that of towns with population under 100,000 (Kundu et al. 1999: 1901). The government lacks the sensitivity to favour small and medium towns and the poor (ibid: 1904).While population size is the basis for allocating funds to ULBs by the Centre and the states, in reality the need is higher in smaller cities. Larger cities manage to generate over 90% of the total revenues from tax and non-tax sources as against 70% in the case of smaller towns (ibid: 1901). This increases the dependence of small towns on external grants which can further prove to be a major hurdle in discharging their development responsibility. The capacity of ULBs is further restricted as a significant proportion of their expenditure is on general administration (ibid).Meeting additional burden from unplanned growth of cities by the resource poor ULBs becomes a big challenge.

Generally waste management covers activities linked to generation, storage, collection, transport, processing and disposal, but in most cities the concept of storage and processing is completely missing (Sharholy et al. 2008: 459). Waste management represents a large expenditure accounting for up to 50% of the municipal budget. According to a study by The World Bank, urban centres in Asia spend USD 25 million per year on managing solid waste and this is likely to increase to USD 47 million per year (Asian Productivity Organization 2007). However, despite such huge expenditure, the collection efficiency[1] ranges from 50% to 80% in different parts. The average collection efficiency in India is 70% and even much lower in the case of smaller cities (Siddiqui et al. 2006, Gupta et al. 1998, Maudgal 1995, Rathi 2006, Khan 1994). Quite evidently majority of cities fail to extend waste management services to their entire population and more often than not the areas left out are the poor slum settlements (de Wit and Berner 2009). In doing so, the cities are violating the provisions of Municipal Solid Waste (Management and Handling) Rules, 2000 issued by the Ministry of Environment and Forest (MoEF) that holds civic authorities responsible for particularly devising waste collection from slums and squatters, among others (Ministry of Environment and Forest 2000). This uncollected waste becomes a potential cause of serious health problems for the residents in its vicinity.

Furthermore, rapid urbanisation is witnessing a parallel growth in the incidence of poverty. A noticeable recent phenomenon is the urbanisation of poverty with higher poverty ratios in some larger cities in comparison to rural areas. One out of four people in cities experience absolute poverty while almost the same number can be classified as relatively poor (Zurbrugg 2002). Closely

[1] Collection efficiency is the quantity of MSW collected and transported to disposal sites divided by the total quantity of MSW generated.

linked, there is also a rampant increase in the slum population. The Town and Country Planning Organisation (TCPO) estimated nearly 62 million people to be living in slums in India in 2001 (UNDP-Ministry of Housing and Urban Poverty Alleviation 2009). Growing poverty and slums pose a major challenge for making cities sustainable, that is, inclusive, productive, efficient and manageable (UNDP-Ministry of Housing and Urban Poverty Alleviation 2009). More so, poverty levels in small towns are higher than that in large cities, which implies another set of challenge (UNDP-Ministry of Housing and Urban Poverty Alleviation 2009).

1.2 Evident Gaps and Need for Research

From the above discussion it becomes evident that urbanisation poses several challenges and each of these in turn acts upon the other and results in newer forms of challenges. Exploring these various inter-linkages, parallel processes and the resultant complexities is critical. A fast urbanizing city with a weak governance mechanism incapable of providing basic services, such as SWM, to the entire population is likely to result in disproportionate impact on the poor.

Municipal solid waste as a topic of enquiry is not new and has received a fair degree of attention from the researchers as early as the 1970s. However there is a major focus on the technical aspects of managing municipal waste. Another well researched area is the economics of MSW, focussing on issues around service provisions, including economies of scale and property rights prevailing in the informal recycling sector and more recently on the resource recovery aspect. Those focussing on the social aspects of MSW are relatively few and primarily investigate the role of actors in informal waste recycling, especially waste-pickers and the issue of livelihood. Assessments at the city level and in some cases even covering multiple cities within and among countries are also common (for example Kumar et al. 2009). However these are largely focused on metropolitan cities (such as Mumbai, Chennai, Bangalore, and Delhi) probably for reasons that these are considered MSW hotspots. Again it would be totally wrong to believe that solid waste is a cause of concern only for larger cities. A recent city rating exercise conducted by the Ministry of Urban Development under its National Urban Sanitation Policy provides a much needed insight into the ground realities of cities and towns across India. This exercise recognises and lists the cities based on their achievement of National Urban Sanitation Policy objectives, treatment and disposal of solid waste being one of them. Out of the total 423 cities (covering all major cities of the country and almost 72% of India's total urban population) four scored in the range of 60 and 90; 229 cities are found within the range of 33 and 60; and the remaining 190 cities failed to achieve even the 'passing grade'(Press Information Bureau. 2010). A close assessment of this list reveals that the majority of smaller towns and cities fall in the lower ranks. Sambalpur, for example, ranks at number 269 with a performance rate of 31% (ibid).

Review of existing literature therefore highlights two glaring gaps in the research arena: first, there is almost negligible information on the condition of MSW in smaller cities and towns in India. Not only are these cities more vulnerable to the challenges posed by fast paced urban growth but these also possess unique characteristics that have to be understood within their specific con-

texts. In view of the recent developments it is clear that small towns and cities shall pose a major challenge for the policy makers in the times to come.

Second, the existing work overlooks the aspect of the inherent divide in the provision of MSW services either within or among cities. The reality is that almost always the cities have two sides – the affluent and the deprived. Current studies have missed to bring forth this 'unevenness' when it comes to service delivery for SWM. There has been an unstated assumption that urban services are uniformly spread across the city or the country. There is some passing reference to ULBs not being able to manage the entire city waste (for example Rathi 2006) but these studies fall short of attempting to identify any observable patterns in the way decisions on selective service delivery are made. A handful of studies (for example Sharholy et al. 2008) go further to acknowledge that the poor and low-income areas are underserved by the ULBs. But these too do not delve deep for the possible reasons. Varied explanations given by scholars for this disparity range from lack of access to the interiors (due to overcrowding), illegal status, non-tax paying status of inhabitants, and unwillingness or inability of inhabitants to pay for services. The 'lack of access' justification, although the most commonly used, is rendered baseless in view of the findings by Srinivasan (2006) who has attempted to explore equity and accountability concerns in ULB and non-ULB areas (Srinivasan 2006). Contrary to the common perception of poor being excluded with the entry of private agencies, the study found that while the cleanliness levels were higher in rich localities – a trend visible across the city irrespective of the service provider - the servicing of poor settlements by Exnora (a private agency) is as meticulous as any upper income area and in comparison to their counterparts in corporation-serviced areas, the residents reported less disparity among neighbourhoods. The scholar ascribes the reason to collection tonnage-based payment to the private agency and absence of user fee, which provides motivation for increased waste collection. Clearly the reasons for non-collection are much deeper and political than mere physical limitations.

This paper therefore aims at plugging the above research gaps by grounding itself in the poor localities of a non-metropolitan class-1 city, Sambalpur, and attempt to understand the condition of solid waste management as experienced by the urban poor, and their underlying reasons.

While there is no other study on MSW that focuses on this particular aspect, there are a few that looks into the existing disparity in the provision of urban basic services to the poor. For instance Choudhury (2005)[2] looks into the status of urban service delivery and its consequences for the urban poor in Cuttack city, another class-I city in Orissa, and has found inadequacy in urban services in poor settlements.

2 Choudhury M. Improving Basic Service Delivery to Urban Poor by Local Environmental Management: A Study of a Poor Community (Thoriasahi) in Cuttack City, Orissa, India [MSc. Thesis- Unpublished] Asian Institute of Technology, Thailand. -2005. -pp 94.

1.3. Purpose of the Study

As already indicated, the principal objective of this research is to examine equity (related to access to services and roles of the urban poor), accountability (related to the provision of services) and environmental safety concerns in MSW. More specifically, this research aims to understand the present conditions of MSW management in poor localities in Sambalpur city; assess to find gaps in the provision of services; and explore whether (and why) the urban poor are bearing more than their share of environmental burden derived from deficient MSW management

1.4. Research Questions

The broad question that this research has attempted to answer is:

To what extent do the urban poor experience differential treatment with regard to the provision of municipal services for solid waste management and do the prevailing systems and processes (administrative and socio-political) prevent this access?

This has been answered with the help of the following sub-questions:

1. What is the overall MSW management situation in Sambalpur city?
2. What is the condition of MSW management in urban slums in Sambalpur city and are there any evident gaps in the provision of services to the slums that may a pose risk to human health and environment?
3. Is there any noticeable pattern of disparity in solid waste management services as made available to slums vis-à-vis rest of the city?
4. Do the prevailing systems and processes – administrative, socio-political and others – contribute to the existing disparity?

1.5. Methodology

This research is based on both quantitative and qualitative data from primary and secondary sources. To investigate the issue, a case study approach has been adopted by studying the situation in Sambalpur city in the state of Orissa, India.

The selection of Sambalpur for the purpose of this research was based on two basic criteria: it is a non-metropolitan class-1 city[3] in the state of Orissa and both, the city as well as the state have not been covered by existing literature on MSW; and the city is also not covered under the JNNURM[4] (Jawaharlal Nehru National Urban Renewal Mission). This means that the conditions found in Sambalpur could well reflect the case of the other 433 cities in this

[3] Indian Census classifies cities on the basis of population into six classes: 100,000 or more as Class I; 50,000-99,999 as Class II; 20,000-49,999 as Class III; 10,000-19,999 as Class IV; 5,000-9,999 as Class V; and less than 5,000 as Class VI.

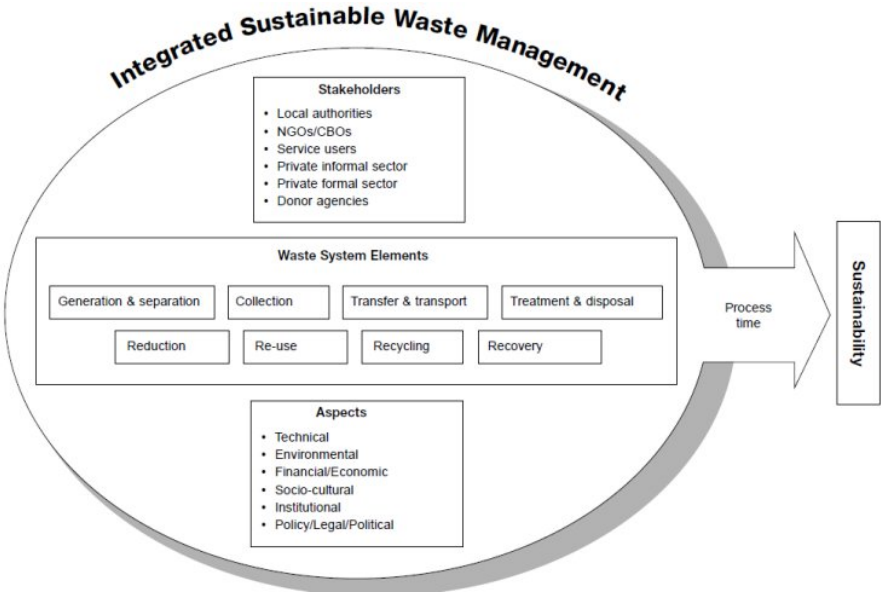
[4] JNNURM aims to encourage reforms and fast track planned development of urban cities with a focus on efficiency in urban infrastructure and service delivery mechanisms, community participation, and accountability of ULBs towards citizens.

category. Yet another critical reason for the selection of this site for case study is the fact that the city through its private service provider is keen on developing a robust waste management plan in the near future. Therefore findings from this research will feed into the process and facilitate taking informed decisions.

As a methodology, in the absence of any existing information on MSW in Sambalpur, a citywide profiling was taken up to understand waste generation and composition, process flow, recycling chain, existing institutions, drivers, actors involved, infrastructure, management issues, and legal framework. The profiling was based on the primary information collected during interviews with stakeholders namely Sambalpur Municipal Council (SMC), Private Service provider, NGOs, Service Users, Informal Recycling sector, District and State Administration, and Regulatory Agency (Appendix A). The information was supplemented with observation visits to the wards and other sites.

To understand and document the current waste management system, the ISWM (Integrated Sustainable Waste Management) approach was used. Use of this methodology helped the mapping of different elements of the entire waste trajectory from waste generation to final disposal. Besides, not only were the technical and financial aspects of the system analysed but also the environmental, social, health, legal, political, institutional and economic aspects were studied. Hence this approach ensured that all the local issues affecting waste management in the city are taken into consideration. Most important, all of the stakeholders involved and/or affected by the waste management trajectory were identified and encouraged to participate in the assessment. Figure 1 shows the ISWM model.

Figure 1: ISWM Model



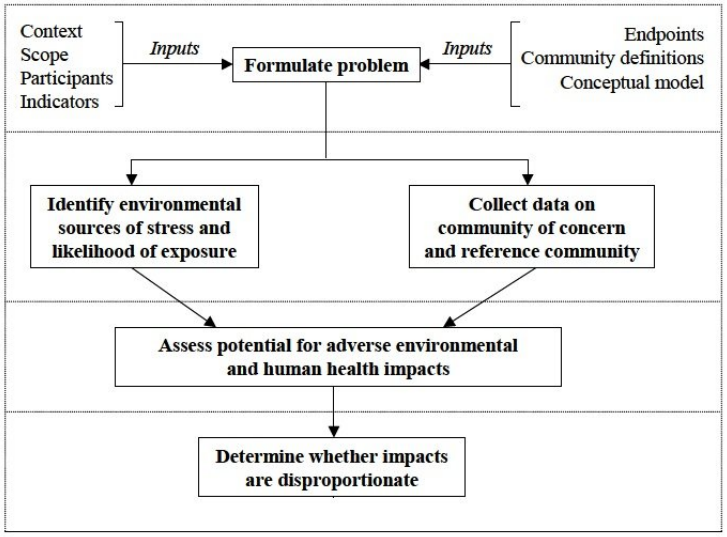
Source: WASTE

To investigate the inequity aspect, two slums were randomly selected from different wards. In addition, two other slums were selected as one is the largest slum in the city and the other is located close to the waste disposal site. Information on these slums was collected through interviews, focus group discussion, observation visits, and through use of tools such as Ranking. Information from randomly selected middle and higher income areas was also collected through interviews and observation visits.

Primary data was collected during a six-week field visit in July and August. Focus group discussions were conducted with the residents to understand their perception of various service providers and how they compare to each other. The initial set of participants for interviews was identified with the help of a local NGO – Bharat Integrated Social Welfare Agency (BISWA). Once the process got rolling, subsequent participants were identified through the snowball effect.

For case studies of slums the methodology relied on the use of Environmental Justice indicators that primarily included: Environmental; Health; Social and; Economic indicators. Information was collected to determine the sources of environmental pressures in the affected area, which could be considered disproportionate to the rest of the population (Figure 2).

Figure 2: Methodology for assessing environmental injustice



Source: US EPA

1.6. Scope and Limitations

While working on the topic it became even more evident that the issue of municipal solid waste is extremely complex and intertwined with several other social, economic and political issues. To avoid the risk of losing focus, the research did not delve into the issues related to urbanisation or urban poverty. Assessment of the available technological solutions for MSW management is also outside the scope of this study. The research aimed at studying the preva-

lent conditions with regard to waste management without engaging in the moral aspects of MSW such as waste reduction, recycling, and resource recovery.

Being a micro-level study there were several challenges and limiting factors as well. Primarily, there is no single study that looks into the aspect that the research focuses on. Hence there was no precedent of an effective methodology for studying the issue. Another limitation for the study was reliance on a local NGO, who is also a service provider, for primary data. This influenced the response in many cases. The stature of the NGO and the seeming association with it prevented, to a large extent, free sharing of thoughts and information by almost all groups. This was overcome to a certain extent by using other contacts. Furthermore, poor institutional memory and lack of documentation with the municipality made access to information extremely difficult and unreliable.

1.7. Organisation of the Paper

The paper has been organised in a way that provides an overview before zooming in on specific locations. Chapter 2 presents environmental justice as the key analytical framework for this research. The next two chapters present the city-wide overview of solid waste management in Sambalpur before describing the realities of the slums as they stand against other areas. The chapter critically analyzes the causality of benefits and costs distributed unequally among sections including the decision-making process, from the environmental justice framework. In doing so, it focuses on the kind of power relations that affects the cost-benefit structure.

Chapter 2
Analytical Framework

2.1. Important Concepts

Various concepts and perspectives were found to be helpful in understanding and explaining the research findings on the provision of municipal waste services to the urban poor, more specifically in Sambalpur city, but these are of equal relevance to other locations as well.

First and foremost, an understanding of the various concepts involved is of key importance especially with regard to their usage in this particular research. Over simplification of some of the concepts has been intentional as the idea is to draw their outer boundaries and determine the scope. The need for following strict definitions was not felt for this work.

The central concept in this research is the municipal solid waste (MSW). This has been broadly defined as "all solid waste generated in an area except industrial and agricultural wastes. Sometimes that includes construction and demolition debris and other special wastes that may enter the municipal waste stream [...] defined to mean all solid wastes that a city authority accepts responsibility for managing in some way" (Global Development Research Center.). While some may feel the need for a stricter definition of MSW given that different provisions govern the management of different categories of waste (such as electronic waste, bio medical waste, hazardous waste or any other waste), but once these waste categories enter the municipal waste stream, this distinction is no longer valid. In such cases, any attempt to categorize waste may be futile. Hence for the purpose of this work, a broad understanding of waste has been adopted which includes all the waste categories found in the municipal waste without making any sort of distinction.

The concept of MSW management (MSWM) is closely linked to that of MSW and refers to controlling its "generation, collection, storage, transport, processing, and disposal in accordance with health, economics, engineering, conservation, aesthetics, and other environmental considerations"(Asian Productivity Organization 2007: 3). It includes within its scope, administrative, financial, legal, and technical functions and is critical in determining the outcomes and impacts of MSW on the environment and health.

The MSW management assumes even greater importance in conditions such as that of slums. The challenge is posed by the very characteristic of these areas. The Slum Areas (Improvement and Clearance) Act, 1956 defines slums as "areas with buildings unfit for human habitation; or by reason of dilapidation, overcrowding, faulty arrangement and design of such buildings, narrowness or faulty arrangement of streets, lack of ventilation, light or sanitation facilities, or any combination of these factors, are detrimental to safety, health or morals" (Slum Improvement Act 1956; sec. 3). In short, the living conditions in slums are unhygienic and contrary to all norms of planned urban growth and are an important factor in accelerating the transmission of various air and water borne diseases. The characteristics for the classification of slums adopted by

Census of India 2001 have been used for the purpose of this research which considers all areas either notified or recognised as slums by the respective state and local governments. However it is important to draw a distinction between slums and squatter settlement, which, although is slum-like in nature, may have its own set of additional challenges. Hence slums here are understood to have at least a population of 300 or about 60-70 households.

Slums being largely an urban concept are also referred to as Urban Slums. Urban areas are defined on the basis of national criteria such as: population thresholds; density of residential buildings; type and level of public services provided; proportion of the population engaged in non-agricultural work; and officially designated territories (Wratten 1995). The Census of India 2001 has stipulated the population threshold as 5,000 with at least 75% of the male working population engaged in non-agricultural pursuits. These defining characteristics of urban centres further explain why MSW management assumes greater significance in these areas.

A concept almost synonymous to Urban Slums is that of Urban Poor or Poverty. There are two broad approaches to defining (urban) poverty. The narrow economic definitions use income supported by a range of other social indicators such as life expectancy, infant mortality, nutrition, literacy, and access to health services or drinking water, to classify poor groups against a common index of material welfare. The broader definition encompasses perceptions of non-material deprivation and social differentiation and emphasises qualitative dimensions such as independence, security, self-respect, identity, social relationships, decision-making freedom and legal and political rights (Satterthwaite cited in Masika et al. 1997). This research will use this wider notion of poverty in the larger context of MSW services.

2.2. General and Theoretical Perspective

The following theoretical perspective has been helpful in drawing the analysis.

2.2.1. Environmental Justice

The Environmental Justice (EJ) framework is found to be particularly relevant for the analysis. Environmental justice is broadly understood as 'fair treatment' and 'meaningful involvement' of all people irrespective of their class, caste, origin, or educational level with respect to the development, implementation, and enforcement of environmental laws (Bullard 1994). In this respect the term 'fair treatment' is meant to imply policies and practices that ensure no group of people, including socioeconomic groups, bear a disproportionate burden of negative human health and environmental impacts resulting from government programs, policies, and activities (ibid).

However, in the absence of a clear definition of 'environmental justice', scholars have attempted to provide a broader framework within which to discuss EJ implications. For instance, Watson et al. highlighted the two dimensions of EJ namely its concern about environmental outcomes and the systems that result in those outcomes (Watson and Bulkeley 2005). Therefore the consequentialist approach is concerned about avoidance of environmental bads, or access to environmental goods as a matter of right. Procedural approach on

the other hand lays emphasis on the decision-making processes that create and distribute the environmental goods and bads, rather than on distribution itself. The premise being that an ideally just procedure will necessarily result in just outcomes. Hence scholars argue that EJ is not concerned much about the isolated cases of injustice and the related issues of distribution, but has a much wider concern about the injustice stemming from systemic failures (Dunion 2003). Interpreting EJ as systemic -- a matter of spatial gradients of justice and injustice rather than only points of acute injustice is found to be useful in understanding the whole range of justice implications particularly in the case of MSW management where the impacts can be significant despite appearing to be low risk.

Similarly, Anand (2004) has classified EJ into two dimensions: distributional and procedural justice (Anand 2004). Distributional justice uncovers the inequitable distribution of burden on differentiated group of people and community, focusing on the right of the poor not to face unevenly distributed environmental health costs (ibid). On similar lines, Hallowes et al. argue that EJ is not simply realised through fair distribution of benefits and costs but goes to the heart of how power relations define and re-produce development itself, involving who benefits, who loses, and who decided it (Hallowes and Butler 2002: 52) This question of 'who' is critical as EJ is created and configured by multiple relationships. On this point, they indicate that EJ may be placed in the socio-political contexts, demonstrating that EJ obtains where relations between people, within and between groups of people, and between people and their natural, cultural, social, political and economic environments are fair and equal (ibid) . Hence distributional justice intends to tackle the inequitable distribution of benefits and costs by confronting multiple power relations exercised in different settings and focusing on 'who' is responsible for it.

On the other hand, procedural justice - the other dimension of EJ - is also important as it reveals the unfairness in the decision-making processes and policy formulation. This dimension focuses on advocating the need for public policy to be premised on mutual respect for all people, equal participation on the principles of fairness and absence of any distortions of privileged insights in the agenda-setting process (ibid).

Cutter (1995) has drawn a distinction between environmental equity and environmental justice, where her definition of equity closely resembles what others have classified as justice (Cutter 1995). She uses environmental equity in a broader sense to refer to the disproportionate affects of environmental degradation on people. Environmental equity can either be viewed as the causal mechanism of equity (also referred to as process equity) or distribution of benefits and burdens in space and time (or what is known as outcome equity) (ibid) . It originates from three key sources of dissimilarity -- social, generational and procedural (ibid). Environmental justice, on the other hand, is a more politically loaded term -- one that connotes some remedial action to undo an injustice imposed on a specific section of population (Bullard 1994). Hence the principle of EJ ensures protection from environmental degradation; prevention of any adverse impacts of degrading environmental conditions; accountability mechanisms and shifting the burden of proof of contamination to polluters, not residents; and redressal of impact with remedial action.

Closely in line is the inequity framework proposed by Konisky who puts forth two useful explanations for environmental inequity: first is the 'intentional discrimination' where, he argues, the low-income communities face disproportionate environmental risks due to deliberate decisions made by public actors (Konisky 2009). Such decisions may include performing less enforcement of facilities in low-income jurisdictions. However it is difficult to detect such behaviour as it requires information about individuals' motivations and decision making, which is often unobservable (Ringquist 2006). The second explanation is based on the logic of 'collective action', where he holds that the government behaviour is influenced by the political capacity of potentially affected populations (Konisky 2009). Hence communities possessing higher political capacity (wealth, education, group organisational skills) are more likely to pressurise the government into strict enforcement of environmental laws and even when these communities do not actively pressurise the government, public officials may consider the potential of community residents to respond in opposition to lax regulatory enforcement. Low-income individuals tend to have fewer of these political resources.

In short, all scholars have pointed out the two dimensions of EJ – the outcomes and the process -- and there is almost a consensus among all on the importance of procedural approach over distributional approach. This research uses both dimensions.

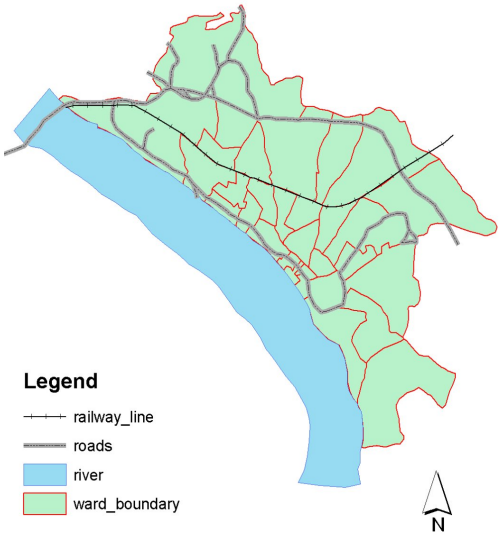
Chapter 3:
Managing Solid Waste in Sambalpur City

It is foremost important to understand the city context as well as the solid waste management system as practiced in Sambalpur.

3.1 City Overview

Established in 1876, Sambalpur is one of the oldest towns of Orissa and also the biggest in Western Orissa. It is also the headquarters of Sambalpur District. Over the years the city has grown in a haphazard and unplanned manner with large-scale and unchecked migration subsequently ballooning into slums scattered all around the city.

Map 1: City map showing ward boundaries



Source: Sambalpur City Development Plan

The city has experienced a 17% growth in its population from 1,31,138 in 1991 to 153,643 in 2001 with about 12% Scheduled Caste (SC) and 9% Scheduled Tribe (ST). With an area of 33.66 sq km the city has a density of 4,580 per Sq Km up against 122 persons per sq km for the entire district. Its proximity to Jharsuguda, an upcoming industrial town, makes Sambalpur one of the regional growth centres.

The literacy rate is 79% (86% among males and 71% among females). The infant mortality rate is 65 per 1000 live births. Over 50% of the population belongs to the lower income strata; 40% is in the middle income strata; and 10% is in higher income strata. Approximately 59.32% of the city population is Below Poverty Line. In terms of basic amenities, there are 45 primary schools, 41 middle schools, and 5 secondary schools. Sambalpur has one government hospital with a 249 bed capacity and 32 doctors.

3.1.1. Legal and Institutional Framework

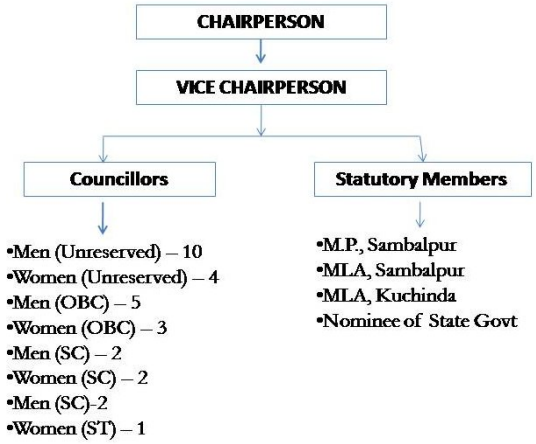
The 74th Amendment of the Constitution, the Orissa Municipal Act, 1950 and the Orissa Municipal Rules, 1953 govern the constitution and functioning of the ULB. The municipality functions under the overall administrative control of the State Housing and Urban Development Department (H&UDD) headed by the Director of Municipal Administration. The state government has the powers to call for information, conduct inspection, give direction, dissolve the ULB, cancel orders and even rescind resolutions of the council under specified circumstances. The functions of the municipality fall under two categories -- obligatory functions (such as maintenance of roads, street lights, sanitation, water supply, registration of births and deaths, public immunization and regulation of buildings); and discretionary functions (such as construction and maintenance of parks, schools, hospitals, and libraries). Separate departments perform these functions besides an administrative and a finance department. Solid waste management is one of the obligatory functions of Sambalpur Municipality.

3.1.1.1. Administrative Set-up

For administrative purpose Sambalpur Municipality (or Sambalpur Municipal Council) is divided with 29 wards. The ward areas and the size of the population vary (q.v. Appendix B). Over half of the total 29 seats (15) are reserved for SC, ST and other backwards classes (OBC). Women representatives have one-third seats (10) reserved.

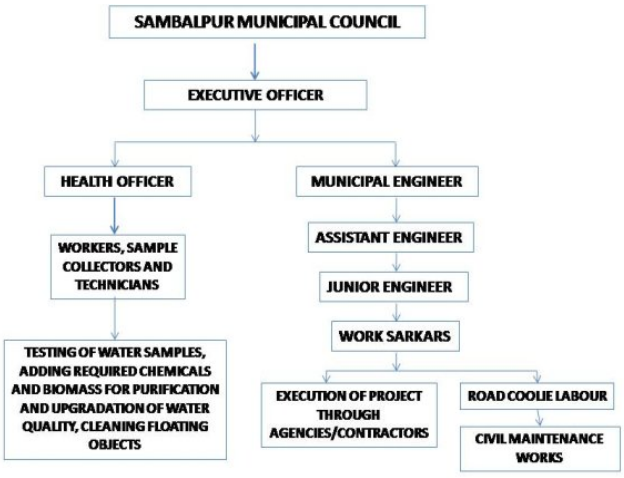
Sambalpur Municipality has an elected and an executive wing. The elected body comprises public representatives, known as Councillors, one for each ward, who hold office for a period of five years. The wing is headed by a Chairperson. Members of Legislative Assembly for their respective constituencies also form a part of the council. Additionally, Government of Orissa (GoO) also nominates a few councillors. This council is the policy-making body assisted by various standing committees (such as finance, public health, hospitals and dispensaries, public works) for rendering specialised functions (Figure 3).

Figure 3: Elected (or political) wing of municipality



An Executive Officer, appointed by GoO heads the executive wing and backstops the decision-making process assisted by the Municipal Engineers and the Health Officer, who is in-charge of SWM (Figure 4).

Figure 4: Organisation structure of municipality



3.1.2. Political Scenario

The current council was elected in August 2008 with 15 councillors from the Bhartiya Janta Party (BJP), one of the key National Parties; 13 from the Congress party, currently the ruling party at the Centre; and one independent. The party in power in the state is Biju Janta Dal (BJD) which was once in alliance with BJP in the state and also supported the National Democratic Alliance between 1998 and 2009.

3.1.3. Financial Arrangement

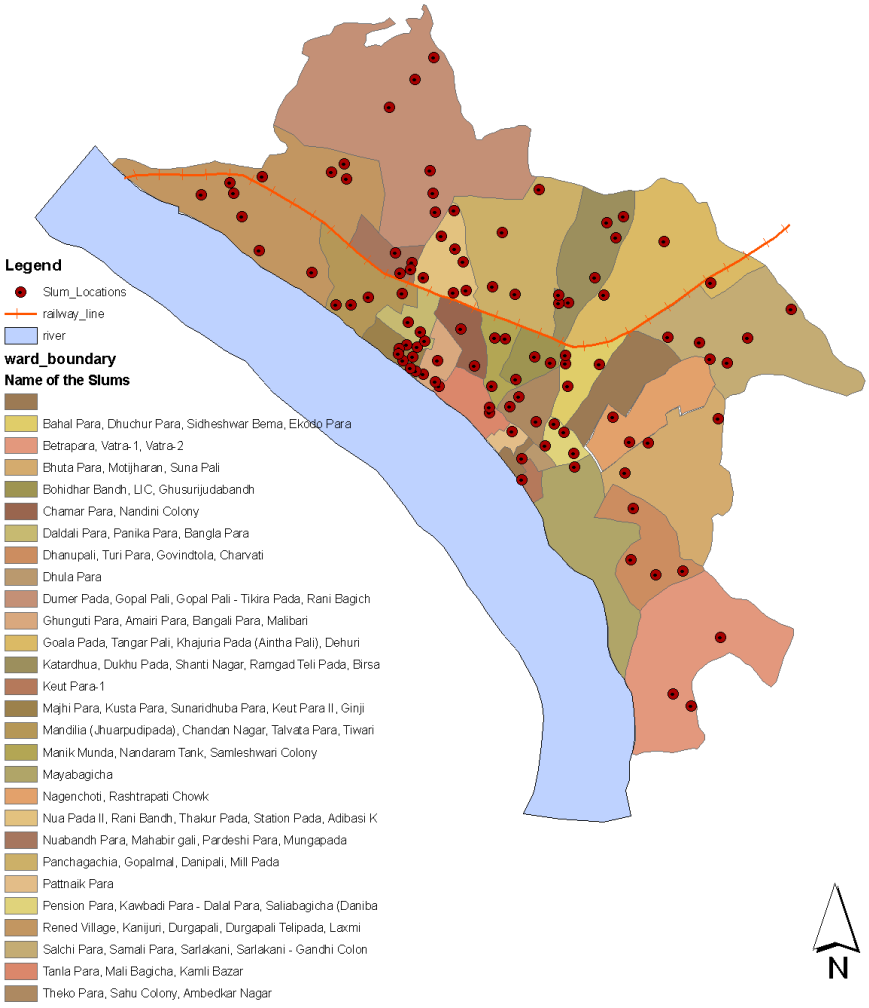
The municipality's own kitty comprise rates and taxes, including property tax, license and other fees. The major source of income of the ULB is the grant received from the Orissa government in lieu of octroi receipts and specific purpose grants. It receives central funds under the Finance Commission, besides funds for the execution of centrally sponsored schemes. A few developmental works may be funded from the MPs/ MLAs[5] Local Area Development Funds. The council approves an annual budget which is further reviewed by the state government before finalising. H&UDD keeps track of the progress through fund utilisation certificates every month.

3.1.4. City Slums

There are 104 slums of which 88 are notified (Map 2). Nearly 90% of the land on which these slums are located belongs to the government (Table 1).

[5] Members of Parliament and of the Legislative Assembly have allocations of funds to spend at their discretion on local projects in their constituencies

Map 2: Slum location



Source: Sambalpur Ciy Development Plan

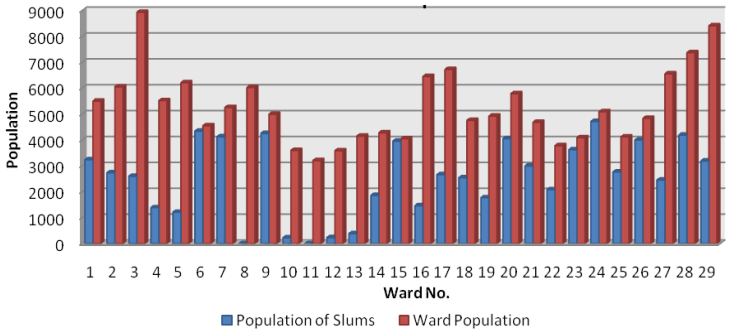
Table 1: Land status of slums in Sambalpur Municipality

Status	Government (In acre)	Private (In acre)	Endowment (In acre)	Total (In acre)
Notified	125	5	8	138
Non-notified	20			20
Total	**145**	**5**	**8**	**158**

Source: Sambalpur Municipality

These slums are not evenly spread across wards. For example while ward-15 (Figure 5) is a complete slum, ward-11 has no slum within its area. Appendix-B provides further details on the slums in each ward. The uneven spread of slums across the city poses major challenges for planning and management.

Figure 5: Slum population in relation to the total ward population



In contrast to the general trend, the slum population in Sambalpur is relatively homogeneous in terms of religion and language – about 90% people speak Oriya and 96% are Hindus. SCs and STs constitute 42% of the slum population. This reflects the close caste-class linkage Other slum characteristics are provide in Table 2..

Table 2: Profile of slums

Slum Population	73,005
Percent of Total Population	48%
No. of Households	16,838
Percent of Total Households	54
Average Household Size	6
Literacy Rate (Total)	62%
Literacy Rate (Male)	51%
Literacy Rate (Female)	40%
House Type	*Pucca* 25%; *Semi Pucca* 30%; *Kucha* 40%
Slum Area	1.17 sq. Km
Percent of total area	3%

Source: Sambalpur City Development Plan

3.2. City Policy on Waste

In the absence of a city-specific policy on SWM, the Municipal Solid Wastes (Management and Handling) Rules, 2000 (MSW Rules 2000), serve as the guiding policy. According to the rules, the municipality is solely responsible for providing, within its jurisdiction, integrated services and infrastructure facilities for SWM – right from preparing the community for segregated collection to storage, transportation, appropriate processing and safe disposal. The rules recommend door-to-door-collection of segregated waste; prohibit open burning; and recommend recycling wherever possible to minimise the burden on the landfill. The District Magistrate has the overall responsibility for enforcement of the provisions of these rules. The implementation of rules in the city is extremely poor.

3.2.1 Understanding of MSW

The understanding of MSW is quite vague and is usually understood as the waste generated by households and wastes of similar character from shops,

markets and offices, open areas, construction and demolition waste, and healthcare waste disposed from households and hospitals. In all, anything that is thrown away on the road and ends up in the municipal waste stream is considered as municipal waste. Moreover there is ignorance about the various categories of hazardous and non-hazardous wastes.

3.3. Drivers for Managing City Waste

The key driver for SWM is the concern about public health. The city understands that neglected and unattended waste can cause public health disasters. Hence the focus of SMC is on getting waste 'out from under the foot' and in doing so it is contributing to environmental degradation. Moreover, no efforts are currently being made to generate value from waste.

3.4. Servicing Municipal Waste

The waste management services were partially privatised through Public-Sector-Partnership (PSP).in 2006 with the intention of minimising administrative costs as in the case of other ULBs. The responsibilities are shared between the SMC and Bharat Integrated Social Welfare Agency (BISWA), a private operator[6] (q.v. Appendix B). A small part of the work is contracted to the Baba Ambedkar Self Help Society (BASHS)[7]. Private operators were selected on the basis of an open tendering process and finalised by the Chairperson and Executive Officer along with few nominated members of the council. However, the process has failed to attract interest and competition among private operators due to unfavourable economics of a small city.

The contract term is for two years, until June 2011, and mandates daily collection of waste from every household and establishment and its transportation to the disposal site; provision of bins to prevent throwing of waste on the streets; and appointment of adequate staff to carry out these functions. There is no performance clause and the service conditions are flouted almost on all counts.

3.4.1. Municipality-Private Operator Relationship

The relationship shared between SMC and BISWA is that of contractor-operator with BISWA being accountable to SMC, while also being co-service providers. The private operator is paid a monthly fee[8] per ward which was decided on the basis of the rates quoted by it. It is not clear whether the quoted

---

[6] SMC is responsible for road sweeping, drain cleaning and waste collection, including door-to-door collection in Wards 1, 2, 3, 5, 6, 12, 15, 21, 22, 24, 25, 26, 27, 29; BISWA in Wards 4, 7, 8, 9, 10,11,13,14, 16, 17,18,19,20, 23 and 28; and BASHS responsible for cleaning the Ring Road

[7] BISWA and BASHS are treated for this study as single entity since the arrangement is more functional and the task allocated very small.

[8] For waste collection BISWA receives Rs.44,500 per ward per month; for waste disposal Rs.19,000 per ward per month; and another Rs.20,000 per month paid to BASHS for waste collection on the Ring Road.

rates were the lowest as an SMC official shared that unlike in public works tender, lowest quotes are not the main criteria for selection in SWM.

The inbuilt system to help monitor the performance of the private operator is often ignored by both parties. There is no single instance of action taken against the private operator for not fulfilling the service conditions.

3.5. Waste Quantity and Composition

The city generates an estimated 60T of municipal waste per day based on daily per capita waste generation estimates of 0.376 kg by CPCB 1999 for class-l cities. However there is a difference in waste generation between low and high-income groups, ranging between 0.180 kg and 0.800 kg.

The waste composition is comparable to any other small Indian city with a large proportion of biodegradable material and inert waste (Table 3). However, the fast changing consumption pattern is seeing a rampant increase in the use and disposal of polythene and plastics which poses a major challenge for the city.

Table 3: Composition of city waste

Composition of MSW	
Organic Matter	50%
Plastics	10%
Rags and Cloths	1%
Metal	2%
Glass and Ceramics	2%
Paper	15%
Inert Material	5%
Construction Waste	15%

Source: Estimates made by author

The primary source of waste generation is the local households. Street sweeping on a total road length of 560.07 km also adds a significant quantity. The next major contributor of solid waste is commercial establishments such as markets, office complexes, hotels, shops, dairies, medical shops and tea stalls (Table 4).

Table 4: Quantification of MSW by source category

Category	Tonnes per day
Residential waste	40
Commercial and institutional waste	19
Healthcare waste	<1
Construction and Demolition waste	5
Inert Material	5

Source: Estimates made by author

3.6. Waste Management System

3.6.1. Waste collection

This is the most important component of SWM services but a grossly neglected one. The responsibility is shared between SMC and BISWA (Footnote 6 on Page 18). The present system is primitive and inefficient with little attention paid to the primary collection of waste. About 4-5 sweepers in each ward are assigned the task of waste collection. The coverage is barely 50% and primarily restricted to middle- and high-income areas.

The system of door-to-door collection (DTDC) of waste is haphazard. Less than 30% households are currently covered by DTDC. Despite being one of the service conditions applicable to all 15 wards under BISWA, DTDC was initiated in select 2,900 households in eight wards only. The decision on which households to be covered is taken by the ward councillor and dustbins are distributed to them. The collection services are irregular.

The collected waste is transferred to garbage depots that are predominantly open sites located anywhere within the wards and where waste from several locations is brought before being lifted for final disposal. There are currently 70 such depots, some even located outside the boundary of schools, houses, offices, shops and the like. These have been designated as depots by use. Littering of waste around a vast area and movement of stray animals in these dumps is common. These, in practice, are not cleared on a daily basis and when cleared, almost 20% of the waste still remains. The unpaved sites give rise to unhygienic conditions around them.

The number of community bins for dumping waste is also insufficient and unsuitably designed. The most common types of bins are the bottomless round precast, concrete bins constructed on the roadsides. In total there are 180 such bins across the city. These are inadequate in size and spaced too far apart. In addition, the municipality has placed 56 bins for the citizens to dump waste but these are not suitable to hold the entire waste. Twenty big container bins procured from grants under the 12th Finance Commission have also been placed near market places, office complexes, and the likes for the purpose of interim waste storage. These are rarely cleared for the need of special lifters and are commonly found overflowing with the waste. The unhygienic conditions around all the bins compel people to throw the waste from a distance just outside the bin. The decision on the placement of bins is primarily taken by the councillors.

As most of the waste is thrown out in the open, street sweeping becomes the most common method of waste collection. However, the frequency varies from daily to weekly to occasional, depending on the ascribed 'importance' of the streets. There is no separate system for collecting waste from hotels, institutions, slaughterhouses, and vegetable markets who simply throw their waste in the nearest depot or on any open area. Until recently, hospital waste from 28 health care institutions (estimated at 1.6T per month) was also landing into the municipal bins.

In select areas 4-6 sweepers are employed for cleaning drains, most of which are open with a large amount of waste thrown into them resulting in their blockage. The drains in turn act as the breeding grounds for vectors. Silt

and waste from the drains are removed and piled on the roadside and left to sundry before it is collected in one or two days (even longer). When left uncollected for long, it goes back into the drain rendering the previous attempt futile.

3.6.2. Waste transportation

The private operator responsible for transporting waste from the entire city makes use of a combination of tractor-trailers, trucks, dumper-placers, and hydraulic tipper-trucks (Table 5). Waste is loaded on these vehicles either manually (as in trucks and tractors) or using front-end loaders (into dumpers). About 3-4 sweepers are assigned to each vehicle for this purpose. The manual nature of waste handling reduces the productivity of manpower and vehicles. It is also observed that the transportation system does not synchronize with waste collection. Further, as these vehicles are open, transportation of waste cause littering on the way to the dumping site in Luxmidungri (Box 1).

Box 1: Luxmidungri: Site for dumping waste

The disposal site at Luxmidungri is a low lying, 1 hectare plot with a high sloping forest cover on one side and the Mahanadi River bed on the other. This site is a private arrangement by the private operator and although the authorities are aware of this arrangement there is no official sanction. The area is open without any measures to prevent access. The siting decision is not based on any environmental assessment including soil permeability test and impacts of dumping. The deliberate dumping of waste in the river is a common practice. The waste deposited at the dumpsite is neither spread nor compacted and in absence of an inert cover it is left exposed resulting in foul smell and massive environmental pollution -- subsoil water contamination being one of them. Once the official disposal site will be operational, this site would be abandoned without taking any steps to stabilise it as has been the case at other dump sites in the city.

Moreover, waste clearing is only limited to the designated depots. As already mentioned, merely 50% of the waste is collected and transported on a daily basis thereby creating a backlog of 30T per day.

Table 5: Total vehicle availability with SMC

Vehicle Type	Nos.	Current Status
Tractor Trailers	9	In working condition
Small Truck	3	In working condition
Dumper	2	I Break down
Excavator	1	In working condition
Container	1	Break down
Auto tipper	7	4 Break downs

Source: SMC

The main reason cited for poor collection efficiency is the vehicle shortage arising from diversion of municipal vehicles for other uses (such as transporta-

tion of water tankers) and repairs and breakdowns that take longer due to the cumbersome and slow process for procuring spare parts through the tendering process. As an alternate private arrangement is available, shortfall should not be a limiting factor. More so the availability of vehicles is higher than what is being put to actual use. There is also a gross under-utilisation of vehicles by putting them to use in single shifts. However, the daily vehicle usage as reported by BISWA indicates a potential to transport over three times the city waste (Table 6).

Table.6: Daily fleet deployed for transportation of waste

Vehicle Type	Capacity (in T)	Reported Use (Nos).	Total Trips (Reported)	Dumps Covered (Calculated)	Total Waste (in T) Calculated)
Tractor Trailers	4	7	29*	87 @ 3 dumps/ trip	116
Small Truck	3.2	1	3	9	9.6
Dumper	9	1	3	15	27
Hydraulic Tipper	16	1	3-4	15-20	48
Container	-	1	-	-	-
TOTAL				126	200.6

* 4 private vehicles making 5 trips each and 3 SMC vehicles making 3 trips each.

Source: Estimates based on the information provided by BISWA

3.6.3. Waste processing

The system currently does not involve any waste processing. Whatever little waste processing that takes place is for the recyclables through a chain of informal recyclers operating in the city. There are 30-40 small waste dealers who collect the recyclable waste (glass, paper, metal, plastics, and electronics) either using their own network of people going door-to-door or buying it from waste pickers paying on a per unit basis. This acts as an incentive for the waste generator to segregate and store the waste and for the waste picker to scavenge the waste dumps. A very rough estimate is 30-40 kg of recyclable waste per dealer per day (total of 1-1.5T per day). These dealers further sell the recyclables to big dealers. As there are no recycling plants in Sambalpur, these recyclables are sent to nearby cities such as Raipur, Rourkela, and Kolkata.

3.6.4. Waste disposal

There is no official disposal site and the waste is currently dumped haphazardly outside the city limits or along the sides of approach roads, creating heaps of waste along the roadside. Several dumping sites have been created over the period, some (such as Mundeliya) even located in the middle of the city. Use of any open area with less habitation has been the criterion. However as the city grew and habitation expanded, there were protests from the community that forced abandoning of the sites and moving to new locations. Dumping of waste into the river continues.

Recently, the District Administration has handed over 10.5 hectares of land to the municipality for the purpose of waste processing and disposal (Box 2). The site is located in the Jamadarpali *Gram Panchayat*. Authorisation for setting up the facility was granted by the State Pollution Control Board (SPCB) in March 2008 for a period of five years. The site falls short on various requirements laid under the MSW Rules 2000. No environmental impact assessment (EIA) was conducted. However, this site is not in use due to community protest. In the absence of any official dumping site, the private operator is dumping waste on a private land in Luxmidungri.

Box 2: Jamadarpali: The future disposal site

A site located 10 km from the city has been approved for a waste disposal facility. The location is not ideal for reasons of distance more so because the use of smaller vehicles for transporting waste would require frequent trips to the disposal site. The site also fails to meet the requirements for a disposal facility on several parameters including its proximity to the water body. The district administration responsible for identifying the site maintains lack of options as the key reason for this selection. Therefore the SPCB was instructed to adjust the requirements for a disposal facility according to this site. The authorities probably find other sites unsuitable for a waste disposal facility due to their high commercial value. Located outside the city jurisdiction, Jamadarpali is inhabited by the scheduled caste population. Neither the *Gram Panchayat* nor the community was involved in the decision on site selection. The community learnt about the purpose once truck loads of waste started coming in. People have been protesting the decision mainly on the grounds that the city waste should be dumped where it is generated and that the decision would result in contamination of their environment. A water stream cutting through the site is used by downstream users for cleaning and washing purposes. The attitude of the city administration towards the protesting community is not very sympathetic and it is ready to override their concerns and impose its own will on the villagers.

Under the 12th Finance Commission (2005-2010), the municipality had requested for Rs. 15,000,000[9] for site development, which has gone towards constructing the boundary wall around the site. It is not clear whether a sanitary landfill will be developed in Jamadarpali as mentioned in its application to the SPCB. The site in its current state fails to meet the conditions prescribed under the MSW Rules 2000 such as "provisions for pollution prevention including diversion of storm water drains to minimise leachate generation; construction of a non-permeable lining system; provisions for management of leachates collection and treatment and prevention of run-off from the landfill area entering the water body" (MSW Rules 2000, Schedule III). Despite the absence of proper arrangements for sanitary landfill, trucks full of waste have already been unloaded on the site. There is no plan to create a buffer zone around the site and hence development around the site can be expected in the future.

3.7. Inspection and Monitoring

Although there are provisions for regular checks on solid waste operators with the Sanitary Inspector responsible for supervising the entire SWM operations in all 29 wards headed by the Health Officer, they are rarely seen inspecting the

[9] 1 INR= € 0.016 (approximately) at August 2010 Exchange Rate

operations on a daily basis. This is at the municipal level. At the ward level, there are supervisors who have a cluster of wards under them with beat peons appointed to closely supervise the work of every sweeper under them. In addition the system has some inherent checks such as the requirement for a public signature and verification by the councillor (described below). These only remain on paper and are ignored in practice. As a result, despite having a decentralised multi-level system with clear responsibilities in place, the service delivery is below satisfaction level.

3.8. Communication and Feedback

The integrated feedback mechanism requires the service provider to obtain for each waste dump, signature from the nearby household verifying that the service was satisfactorily delivered. This needs countersignature by the respective ward councillor. The attendance and work chart for the staff also needs to be verified by the councillor. However, these procedures only remain on paper, especially the one for public signature and the users are not aware of such a requirement.

Further, the private operator although claims to have instituted a communication mechanism by making available staff contacts, but in practice public information is lacking. The respective ward councillors act as a mediator to raise concerns of the community but there is no mechanism to systematically gather people's demands. A few influential people choose to approach the Chairperson or BISWA directly for their SWM related concerns.

3.9. Occupational Health

The use of primitive waste management practices and manual operations poses a hazard for the field staff. The staff primarily belongs to a particular scheduled caste (*Ghasia*) and are economically poor. Those involved in waste handling are not provided any protective gear in the form of overalls, boots, gloves or masks to prevent them from any risks. Notably, the mixed nature of waste poses a big threat as it may contain infectious waste, toxic substances, and silt rich in heavy metals.

3.10. Financial Sustainability

The municipality funds waste management primarily from the central grants received under the National Finance Commission (FC). The FC has been constituted under the Constitution and gives recommendations on the distribution of tax revenues between the Centre and the states with the aim of rectifying the vertical imbalances between the taxation powers and expenditure responsibilities of the Centre and the states respectively and drawing parity in public services across the states. Any expense on SWM over and above the FC grants is met from municipality's own revenues. The share of municipality's own budget spent on SWM is however not known.

3.10.1. Budget head for SWM

The grant to the municipality under the FC has an earmarked budget for SWM. The current budget (2010-2011) under the 13th Finance Commission for SWM is Rs.10,696,000. In comparison to the total municipal budget for 2010-2011 of Rs.564,691,100, the SWM budget seems insignificant. Under the 12th Finance Commission period (2005-2010), Sambalpur Municipality received a total of Rs.43,422,543 for SWM.

The total annual service charge for SWM paid to private operators by the municipality is Rs.14,952,000 In addition there is a cost that the municipality directly bears for cleaning 14 wards with a workforce of 410 (5 Jamadars/Supervisors; 32 Beat Peons; and 373 Sweepers) (Appendix C). This part of the expense is not known. As there are no user fees or levies in lieu of the services for SWM, the entire cost of waste management is borne by the public exchequer.

The current financial arrangement points at the dependence of the city on external support for its SWM services. The sustainability of operations under the current model is questionable as the share of the municipality is decided on the basis of its population and the plan that it submits to the state government. The FC reviews all the requirements and makes allocations among the states, which are then further allocated among the local bodies. Hence the share of the municipality rests on several factors including its ability to lobby for larger funds, besides the possibility that the amount requested may not always be available.

3.10.2. Control over Funds

The control over the sources of funds is with the Executive Officer although the decisions are made by the Chairperson. Being subservient to the Chairperson, the Executive Officer is responsible for implementing the council decisions. All decisions over funds have to be taken by the council members collectively. However, in practice, the council is not always consulted by the Chairperson and many decisions are taken independently. A recent example is of the purchase order placed for 2,000 dustbins by the Chairperson without discussing the actual requirement with the council. There have been times when the council has opposed financial decisions taken without consultation. For instance, recently the private operator demanded a revision of service charges in view of the hike in minimum wages. The Chairperson agreed to revise the rate to Rs. 62,761 and Rs. 20,145 per ward for each service type and also paid three months arrears to the operator. Council members found the decision unreasonable as the hike was unjustifiably higher than the actual hike in minimum wages. The protest by the council resulted in back rolling of the decision.

Clearly, the waste management system with its focus on collection and disposal leaves several lose ends making the current system highly ineffective, inefficient and a key contributor to environmental degradation.

Chapter 4:
Differential Access to Waste Management among the City Poor

From the previous chapter it becomes evident that the services for solid waste management in Sambalpur city caters to barely 50% of the population and obviously most of the poor are left out. The comparative data provided in this chapter sup ports this argument and highlights how the poor are exposed to an extremely unhealthy environmental load compared to the rest. The EJ framework (Watson and Bulkeley 2005, Dunion 2003, Anand 2004, Hallowes and Butler 2002, Cutter 1995, Bullard 1994, Konisky 2009, Mcdonald 2002) discussed in Chapter-2 is particularly relevant in developing this understanding. As broadly understood, EJ requires fair and equal relations within and between groups allowing everyone to realise their aspirations without imposing an 'unfair excessive or irreparable' burdens on anyone (Hallowes and Butler 2002). These conditions quite evidently are not met in Sambalpur thus clearly pointing at the prevailing injustice.

This chapter hence draws its analysis using both, the distributional and the procedural, dimensions of EJ as discussed in Chapter 2. Whereas the distributional dimension helps explain how the 'benefits and costs' are unequally distributed among the economically and socially differentiated actors in the city and how power relations affect this inequitable distribution the procedural aspect of EJ, on the other hand, helps understand how (un)equally the decision-making processes are implemented between people with different level of social and political status and how these result in preventing the equal distribution of costs and benefits.

To draw the analysis, this chapter discusses the evidence collected from four slums (Thelkopara, Stationpara, Gunghutipara, and Luxmidungri) and compares it with conditions in non-slum locations based on the information collected from Modipara, Jagannath Temple Colony, Railway Officers Colony, and PWD Colony. Of these Modipara and Jagannath Temple Colony can be categorised as the so-called high-income areas inhabited by the business community while the rest fall into the category of middle-income areas (q.v. Table 7). The purpose is to help establish a relationship between the service level and the income levels of the population served.

Table 7: Location and population details of select areas

Category	Name	Ward No.	Population (approx.)	% of total Ward Population
Slum	Thelkopara	15	3000	80%
	Stationpara	26	1300	25%
	Gunghutipara	19	1100	20%
	Luxmidungri	24	1000	20%
Non-Slum	Jagannath Colony	17	1000	15%
	Modipara	16	1200	20%
	Railway Officers Colony	26	300	8%
	PWD Colony	4	750	15%

Source: Based on field data

Towards this objective, the information is arranged under two broad areas: the first explains the sources of environmental stress in the slums and how these are different or additional to those in other parts; and the second presents data on factors that can facilitate or hinder the ability of poor to cope with those environmental stresses.

4.1. Environmental Sources of Stress and the Likelihood of Exposure

4.1.1. Sources of Stress

The following sources of stress are identified with their potential risk of exposure.

4.1.1.1 Scattered waste piles, clogged drains and open waste dumps

Mixed waste piles on the streets and open waste dumps are the key sources of environmental stress experienced by the communities irrespective of the income levels. However the magnitude of exposure varies across sections with the poor being exposed to increased waste load due to non availability of the basic waste collection and disposal services, which otherwise could lower this stress. Further, there is a continual creation of waste backlog, which adds on to the existing piles resulting in a situation of 'waste trap' for the poor.

Elaborating on the conditions in the four slums studied, irrespective of the service provider, the primary waste collection (through DTDC and street sweeping) is almost non-existent. Except for Gunghutipara where 50 households benefited from the distribution of personal dustbins to a total of 2,900 households in eight wards, no other slum was covered. This difference is due to the political patronage enjoyed by Gunghutipara as the BISWA President is a resident of the area (de Wit and Berner 2009). Lack of provision of community bins results in the waste to be thrown on streets, which in the absence of street cleaning is never cleared. Households take upon them to clean the area around their houses but the main streets and other open areas by far remain unattended. A few main roads around Thelkopara and Stationpara and select main roads inside Gunghutipara are cleaned at varied frequency but other areas see scattered waste piles of varied sizes many of which simply disperse with the wind and into the open drains over time. The exposure gets widespread due to open rearing of pigs by some households. Those living adjacent to these waste piles – usually the poorest of the poor (as the waste piles more in front of *kuchha* houses than *pucca* houses confirming Hallowes et al. (*op cit*) views on the role of power relations in defining distribution) gets to bear additional pressures.

While the poor contribute only one-fourth of the total waste generated, their exposure is almost twice their affluent counterparts. The poor contributes largely with biodegradable waste, which if left unattended produces foul smell and becomes the breeding ground for potential disease causing pests. Often, a hot and humid climate makes the conditions worse. The changing consumption pattern among the slum population with a rise in use of plastics (especially polythene bags, disposable glasses and multi-layered plastics) is changing the

waste composition and hence would further aggravate the pollution problem and pose different types of hazards to the population in the vicinity.

In addition, clogged drains are a common sight in the slums largely due to open drains in the city and absence of regular drain-cleaning services in these areas. These drains receive household waste, human excreta, discharges from small industrial units and many other forms of waste, making them toxic. Any blockage causes an overflow of the toxic discharge over to a wider area substantially increasing the exposure to environmental stress. The unpaved roads facilitate the seepage of stagnant dirty water into the groundwater on which the large slum population continues to depend. The stagnant water also becomes a breeding ground for parasites thus affecting people's health. The Dhobijor *nala* (a wide open drain) adjacent to Thelkopara is also choked from huge waste piles dumped into it by both residents and waste collectors – a practice also witnessed in Gunghutipara where the collected waste is dumped into the river

Yet another major source of stress is the waste dumps (also known as the interim transfer station).The city has 70 such designated waste dumps, majority of which are in the vicinity of the slums In addition there are several unofficial dumps created by residents when throwing waste in the designated dump is found inconvenient due to distance for example in Stationpara. While unofficial dumps remain untouched, the official dumps around the slums too are not serviced regularly. The biggest waste dump in the city is located at Ramsagar in the vicinity of Thelkopara and makes one of the worst sites in the city. The waste is not cleared for several weeks and is treated like a mini disposal site. It has waste scattered up to almost half a kilometre with rotting dead animals and decomposing waste. The conditions around the site are deplorable. It is a similar case for other slums too. Even when these dumps are cleared a large amount of waste stays littered around and makes the slum children playing or defecating near these sites vulnerable to exposure. The location of these dumps as in the case of Stationpara where the dump is adjacent to the water standpost, increases the exposure through contamination of groundwater.

Additionally the 20 containers placed across the city for temporary waste storage pose similar environmental risks. For example, the containers near Thelkopara and Gunghutipara often overflow. The practice of open-burning to accommodate more waste in these containers releases toxic pollutants, thus posing a health hazard to the locals, especially the poor.

All this however does not imply that the rest of the population is immune to such exposures. The risks are equally high for the non-slum areas but these are substantially minimised due to the provisioning of facilities and services such as community bins, street-sweeping, drain-cleaning, and waste collection. All the non-slum areas studied are serviced by street sweeping though the periodicity may vary with high-income areas such as Jagannath Mandir Colony and Modipara receiving services on a daily basis and other middle-income areas such as Railway Officers Colony and PWD Colony catered once in 2-3 days. Hence it would not be wrong to conclude that the more affluent the population, more regular are the services Furthermore, the more affluent parts of the city have private toilets and their members do not defecate in the open which reduces the exposure and so does the larger plot size which increases the distance between such stressors and the inhabitants.

More so, as indicated earlier, the waste dumps in these areas are not only fewer in number but are also smaller in size and are cleared at least 2-3 times a week. Therefore the accumulation of waste does not reach a point where it becomes a major public health hazard. Sometimes these benefits are also passed on to slums when located in proximity to high income areas. For example, the waste dump at Stationpara also caters to the Railway Officers Colony and is cleared more frequently. Interplay of power relations (Hallowes et al. *op cit*) is yet again visible in areas where slums face affluent areas, as the waste dumps are always located on the side of the slum. When the dumps are not cleared in affluent areas, the residents approach the SMC Chairperson or the service provider for immediate action. This supports Konisky's (2009) explanation for environmental inequity based on the logic of collective action (Chapter 2).

4.1.1.2. Waste transportation

Waste transportation in open and, in many cases, rusted vehicles also exposes the population to risks and hence can be seen as a source of stress. While this risk of exposure seems to be similar across the population located *en route* to the disposal site, the reality is that the possibilities of clearing the litter are higher in affluent locations. Increasing cases of diarrhoea among the slum population, especially children, is one indicator of the hazardous impact on the poor. The changing consumption pattern among the affluent enhances the toxic load on the poor in the form of mercury cells, chemical agents, and electronic and electrical waste.

4.1.1.3. Waste 'disposal' site

Location of waste disposal sites is another clear evidence of a disproportionate burden on the poor from environmental stressors. All such sites -- temporary or for long-term use, are located in or around the areas inhabited by the poor such as Mundeliya, Charbhati, and most recently, Luxmidungri. Poor are characteristically targeted for siting of polluting facilities due to their economic and political vulnerability which we have discussed in earlier sections (Dodson 2002:83). A predominant SC population, along with the availability of a large open area makes the slum vulnerable to exploitation. As the site lacks basic provisions to prevent environmental degradation from waste dumping including collection of leachates and application of inert cover, the population of Luxmidungri is exposed to poor quality air and water. Widespread contamination of the Mahanadi River due to deliberate waste dumping also exposes the population to risks as this area is among 20% population without access to piped water. There are no options available to people to protect themselves from contaminated water and its impact.

As there is no reported case of any similar facility being located in the vicinity of high- and middle-income areas, the population in these areas is not exposed to additional pressures as mentioned above. Waste dumping on a few sites located inside the city was discontinued when those areas expanded to accommodate the population from other income levels, besides the poor hinting at the role of political power in such decisions. Besides, the exposure levels among other classes are minimised with their ability to adopt alternate/ protective measures. Contamination of groundwater, for example, affects the entire population however, affluent households have access to piped water which is

cleaner than river or groundwater. Furthermore they are in a position to adopt safeguards by installing water filters for drinking water.

Investigating the procedural issues, the affected community had no prior information on the purpose of the site or the potential negative impact of the operations while understandably this waste is not theirs. Factually such decisions are triggered by the 'not-in-my-backyard' syndrome (Bullard 1994).

4.1.1.4 Poor manpower allocation

The allocation of manpower to different SWM functions can also qualify as a source of stress as it indirectly contributes to the amplification of other environmental stresses as discussed above. The basis for manpower allocation also has a power dimension, as the municipality has deputed the least (16 and 18) number of staff in wards with the highest concentration of slum population (98% and 93% respectively); and the highest (38) number in a ward with a 7% slum population (Appendix B). Slums demand higher manpower due to high population density and narrow lanes. A similar trend is visible in allocation decisions within the wards as well. To meet staff inadequacy, for example, gang workers are deputed to affluent areas or a service schedule is drawn in a way that affluent parts are serviced regularly; middle-income are areas serviced twice a week; and low-income areas are serviced on a weekly basis or even less. Another example of this unevenness is that in ward 2, on an average 12 people are assigned to Govindtola, an area where the councillor resides, six to Dhanupali and three to Charbhati which is a slum. In short, the immediate response to meet any staff shortfall is to cut down the numbers assigned to poor areas. Sometimes in affluent areas the ward councillors and senior municipality staff divert unutilised manpower to personal work. There are also indications of false attendance by the supervisors on a 'commission' basis.

4.1.2. Multiple Exposure to Sources of Stress

Many slum dwellers are also engaged in the waste collection business and hence are subjected to multiple exposures. Over 90% of the waste collectors involved in SWM are from Thelkopara while over 60% from Stationpara are sweepers with the Railways department and private establishments. As these workers are from a lower caste and class there seems to exist a direct correlation between them and the level of exposure

4.1.3. Environmental Conditions and Vulnerabilities

There are some obvious environmental outcomes of the above stressors. The ambiance quality is poor in and around the waste sites, and especially worst around the slums. As Hallowes et al. (2002: 53) rightly explains, people in such locations are not only deprived of clean resources but also of their health. Worse still, the imposition of environmental vulnerabilities such as floods due to waste dumping in the Dhobijore *nala* that prevents the free outflow of water, coupled with their limited capacity to absorb any additional shocks put poor at a highly disadvantaged position.

4.1.4. Power Relation as a Determinant of Exposure Levels

The inequality explained above reinforces and further widens with specific actions that have the potential to shift stress from affluent areas to poorer locations. The role of political capacity in such actions as highlighted by Konisky (2009) is extremely relevant. This level of influence may come from wealth, education and other assets. For example, the residents of Jagannath Mandir Colony and Modipara, have managed to shift their waste burden to 'other' parts by influencing the decisions in their favour. In most cases the decision makers themselves are conscious of the potential of the rich to raise such oppositions and themselves safeguard their interests.

In contrast to the above, the poor are perceived by the policy makers as powerless due to their lack of political capacity in terms of wealth, education and organisational skills. As a result any demand made by the poor has fallen on deaf ears. The residents of Thelkopara, for example, raised the issue of regular clearing of waste dump at Ramsagar but no action was taken. Similarly, the municipality is willing to override the concerns of villagers in Jamadarpali (Box 2, Page 23) by imposing a waste disposal site on them. Hence, the power to influence the outcomes is directly related to the political capacity of the group.

Additionally, the specific vulnerabilities (discussed later) of the poor lower their self-confidence and leave them feeling powerless to approach the council with their demands. This sense of powerlessness is enhanced by the additional dangers of the poor becoming a victim of their own demands, as a large proportion of the slum population is engaged in SWM and any complaint may point at their own (non)performance. Lack of education and general awareness stands as stumbling blocks in raising their voice and claiming their rights. Further, as Hallowes et al. (2002: 59) pointed out, the poor are not a homogenous group and their priorities are basic (such as water and food) thus cleanliness is peripheral -- their interests are located on diverse fronts of development and do not add up to a common front . This prevents the poor from solving issues from a common platform. Lastly, the awareness of being residing on the public land and the constant fear of being evicted also prevent slum dwellers from openly opposing the decisions of the government

4.2. Determinants of impacts

This section describes the comparative impact of stressors and their interplay vis-à-vis different sections of the society with help of health and socio-economic data.

4.2.1. Social Indicators

These primarily include data on the distribution of certain population characteristics, such as caste, class and literacy.

4.2.1.1. General Demographics

The social conditions of all slums are more or less similar. All the four slums are over two-decades old and located on government land. Thelkopara has nearly 500 households; Stationpara, 200; Gunghutipara, between 150-175; and

Luxmidungri an estimated 100 households. The average household size in the slums is six. Unlike in many other places, the slum population is homogenous in terms of language, caste and religion. The migrant population from various parts of Orissa has settled in these slums and hence the social fabric is weak. The scheduled castes dominate the slum population and constitutes as high as 80% of the slum population as in the case of Thelkopara and Luxmidungri. Castes such as *Ghasias* and *Bhangis* -- traditionally considered the sweeper class -- dominate Thelkopara whereas Gunghutipara (located near a cremation ground) is inhabited by, besides other lower castes, people engaged in handling dead bodies.

As mentioned earlier, high population density is among the key defining characteristics of the slums. The population density in Thelkopara is about 8,000 per sq. km. Hence high density implies that any exposure to environmental stressors (described above) is likely to affect a large number of people. It also increases the likelihood of the spread of infectious diseases in the neighbourhood. The affluent areas, on the other hand, have an advantage of larger space and lower density. The average population density in these areas is about 1,200 per sq. km. The composition also differs, with less than 10% of the SC and ST population in some areas. The lower caste population in these areas has a wider choice in occupation and can avoid jobs in polluting industries.

4.2.1.2. Vulnerability to exposure

The vulnerability to exposure and the resultant impact increases with the lack of access to basic services such as health, water, sanitation and credit. These services are either completely lacking or highly deficient to cater to the entire slum population. In Thelkopara there are two public toilets to cater to over 3000 people. Other slums namely Gunghutipara, Luxmidungri and Stationpara do not have access to public toilets. Lack of access to toilets among over 90% of the slum population forces them to defecate in open and most often near the waste dumps, exposing them to the risks. The main source of water for 80% of the population in slums is the public stand posts; the water supply however is intermittent. Luxmidungri, due to its peripheral nature, is deprived of piped water supply as well. Gunghutipara has few piped water connections and public stand posts. The high population density only aggravates the problem of access to limited facilities. These conditions bring the slum population closer to the sources of stress.

On the other hand, population residing in middle- and high-income areas enjoys facilities such as individual toilets and piped water connection and hence, does not need to spend endless hours in the vicinity of its dirty environment or rely on them for their daily needs.

Furthermore, the city has a poor public transportation system, forcing people to use privately operated facilities (for example autorickshaws), which are often expensive. Lack of access to affordable transportation restricts mobility among the poor forcing them to spend more time in the proximity of a polluted environment. The other sections can afford private transport and own private vehicles.

Similarly poor access to reliable and affordable health services from which most of the slums suffer prevents the poor from seeking timely intervention in case of health conditions arising out of exposure to stressors. There is only one government hospital located in ward 7 and is not easily accessible to all parts of the city. The distance of the hospital from Luxmidungri is around 5km and from Stationpara around 3km. There are two private hospitals, one railway hospital and several private clinics that are located within easy reach from these slums. Lack of public transport compels many poor to use the nearest available service starting with the pharmacist, progressing to private and then government health centres as the severity of the illness increases. Private healthcare is by no means within their budget and often lead to severe indebtedness even resulting in further migration to larger cities. Irregularity of government doctors, insufficient infrastructure and medical facilities, attitude of the staff, rampant corruption and other systemic problems in public hospitals make conditions much worse for the poor. Government doctors are known to take advantage of the lack of awareness and simplicity of the poor and socially backward castes. Some run private clinics and force people to come to their clinic where they charge a high consultation fee. They also take advantage of the poor's illiteracy and charge them even for free samples.

While access remains an issue also for the middle- and high-income areas, especially the newly developed areas such as Brookes Hill, this does not translate into vulnerability. This population lacks confidence in public health services and hence, prefers private hospitals out of choice (rather being forced upon them as in the case of a poor population). Their economic status also brings private treatment within their means. At a government hospital, they do not face the same difficulties of commuting and an unfavourable staff attitude. They enjoy preferential treatment due to close contacts with doctors and hospital administration.

There are 45 primary schools in the city. As the city is not very large in terms of its area, almost all parts of the city have access to primary schools. The distance of primary and middle schools from slums ranges from 500m to 1km. There are only five secondary schools, which makes access difficult. The average distance of secondary schools from slums is over 2km. In the case of Luxmidungri the distance is over 4km. This explains the higher dropout rate after primary and middle levels especially among the slum girls population. The quality of education in these schools is not satisfactory with high teacher absentee rate, poor infrastructure and over-crowding.

The location of these schools is not an issue for other sections as they prefer to enrol their children only in private schools. There are a few private schools and these are located in the affluent parts of the city. The schools have a private transport arrangement to pick and drop children or in some cases, parents make the arrangement and hence, distance does not become a hindrance. The exorbitant fees of these schools make them unaffordable for the poor. The more affluent population does not find the level of education in the city up to the mark and prefers to send their children to other states -- some as far as down south.

4.2.2. Health Indicators

The general health level of the residents and their ability to cope with environmental stresses are closely linked. Health conditions of the people especially in the slums are not too sound. The actual incidence rate of many diseases is difficult to estimate, as not all cases get reported and the ones that do, they may not be correctly diagnosed. Based on the health seeking behaviour reported by local private doctors, there is a high incidence of water and air borne diseases in slums in comparison to rest of the city. Diarrhoea is the most frequent among all age groups, more so among children and in many cases a cause of mortality. There is also high incidence of vector borne diseases such as malaria and dengue. Other common diseases are cholera, typhoid, hepatitis, asthma, chicken pox, and meningitis. Allergies and skin diseases too are widespread besides large incidence in cases of polio. Swine flu cases were also recently reported. The infant mortality rate in the slums is much higher – approximately 70 per 1000 live births. Environmental diseases such as tuberculosis are highly prevalent among the slum population and are the biggest cause of adult mortality. Malnourishment among the poor increases their vulnerability to many of these ailments. The average life expectancy in slums is low - around 50 years. While it is difficult to establish a correlation between a particular environmental stressor and the health conditions of the people as several factors influence the outcome, but there are strong indications to say that the unhygienic conditions aggravated from poorly managed waste in slums is the cause of poor health status of the population.

In comparison, other parts of the city report lower cases of diseases linked to environmental stressors. The infant mortality rate is as low as 30 per 1000 live birth and the life expectancy at birth close to 70 years. The incidence of tuberculosis, polio, cholera and others is much less in these areas. The health conditions are directly related to the economic status that makes preventive action affordable. In case of an ailment, the ability to seek timely and quality treatment reduces the mortality rate. Proper nourishment too improves their ability to cope with any stressors and reduce its health impacts. Higher education and awareness levels too are seen as contributory factors in improving the health conditions of the population. Among slum population there is often a complete lack of awareness about a health condition and the causal factor. Rarely do people associate diarrhoea with bad water quality, for example.

For the slum population, poor health also has an economic dimension as it directly translates into loss of livelihood and hence monetary loss since large numbers are engaged as daily wage labour. In addition, medical treatment too imposes additional financial burden which only gets worse due to poor access to public hospital as noted earlier. These conditions push the poor deeper into poverty and deprive them of any opportunity to better their social condition.

4.2.3. Economic Indicators

As is mostly the case, these slums are located on government land. The houses are *kucha*, semi-*pucca* and *pucca*, with the first two categories forming the majority. Roughly 40% of the population in slums live as tenants. Being old slums, many have titles to the houses they occupy but the ownership has not been

transferred to them. At the moment there are no eviction plans for any of the slums. The possibilities however cannot be completely ruled out in the future.

The low caste status of the population residing in these slums has restricted their employment opportunities. Majority of them continue to work on construction sites, agriculture land and other daily wage labour. In addition, a large number work as sweepers in government and private establishments. In Gunghutipara, a large section is engaged in cremation of the dead as this occupation is traditionally considered as lowly and hence unfit for upper castes. The average household income in slums is Rs 3500 which leaves them with no buffer to meet an exigency situation. There is also a high unemployment rate among the slum population. Poor health conditions prevent many from taking up regular work. High incidence of alcoholism and drug usage among the adult male population puts the economic burden on the women folk. The women from these areas are engaged as domestic help in private homes besides working as daily wage labour. Supporting a household size of seven with the meagre single member income therefore poses a big challenge. The economic conditions of these people get worse due to additional burden such as illness or death. Lack of access to credit facilities such as banks, makes them even more financially vulnerable and amenable to exploitation by private money lenders, in the worst case. Migration of family members to larger cities and metropolis is also becoming common.

Comparatively, middle and high-income households, together comprising 50% of the population, do not suffer the same vagaries as the poor. The middle-income group is primarily engaged in jobs with the railways, banks, insurance companies, government departments, provisional stores and as small shop owners. The small high-income population is engaged in businesses. The difference between the high and middle income groups is not as pronounced in the city as in many other parts of the country. The regular source of income and ownership of assets make them financially secure and capable of absorbing pressures and shocks to a great extent. If their resources prove insufficient, easy access to credit makes it more tolerable. The average middle class income is Rs. 15,000 while the average high income is close to Rs. 50,000.

4.3. Participation and Decision-making

A closer investigation into the case of Sambalpur reveals that the decision making process is unequally implemented between different classes and these have been reinforcing the disproportionate distribution of sources of environmental stress discussed in the earlier section. This validates the views held by scholars (Anand 2004, Hallowes and Butler 2002) highlighting the role of procedural aspects of EJ. There is ample evidence in support of this view and is presented below.

As SWM is an obligatory function of the municipality (Chapter 3), all decisions pertaining to its different aspects are taken by the council. The decision-making process in practice has no scope for public participation. Opinions are not sought in matters concerning sitting of the facility; privatisation of services; selection of private operator; and evaluation of performance when renewing contracts. All decisions are taken in the council meetings and many times even unilaterally by the Chairperson and a few influential members. There is strong

evidence of decisions being guided by vested interests, corruption and political aspirations rather by commitment for social justice. There is no formal mechanism to communicate council decisions and a complete lack of transparency in budget and policies even within the council. There have been cases where the councillor had to resort to Right to Information Act in order to procure information. Dunion (2003) view that inequitable decision making process explains the unequal outcomes is extremely valid in case of Sambalpur.

The decision by councillors to privatise their wards, for example, seems motivated by vested interests. No opinion was sought at the ward level and neither has there been any communication informing people of reasons for privatisation, the basis for the selection of wards, the terms of service contracts and what this may mean for them in the future. The process, like in other cases, does not give any power to the users to select and reappoint the service provider or even to reject the privatisation idea. No consideration has been given to the needs of the population, especially the poor in the whole decision-making process. At present there is no difference between privately serviced areas and those serviced by the municipality. However as privatisation is almost always accompanied with a user fee, it is being suggested for the city in the near future. Under such conditions the poor may end up subsidising the rich as those generating more waste pay the same as the ones generating lesser quantities. The privatisation decision therefore is likely to put additional financial burden on the poor and increase their vulnerability that has been already discussed.

Similarly engineering works such as road construction are the favourite projects for the council as against SWM as these have higher monetary returns for the councillors involved in making decisions. Rampant corruption prevails in SWM as well.

Anand (2004: 17) has also highlighted how “economic asymmetries” are amenable to exploitation by the more powerful and the same is evident in Sambalpur where power and influence of an individual councillor within the council plays an important role in decision making. The council has a 33% reservation for women however this affirmative action has not been complemented by either building their capacities in local governance, or by changing the existing mindset among both genders that men are more suited for these positions. Women themselves feel disempowered to participate in discussions due to their belief that men are more informed about issues and procedures. The male dominated council anyways means that the voice of the women members is not heard. Worse still women councillors fail to bring benefits of developmental schemes to their wards as they lack advance information about such schemes and the eligibility criteria. Their wards hence feel extremely disadvantaged and see their gender as a major drawback (Table 9).

Besides gender, other factor that determines the level of influence of an individual councillor is his political affiliation. Belonging to the same political party as the one in power (at local, state or central levels) gives them special status. Parties try to block development in areas u**nder opposition parties. Even the MLAs and MPs nominated to the council allocate large amounts of money from their Local Development Fund for areas that are under their own party.

Table 9: Councillor's accessibility and response to the poor

Area	Category	Frequency of visit by councilor	Means of Approaching the councilor	Remarks
Stationpara	Reserved seat for Women OBC Candidate	Councillor does not visit the area.	Do not approach the councilor	Have no established relationship with the councillor and hence do not approach her.
Gunghutipara	Reserved for SC Candidate	Councillor visits the area 1-2 times in a month	Few people call him on phone or approach him when he visits the slum. Some even viist him at his residence. Another group does not approach him with their problem	One section feels that the councilor is accessible while another feels differently. Those who feel empowered are close to BISWA President (a resident of the slum)
Thelkopara	Reserved seat for Women OBC Candidate	Councillor visits the area once in 3-4 months	People think they can approach her but find it meaningless. Since she stays in another ward, it further limits the accessibility	Many feel that her women status is a drawback for the area as she has no say in the council decision
Luxmidungri	Reserved seat for Women OBC Candidate	Councillor does not visit the area.	Do not approach the councilor	Not interested in council affairs and feel that they do not have time to chase the councilor. Do not expect anything to change.

Personal relationships and rapport with the key decision makers is also seen as important. Councillors sharing good rapport with the Chairperson manage to influence decisions in their favour. Within the ward itself, decisions favour the affluent areas as against the slums. The interests of influential people are safeguarded by the council through the respective councillor. A clear example of this is the decision to allocate development funds uniformly across wards without taking into consideration the needs of individual wards. The slums lack basic services and wards with higher concentration of slums may require additional funds. Therefore, the existing system addresses the unequal from an equality platform negating the differences and the resulting impact is further inequality and discrimination. All allocations are arbitrary and subject to lobbying.

The role power is not limited to the city level but is equally valid at higher levels. The solid waste operations are financed under the National Finance Commission which itself is amenable to lobbying and prejudice by the competing ULBs within the state. The same holds true at the centre where the various states compete and lobby for their share of resources. States viewed as important for the nation's economy get preferential treatment and similarly the more important cities are favoured during the funding allocation.

While intentional discrimination may form the basis for unjust decision-making as put forth by Konisky (2009) and seen in case of Sambalpur, but it may not always be the case. In some cases decisions resulting in unjust outcomes may be due to lack of capacity among the key decision makers. Many

councillors lack the capacity to convincingly present their case/ideas and negotiate with others and hence fail to bring benefits to their own ward population. This has already been highlighted in case of women councillors. Lack of experience in policy making is another critical reason for poor decisions. A majority -- 27 out of a total 29 -- of the council members are first time councillors, lacking in any previous political experience. Many are not even aware of the provisions under Municipality Act as well as of their rights and duties. There is no capacity building initiative once they assume office.

4.3. Perceptions about Service Providers and Institutions

The high- and low -income population differs in terms of the importance each attaches to the various institutions they come across in their daily lives. The ranking of institutions by each class group (Table 8) makes it clear that the importance ascribed to any institution differs with the class one belongs to. Slum population for example has very little to do with district administration or state departments but find *Anganwadi* and Public Distribution System (PDS) more important. The high-income group, on the other hand, deals regularly with the district authorities for matters related to land transfer and others but do not avail the services of *Anganwadi* and PDS.

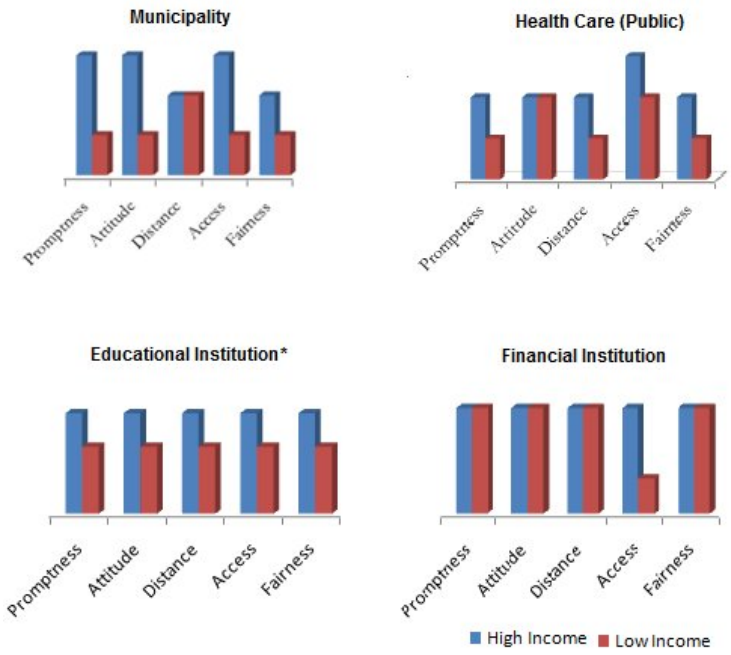
Table 8: Ranking of institutions by their importance

Rank	Low Income Population	Higher Income Population
I	Municipality	District Collector Office
II	Hospital	Municipality
III	Public Distribution Service	Educational Institutions
IV	Educational Institutions	Bank/Other credit institutions
V	Other credit institutions/Bank	Hospital
VI	Anganwadi	State Departments
VII	Post Office	Police
VIII	Police	Post Office

Source: Based on field data

It is also evident that the perceptions of the two sections vary and this may be, to a large extent, shaped by the past experiences of people in dealing with these institutions. The comparative rating of the institutions on the basis of their attitude, accessibility, fairness, physical distance, and promptness is provided in Figure 6. As SWM is viewed as a responsibility of the municipality, the private service provider is not listed. It is worth clarifying that the perception on municipality is an aggregate for all its various services including solid waste.

Figure 6: Perceptions of different Institutions



*Views of the high-income group refer to private schools while those of the low-income group refer to government schools.

Based on the qualitative rating by the respondents (q.v. Appendix D)

Hence it is clear that while the poor consider the municipality as the most important institution as it provides many basic services, ironically it is rated low on fairness and is perceived as highly corrupt. They do not often find it approachable as well. The school, on the other hand, is both important and scores fairly on all measures. The public health care facilities are extremely important to the poor but not easily accessible. There is only one government hospital and does not have sufficient doctors and facilities to cater to such a large population. Banks or credit institutions are not considered important by the poor. Although they are constantly in need of credit, these formal structures are not considered within reach. (q.v. Appendix E)

The higher sections hold a contrasting view about the fairness and approachability of many institutions. They rate all the institutions highly in comparison to the poor. As mentioned earlier in this chapter, this section receives a special treatment from these institutions because of the power they possess. Hence the experience of the group in dealing with these institutions has been satisfactory. The satisfaction level can be seen as an indication of the prevailing inequality between the two sections and the role of power in the responsiveness of the basic services.

Within the municipality itself, the poor consider the ward councillor as the more important. They rely on the councillor for solutions to their problems. Being from the same neighbourhood, the councillor is relatively accessible. However as is evident from Figure 6, they do not have a positive attitude towards the poor and often not fair in their dealings. The municipality Chairper-

son is not an important person for the poor as they perceive her beyond their reach. The higher class view municipality as corrupt but feel that it is highly responsive to their needs and easy to approach. They prefer to approach the Chairperson directly rather than the local councillors who they think are less effective in finding solution to their problems. A section of the affluent population may be more influential and powerful than the councillors to the tune that the councillors approach them for personal favours. They hold little respect for the councillor's position. As they often get their work done by bribing the councillors this lessens the fear of authority in their minds.

To conclude, it becomes evident that the poor in Sambalpur are subject to unfair loads of environmental burdens, much beyond their coping abilities. The existing power equations in the community only make sure that the poor bear the costs of environmental mismanagement through their health.

Chapter 5
Study Conclusion

The findings from Sambalpur city clearly reveal issues of equity, accountability and environmental safety with regard to the provision of services for SWM to the poor. With 60T municipal waste generated per day to be managed by the municipality with private sector participation, and supported by the Centre's Finance Commission grants, a large fleet of vehicles and a robust 592 employees (Appendix C), the collection efficiency is just about 50%; clearly indicating poor govern**ance and high levels of corruption as critical issues. Lack of adequate capacity is another key reason for prevailing inefficiency and ineffectiveness in solid waste operations. The randomness of the services tendered and power inequalities leave a large portion of the waste unmanaged, which has a trailing health impact on the city, especially on the poor population. The prevailing inequity and injustice can be satisfactorily explained within the environmental justice framework.

There is sufficient evidence to conclude that the slum population is experiencing differential treatment in terms of limited access to SWM services. The environmental costs from poor waste management practices are not evenly distributed among the population and the poor are subject to higher share of the burden in comparison to the rest. There are larger numbers of uncleared waste piles in their vicinity; the drains are often choked, waste littered streets, and waste dumped in its backyards which pose serious environmental and health risks to the population exposed. The peculiar conditions faced by the poor including financial insecurity, lower social status, inhuman living conditions, lack of access to basic services, poor health, non-responsive government, and lack of participation in decisions, all makes them highly vulnerable to exposure as well as reduce their coping abilities hence amplifying the negative impacts. It is unfortunate since despite contributing only a quarter of the total city waste, the slum population clearly takes most of the waste burden on it compared to the rest.

This clear pattern of distributional injustice observed in the city can be explained by investigating the decision-making process. It has become evident that the undemocratic decision-making process in itself results in unjust outcomes for the poor. In some cases, it has also been a result of deliberate decisions by the public actors primarily guided by vested interests -- economic, political or others. There is no room for the poor to voice their concerns. Hence the disproportionate sharing of burden makes Sambalpur a clear case of environmental injustice. It would however not be wrong to assume that similar conditions exist in other cities as well.

The use of EJ framework is extremely useful in understanding the realities in Sambalpur, as it helps analyse not only 'how' the environmental burdens are distributed, but it also explains 'why' they are distributed in a certain way. To understand any change in the waste management practices it is equally important to analyse both the institutional system and the behaviour of actors. However, as waste management belongs neither exclusively to the social structure

and its provisioning system, nor to the social actors and their customs and behaviours, it has to be understood at an intersection between household users, and service providers (private and public) (Scheinberg and Mol 2010). The EJ framework falls short on explaining the role of household users and their agency in making claims over the services. While this paper briefly discusses the role of power relations between different actors, a more in-depth analysis using other theoretical perspectives is found to be useful. Further, acknowledging the complexities involved in waste management, the study recommends future research to look into other dimensions such as participation, governance, and privatisation *vis-à- vis* waste management. These are equally critical and would complement the current findings.

The case of Sambalpur in particular and of smaller cities in general does not imply that these cannot effectively manage the waste in an equitable and just manner. There are several successful interventions, both by the community and the municipality, which can serve as an example for cities such as Sambalpur. The municipality-led initiative in Suryapet located in Nalgonda District in the state of Andhra Pradesh, for example, has succeeded in achieving the status of a bin-less, zero-waste city which is only possible with 100% coverage of the population, including the poor. This is of particular relevance for Sambalpur due to comparable conditions between the two cities in terms of their, size and population and a large slum population. The city has made a big difference only by taking some small yet important steps such as introduction of door-to-door-collection covering the entire population; equally distributed infrastructure such as community bins; waste processing; and most importantly, participation of the community, including the slum population. Communication mechanisms, open dialogue among stakeholders, and established relationship between the council and the employees as well as service users are few other measures taken in the city.

In conclusion, there are two sets of specific recommendations coming out of this study: one pertaining to improving the overall SWM system in the city and the other on making the system more fair and equitable. However, the two are not mutually exclusive as only an improved SWM system can bridge the inequity since by making the system more efficient one can increase its outreach and coverage allowing access to a wider population. One possible option for making the system more efficient is through decentralised operations. Centralised systems for collection and disposal pose its own set of management challenges, which smaller cities may lack the capacity for. Decentralisation has also proved to be successful in empowering those involved in waste management. The other step has to be the introduction of waste processing as by doing so the city will not only be able to extract value from the waste but would also lessen the burden on the landfill, thus indirectly saving resources. Suryapet, for example, may not have been a success if this aspect of waste management was not integrated. Modernisation of operations and better working conditions for those engaged in waste handling are a few other recommendations. It is important to sound a word of caution while propagating modernisation. Local conditions have to be considered while putting new systems in place. ‘Copy and paste’ solutions have often failed. While the city can learn from other examples, it would need a tailor made solution to suit its own character and needs.

In order to achieve equity and justice in service provision it is important to involve people from various strata in the decision-making process. Making operations transparent, sharing information with the public, inviting feedback, and others could help bridge the gap. To guarantee a meaningful participation, especially by the poor, their capacities may need to be built and strengthened. An empowered community is likely to assert its claims more emphatically. Importantly bring a change in the mindset of policy-makers about the slums and the poor so that they are no longer considered a liability on a city's resources but are treated as equal citizens.

Appendices

Appendix A: List of interviews

- Dr. Mrs SP Samant Roy, Sr. Environment Scientist, In charge of MSW, Orissa Pollution Control Board
- Mr. Mitrasen Majhi, Sr. Environment Scientist, In charge of HW and BMW, Orissa Pollution Control Board
- Rabi Ranjan Mallick, Director Municipal Administration, Urban Development Department, GoO
- Mr. Gadadhar Panda, Municipal Commissioner, Bhubaneswar Municipal Corporation
- Shubendu Saha, Director, Jagruti Welfare Society (Bhubaneswar NGO and SWM service provider)
- KC Mallick, Founder Chairperson, Bharat Integrated Social Welfare Agency (BISWA) (Private Service Provider)
- Dushmant Behera, Founder, Baba Ambedkar Self Help Society (NGO Service Provider)
- Rina Trivedi, Chairperson, Sambalpur Municipal Council
- Rashmita Acharya, Councillor, Wards No. 2
- Diptimayee Barik, Councillor, Ward No. 4
- Dr. BC Dash, Health Officer, SMC
- Sitikanth Sahu, Head Regional Officer, SPCB Regional Office, Sambalpur
- Mukesh Mahaling, Environment Scientist, In-charge of MSW, SPCB Regional Office, Sambalpur
- Hemanth Kumar Dash, District Magistrate, Sambalpur District
- Ranjan Panda, Director MASS (Manav Adhikar Seva Samiti), NGO
- Sibanand, Journalist and ex-BISWA staff
- BISWA Staff Responsible for SWM
    - Lingaraj, Manager NRM Department, BISWA
    - Badrinarayan Pati, Assistant Manager/ Supervisor
    - Shaukat Ali, Assistant Manager/ Supervisor
    - Beat Peons (3): Ram Raj (Ward 10), (Wards 9), (Ward 14)
    - Sweepers (Total 9) - Malti and Bhola (Wards 4), Chandu and Sankar (Ward 10), Ajay Sandha (Ward 17), Sunita and Gopal (Ward 19), Raju and Mahadev (Ward 23)
- Municipality Staff engaged in SWM
    - Beat peon (2): (Mrityunjay Panigrahi (Ward 15), Laxman (Ward 2)
    - Sweepers (4)

- Service users
    - Households (Total 30) – Thelkopara (5), Gunghutipara (4), Stationpara (5), Luxmidungri (2), Jagannath Colony (4), Railway Officers Colony (4), PWD Colony (2), Modipara (4)
    - Hotels (2) Sheela Towers, Uphar
    - Shops (6) Ainthapali, Gole Bazar
- Focus Group Discussion
    - Councillors (Wards 1, 3, 5,9, 11, 13, 14, 15, 16, 18, 20, 27, 28, 29)
    - Men, Women (total 9) from Thelkopara

Appendix B: Ward wise details on Slum population

Ward No.	No. of Slums	Name of Slums	Slums Population	Ward Population	% Slum population (over ward population)	Area in sq. km	Ward Density (person./ sq km)	SWM Service Provider	No. of Sweepers deputed
1	3	Betrapara, Vatra-1, Vatra-2	3242	5508	59	2.849	1933	SMC	24
2	4	Dhanupali, Turi Para, Govindtola, Charvati	2737	6060	45	0.971	6239	SMC	26
3	3	Bhuta Para, Motijharan, Suna Pali	2605	8937	29	2.104	4247	SMC	24
4	2	Nagenchoti, Rashtrapati Chowk	1390	5526	25	0.486	11379	BISWA	16
5	1	Mayabagicha	1214	6218	20	1.781	3492	SMC	23
6	4	Pension Para, Kawbadi Para - Dalal Para, Saliabagicha (Danibandh), Danibandh	4346	4555	95	0.324	14069	SMC	28
7	4	Bahal Para, Dhuchur Para, Sidheshwar Bema, Ekodo Para	4127	5261	78	0.486	10833	BISWA	19
8	0	No Slums	0	6032	0	0.809	7453	BISWA	17
9	6	Salchi Para, Samali Para, Sarlakani, Sarlakani - Gandhi Colony, Sarla, Jhankar Para (near City Rly Stn)	4260	4997	85	3.310	1510	BISWA	13
10	1	Keut Para-1	223	3603	6	0.162	22258	BISWA	16
11	0	No Slums	0	3209	0	0.057	56640	BISWA	16
12	1	Dhula Para	234	3589	7	0.162	22171	SMC	38
13	1	Pattnaik Para	387	4155	9	0.162	25668	BISWA	16
14	3	Tanla Para, Mali Bagicha, Kamli Bazar	1865	4284	44	0.486	8822	BISWA	20
15	3	Thelko Para, Sahu Colony, Ambedkar Nagar	3961	4053	98	0.486	8346	SMC	16
16	3	Bohidhar Bandh, LIC, Ghusurijudabandh	1466	6460	23	0.486	13302	BISWA	17
17	3	Manik Munda, Nandaram Tank, Samleshwari Colony	2663	6729	40	0.324	20785	BISWA	18
18	2	Chamar Para, Nandini Colony	2549	4760	54	0.486	9802	BISWA	16
19	4	Ghunguti Para, Amairi Para, Bangali Para, Malibari	1774	4930	36	0.324	15228	BISWA	15
20	8	Majhi Para, Kusta Para, Sunaridhuba Para, Keut Para II, Ginjiga Para, Bhuam Para, Madha Bandh, Bad Bazar	4058	5795	70	0.324	17900	BISWA	17
21	4	Mandilia (Jhuarpudipada), Chandan Nagar, Talvata Para, Tiwari Gali	2999	4689	64	0.971	4828	SMC	22
22	3	Daldali Para, Panika Para, Bangla Para	2086	3785	55	0.324	11691	SMC	34

23	4	Nuabandh Para, Mahabir gali, Pardeshi Para, Mungapada	3629	4093	89	0.486	8428	BISWA	16
24	11	Rened Village, Kanijuri, Durgapali, Durgapali Telipada, Laxmidunguri, Remed Harijanpada, Nuapada, Kadam Mal, Bagharamal Khejiriapada, Pujaripada, Kushumpada	4721	5095	93	3.634	1402	SMC	18
25	6	Dumer Pada, Gopal Pali, Gopal Pali – Tikira Pada, Rani Bagicha (Balral Pali), Makhana Pada, Tetel Pada	2767	4125	67	5.131	804	SMC	23
26	6	Nua Pada II, Rani Bandh, Thakur Pada, Station Pada, Adibasi Kol Pada, Behera Munda	4003	4842	83	0.809	5982	SMC	26
27	4	Panchagachia, Gopalmal, Danipali, Mill Pada	2458	6559	37	2.266	2894	SMC	25
28	6	Katardhua, Dukhu Pada, Shanti Nagar, Ramgad Teli Pada, Birsa Munda (AinthaPali), Majha Pada (Aintha Pali)	4196	7377	57	1.133	6510	BISWA	15
29	4	Goala Pada, Tangar Pali, Khajuria Pada (Aintha Pali), Dehuri Pali	3193	8417	38	2.331	3611	SMC	26

Appendix C: Staff engaged in SWM and their Responsibilities

Agency	Staff Category	Number	Responsibility
SMC	Jamadaar	5	2-3 wards under each Jamadaar. Supervise work in the wards; verify attendance; report to ward Councillors on daily basis and obtain a satisfaction report.
	Beat Peon	32	2-3 Beat Peons assigned per ward. Supervise work of Sweepers and allocate them work. Maintain attendance.
	Sweepers	373	25-30 assigned to each ward. Further divided into groups for street sweeping, drain cleaning and waste collection.
BISWA	Assistant Manager	5	2 to supervise work in 7-8 wards each; 1 to control Gang workers; 1 for supervising garbage lifting work; and 1 for administrative work. Supervise work in the wards; verify attendance; report to ward Councillors on daily basis and obtain a satisfaction report.
	Beat Peon	15	One per ward. Supervise work of Sweepers and allocate them work. Maintain attendance.
	Sweepers	240	16 assigned to each ward. Further divided into groups for street sweeping, drain cleaning and waste collection.
	Gang Workers	37	Sweepers not allotted to specific wards. Assigned to major works in case of drain choking, marriages, absentee sweepers (10-12 per day).
	Garbage Supervisor	2	14-15 wards under each. Coordinates lifting of garbage from dumping yards and depots. Co-ordinate vehicle movement and take care of repairs. Meet councillor with daily work report and submits the report to health officer at municipality for counter signature.
	Assistant Supervisor	3	Assigned to vehicles. Supervise work of garbage sweeper. Go with each vehicle. Report any problems with the vehicle. Take public signature for every dump cleared on daily basis and submit get it countersigned by the Councillor.
	Garbage Sweeper	64	3-4 assigned for each vehicle. Responsible for loading waste from dumping yards and unloading at the dumping site.
BASHS	Beat Peon	1	Assigned to Ring Road. Supervise work of Sweepers and allocate them work. Maintain attendance.
	Sweepers	15	Assigned parts of Ring Road. Further divided into groups for street sweeping, drain cleaning and waste collection.
**TOTAL		592	

Appendix D: Comparative Rating of Institutions by High and Low Income Groups

Institutions	Promptness		Attitude		Distance		Approachability		Fairness	
	HI	LI	HI	LI	HI	LI	HI	LI	HI	LI
Municipality	High	Low	High	Low	Medium	Medium	High	Low	Medium	Low
Health care institution	Medium	Low	Medium	Medium	Medium	Low	High	Medium	Medium	Low
School	High	Medium	High	Medium	High	Medium	High	Medium	High	Medium
Bank	High	High	High	High	High	High	High	Low	High	High

Appendix E: Poor's perception of common institutions

Transcending gender, caste and other divisions, government institutions can broadly be divided into three categories of importance. Slum dwellers were encouraged to express their views on the institutions they interacted with in their daily lives, and assess them on their quality, accessibility, fairness, costs, importance, and promptness among others. Below is the summary of their perceptions on these measures.

Municipality

The municipality is perceived to be one of the most important institutions by both men and women, across all slums. It is clearly established as the intermediary between the district/state government and the city. They see municipality as the institution responsible for all development activities; construction of roads, and water points, among others, and by and large it is considered to be their first stop for accessing government services. In all slums, even across gender, caste and class, the municipality falls in the top five ranks of important institutions. It is the mediator for provision of some of the critical schemes on employment, sanitation, low cost housing, subsidised rations and others. Although the benefits are low these are considered useful by most respondents. Poverty and lack of choices results in a quite resignation and satisfaction with what is available. However there are complaints about fewer schemes in comparison to the villages on one hand and larger cities on the other.

ULBs are designed from a completely male perspective and are also contacted mostly by men. While there may be 33% reservation for elected representatives, the bureaucracy continues to be predominantly male. The municipality has 10 women ward councillors including the woman Chairperson. Being predominantly male dominated, women visit the institution much less.

Seats may be reserved but without the necessary capacity building majority of the women in elected positions continue to be puppets in the hands of their husbands or other male members in the family, and all decision making continues in the hands of men. In precisely two wards, women councillors were seen performing their duties according to plan. They maintain that they do not face any problems and are actively involved in carrying their functions.

Corruption is Endemic

Absence of systematic machinery for information dissemination – and hence transparency - leaves tremendous space for corruption, and the better off access information and avail benefits using their social, political or economic clout while the poor do not have the luxury of any such patronage in most cases. As implicitly put by the men and subtly expressed by women, the municipality is also considered to be one of the most corrupt institutions. Further, limited information and complicated procedures, involving many officials costs them in terms of time and money. They end up making repeated trips from the municipality to the District Administration in the hope of availing benefits, and also the more the number of steps and more the number of officials involved the higher the amounts they pay out as bribes.

Low cost housing for poor is one scheme considered extremely beneficial to people, where the maximum despair and complaints of corruption was found. The lack of clarity on procedures leads to the most vulnerable being left out, or beneficiaries and their families are kept on their toes constantly to avail benefits from the scheme.

Caste and hence class rules

Through discussions and exercises with the socially vulnerable castes, it can be established that caste impacts the delivery of services- especially in the case of services delivered through the local bodies. On one hand all people, men and women, upper caste and lower caste, better off and poor may consider the municipality to be the institution responsible for development activities, however all do not consider the municipality equally accessible.

The councillors and office bearers were found to favour those belonging to the same caste as them and the ability of the councillor to influence the people above them too is determined by the caste. In majority cases the already better off, socially upward castes tend to benefit most, while belonging to castes different from that of the caste of the office bearer are discriminated against sustaining and consolidating existing social stratification.

Political affinity reigns supreme

However, despite the crucial role of caste as regards contacts, access and system consolidation, political affiliation plays an important role even more than caste. Councillors from the same party as the one in power are favoured over others. Their wards too receive more attention. It is also easy for those members to approach the Chairperson with their demands.

The same holds true even at higher levels. Municipality ruled by a party other than the one in power at the state level faces neglect. Selection of wards for introduction of new schemes from centre and state is done on the same basis. Those represented by same political parties are favoured for development activities.

Whither Participation?

There is no participation of people in municipality activities. The council meetings are not open to the public. There is no formal mechanism to inform people of the municipal decisions. No public opinion is sought in decisions for sitting of disposal facility; privatization of services; selection of private operator; and evaluation of performance when renewing contracts. Decisions are taken in the council meetings and many times even unilaterally by the Chairperson and a few influential members. There is no transparency in budget or policies even within the Council. Not surprisingly, the affirmative action of reserving seats for women has not been complemented by either building capacities of women in local governance, or by changing the existing mind set among both genders that men are more suited for these positions. Women themselves feel, that men are better suited to have discussions since they are the ones with more information and likely to follow up on these procedures. Meeting timings are not convenient to women, and they too agree with men that they are not aware of municipality activities, nor are they up to date on information on available benefits, schemes, eligibility criteria and the likes, they do not consider it of much value for them to participate actively in the council

meetings. Their attendance is only for sake of collecting the meeting stipend of Rs.50 (>1 euro) – the only monetary incentive available to the councillors.

Hospital/Health Centres

A problem of distance

Hospitals and other health care related centres are considered more important by women, than men. For women across different castes/classes the hospital is one of the most, if not the most important institution. The satisfaction with hospitals is mixed, and the perception is not completely dismal. There is only one Government hospital and that too is distantly located to some slums. Lack of public transport system compels many poor men and women to use the nearest private services. These are by no means within their budget and often lead to severe indebtedness and the need to further migrate to larger cities.

With women bearing the burden of managing the household and ensuring that income matches the household expenditure, one would expect them to be more price sensitive. However, to them as well, the critical factor in health care delivery is distance. To avoid loss of time, women feel compelled to pay that extra cost and choose the option closer/easily accessible to them. Poverty requires them to work as hard, and often as long as men. These income substantiating activities in no way reduce their household chores and rearing of children- the entire burden falls on them. Further, physically undergoing struggles to reach a service provider or undergoing the journey alone, or with children is *much harder for women than men. Hence, it is not surprising then, that distance as a variable influencing satisfaction and usage is far more critical in the case of women. For health care they start with the most easily accessible- the pharmacist progressing to private and then government health centres as the severity of the illness increases.

Quality and reliability count

In addition to the distance factor, it is the guarantee of receiving good quality care and treatment that draws the slum population towards the private doctor. Across all slums, the importance of the doctor being there on time, and a well-qualified doctor were highlighted. It is the absence of these two critical aspects, and the long distances that compel people to switch to private providers.

While explaining the reasons for using one provider more than the other, the group finally explained that they realise government charges are much less and more affordable for them, but if the one critical aspect of health care i.e. a well qualified doctor were to visit regularly they would no longer go to the private doctor. The irregularity of the government doctor and other systemic problems in this hospital compels them to go to the private doctors; this is not out of choice and the high fees put a heavy burden on them.

The chronic illness -Corruption

Other reasons for dissatisfaction stem from insufficient infrastructure and medical facilities, shortage of free medicines, attitude of the provider, qualifications of the provider and fairly rampant corruption in health centres. The pharmacist and nurses are generally found to be more corrupt than the doctor, and majority have to first pass through these hurdles before reaching the doctor, hence paying these intermediate providers becomes mandatory that too

requiring the poor to pay for services that are part of the job description of hospital staff, such as carrying the patient from the operation theatre to the ward, and getting the patient a bed. A qualified doctor, is not surprisingly, revered and considered an extremely important and powerful person. These doctors are also known to take advantage of the lack of awareness and knowledge power of poor and socially backward castes. Some of them run private clinics and intentionally do not treat the case properly while in the hospital, forcing people to come to their private clinic where they charge high consultation fee. They also take advantage of the poor's illiteracy and lack of awareness and charge them even for free samples.

Anganwadi Centre

The caste and corruption overtones

It is interesting to see both men and women attribute importance to the anganwadi centre, as this has been set up to provide only for children and women. Women, however, do evaluate the performance of the institution far more critically than men. Women tend to be satisfied with immunisations, but by and large they are unhappy with the quantity of food, and care given to pregnant mothers. Comparing perceptions of anganwadi worker with that of women belonging to different castes (OBC and ST) in different slums, we see that their perceptions are similar. Even the anganwadi worker is realistic in saying that she is unable to perform all functions satisfactorily. One of the areas that both women and the worker pointed out for improvement is dissemination of health education- both feel there is a need for more innovative ways of spreading health education, and preventive care could result in the reduction in incidence of some diseases.

One of the institutions where the caste of the provider has a bearing on the delivery of services is the anganwadi centre, she is seen to favour those belonging to her own caste and others who are able to favour her.

There are very few instances of the anganwadi worker and the centre being regarded as functioning satisfactorily and without any corruption. Mostly they are considered to be corrupt and following discriminatory practices. The anganwadi centre relative to other institutions is important, but is also considered one of the most corrupt. This is confirmed by the women who while assessing the performance of the centre, gave it a very high score for corruption. Corruption in this context is in the form of irregularities in distribution, distributing less than stipulated quantity, and charging pregnant and nursing mothers for their fair share. No structured redressal systems are in place, so the poor typically tend to remain quiet.

Her hands are full

The anganwadi worker has a whole list of jobs, and in most jobs such asweighing children, and providing food among others., her performance is considered to be unsatisfactory. Only in places where she is providing medical services such as, immunisation, the work is considered good quality and relevant. Further, if the anganwadi worker has a role in selecting beneficiaries as in the case of Girl Child Benefit Scheme, she tends to show favouritism and select those who are influential. The reason for the same according to the anganwadi

worker is because her work load is very high, and the number of applications is too many for her to sort through and select the most deserving, single handed. The latest addition to her jobs is the formation of SHGs, at present not doing well because both the anganwadi worker's and the local community's lack of clarity on the concept of revolving fund and how to use their money. The wages in return for these functions are extremely low.

Post Office

Here again the importance is relative to the need. For families where members have migrated out, the post office is seen to be an important institution, also for receiving remittances from them. It is important to note, that though this institution is not considered important to all groups of poor, and the degree of importance varies, it is considered to be the most corruption free of all institutions. It is also women, more than men, who even mentioned the post office as one of the important institutions.

Bank/ Microfinance Institutions

Even the poor are aware of government banks, and cooperative societies among others, but very few of them are able to borrow from these institutions. The complicated bank procedures and the need for collateral and securities put them off. Further, money lenders are accessible at all times, even night emergencies and also give loans even if the last one remains unpaid. This kind of flexibility, obviously absent in the government credit institutions draws people into using the private services for all credit needs. Credit continues to be in the domain of private providers, despite the obnoxiously higher rate of interest the poor prefer to borrow from private money lenders. Their reasons are that credit is easily available minus the hassle of paperwork, as well as that there is no need for large land holdings or assets to be given as securities. Only a man or woman who is hard up or in need of money will take on a loan.

Private microfinance institutions are proactively encouraging lending by thrusting loans on the poor. Demand creation is done. Loans are often given for asset building activities with no monetary returns making the repayment extremely difficult. The poorest of the poor find it difficult to qualify for microfinance where they need to exhibit a certain pattern of savings.

Police

Perceptions

Across majority of the areas police are not considered to be too important, by both men and women, and are seldom visited. As is to be expected from the general trend emerging on male and female usage of services, women visit the police station much less than men, and do not have much of an opinion on corruption or attitude of policemen as service providers. Some disputes are resolved internally and sometimes with the help of local councillor.

Whose rights are being protected?

Where people have and do access the police station, they consider it corrupt and favouring the socially upward castes.

While the police is considered more corrupt than other institutions, they are considered an important and relatively accessible service provider. The police are helpful in the time of caste conflicts

Educational Institutions

Education counts for the poor

The majority feel that education is important and that the school is providing a service of removing illiteracy- the bane of exploitation and many of their problems. To many, education is the only way out of exploitation; even a little bit of education will reduce the struggle for the next generation. Some parents are going to the extent of taking loans to send their children to private schools as they believe that here the teachers are more regular and give personal attention. To some, the bigger attraction at school is the free mid-day meal provided there daily.

Deficiency on the supply front

All wards have at least a primary school within accessible distance, while accessing higher level schools may require the students to travel some distance. The problem in education is not at the demand side, but more a supply deficiency. Irregular and incompetent teachers, insufficient infrastructure, shortage of books and other critical materials, result in some of the poorest families pulling their children out of school. It can also be derived that there is a direct correlation between the presence of higher education institutions in close proximity and the number of children of the ward who go for higher studies.

There is often a high teacher-student ratio and a general air of disinterest. Much depends on the personal initiative of the teacher and it is observed that mostly they have an indifferent attitude towards their profession. With all their own burdens, low salaries, getting pulled into other government tasks, large number of students per class and frequent transfers etc. they tend to lose motivation. But in a relatively positive note, discrimination by teachers on grounds of caste and class in public schools is not common.

Food security Programmes

Among Government's food security programmes, PDS (subsidized rations) is considered the most useful for urban poor. Both men and women through several processes have ranked the PDS system as critical, although it meets only a quarter of their monthly food requirement. Women consider PDS to be the most important benefit relative to other schemes and services.

The problem of streamlining

Instances of corruption have been reported. Measurement of rations against volume not weight, or tampering with the weights is common practice. Further, the method of communication, i.e. informing beneficiaries about the availability of stock is not fully effective. Just through word of mouth all people do not come to know about the availability of stock. In majority cases the stock is available for just few days in the PDS outlet shops, beyond which it is sold at open market rates. Providers do this to cover up their investment and not to block their funds for the whole month.

Affordability – the key issue

By and large it is seen that BPL cards are going to the poor. At the same time a few better off families are also reaping the benefits of BPL while a fairly significant percentage of the poorest is repeatedly left out of BPL lists. The majority of the dealers are not flexible with regards to the quota lifted, and the poor have to lift the entire quota. It is most pathetic then, that even those with cards are often too poor to lift the entire stock. They are compelled by the rigid terms of sale for PDS, and administrative and systemic flaws to forego their quota and buy their ration from the open market which is available on credit and in quantities suiting their purchasing power.

The approach of the government to the issue of food security has been counter-productive. It has resulted in reduced quantities being lifted by the poor, artificial price hike and storage losses. The margin between the PDS prices and open market prices has thinned. Though prices are supposed to be set by government, they do vary.

Corruption rampant

The socially backward castes and schedule tribes are getting less amount of rice than was entered in their cards. Register entry is different from what they really get.

Other General Observations

Institutions are cantered around the homestead land of the socially upward castes placing them on an advantageous footing in terms of their access to information and physical proximity to institutions. Class and caste being closely linked, class too becomes the basis of discrimination. Both, government and private provider's discriminatory practices while delivering their duties and the poor continue to be marginalized.

At the stage of accessing information itself the poor are disadvantaged. More likely to be illiterate, they have limited information about schemes, government programmes or special investments made by the government. They are not involved in decision making and as a result the benefits of programs seldom reach the most deserving. With the absence of participation in local governance and any concept of practice of accountability, the poor refrain from protesting and demanding their rights. A few instances of protests have been reported, most however, have not been very successful. Poverty and lack of choices result in a quite resignation and satisfaction with what is available.

The tacit and at times explicit caste dynamics that exist often spill to the workplace and affect livelihoods. The women of scheduled caste for instance, are not allowed to work as domestic servants for higher castes.

References

Ahsan, N. (1999) 'Solid Waste Management Plan for Indian Megacities', *Indian Journal Of Environmental Protection* 19(2): 90-95.

Anand, R. (2004) *International Environmental Justice: A North South Dimension.* Aldershot: Ashgate Publishing.

Asian Productivity Organization (2007) 'Solid Waste Management: Issues and Challenges in Asia', Tokyo, Japan. Asian Productivity Organization.

Bhide, A.D. and A.V. Shekdar (1998) 'Solid Waste Management in Indian Urban Centers', *International Solid Waste Association Times (ISWA)* : 26-28.

Bullard, R.D. (1994) *Unequal Protection: Environmental Justice and Communities of Color.* San Francisco, CA: Sierra Club Books.

Central Pollution Control Board (CPCB) (2000) 'Management of Municipal Solid Wastes', New Delhi, India. Central Pollution Control Board (CPCB).

Cutter, S. (1995) 'Race, Class and Environmental Justice', *Progress in Human Geography* 19(1): 111-122.

de Wit, J. and E. Berner (2009) 'Progressive Patronage? Municipalities, NGOs, CBOs and the Limits to Slum Dwellers' Empowerment', *Development and Change* 40(5): 927-947.

Dodson, B. (2002) 'Searching for a Common Agenda: Ecofeminism and Environmental Justice', in D.A. Mcdonald (ed.) *Environmental Justice in South Africa*, pp. 81-108. Athens: Ohio University Press.

Dunion, K. (2003) *Troublemakers: The Struggle for Environmental Justice in Scotland.* Edinburgh, UK: Edinburgh University Press.

Global Development Research Center 'Solid Waste Management Glossary' (a webpage of Global Development Research Center). Accessed April 11, 2010 <http://www.gdrc.org/uem/waste/swm-glossary.html>.

Government of India (2005) 'Management of Solid Waste in Indian Cities', 12th Finance Commission of India New Delhi, India. Ministry of Finance, Government of India.

Gupta, S., M. Krishna, R.K. Prasad, S. Gupta and A. Kansal (1998) 'Solid Waste Management in India: Options and Opportunities', *Resource Conservation and Recycling* 24: 137-154.

Hallowes, D. and M. Butler (2002) 'Power, Poverty, and Marginalized Environments; A Conceptual Framework', in D.A. Mcdonald (ed.) *Environmental Justice in South Africa*, pp. 51-78. Athens, Ohio: Ohio University Press.

Kansal, A. (2002) 'Solid Waste Management Strategies for India', *Indian Journal of Environmental Protection* 22(4): 444-448.

Khan, R.R. (1994) 'Environmental Management of Municipal Solid Wastes', *Indian Journal of Environmental Protection* 14(1): 26-30.

Konisky, D.M. (2009) 'Inequities in Enforcement? Environmental Justice and Government Performance', *Journal of Policy Analysis and Management* 28(1): 102-121.

Kumar, S., J.K. Bhattacharyya, A.N. Vaidya, T. Chakrabarti, S. Devotta and A.B. Akolkar (2009) 'Assessment of the Status of Municipal Solid Waste Management in Metro Cities, State Capitals, Class I Cities, and Class II Towns in India: An Insight', *Waste Management* 29: 883-895.

Kundu, A., S. Bagchi and D. Kundu (1999) 'Regional Distribution of Infrastructure and Basic Amenities in Urban India: Issues Concerning Empowerment of Local Bodies', *Economic and Political Weekly* 34(28): 1893-1906.

Masika, R., A.d. Haan and S. Baden (1997) 'Urbanisation and Urban Poverty: A Gender Analysis', Gender Equality Unit, Swedish International Development Cooperation Agency (Sida).

Maudgal, S. (1995) 'Waste Management in India', *Journal of Indian Association for Environmental Management* 22(3): 203-208.

Mcdonald, D.A. (2002) 'Up Against the (Crumbling) Wall: The Privatisation of Urban Services and Environmental Justice', in D.A. Mcdonald (ed.) *Environmental Justice in South Africa*, pp. 292-320. Athens: Ohio University Press.

Ministry of Environment and Forest (2000) 'Municipal Solid Waste (Management and Handling) Rules'. Government of India.

Mor, S., K. Ravindra, A.D. Visscher, R.P. Dahiya and A. Chandra (2006) 'Municipal Solid Waste Characterization and its Assessment for Potential Methane Generation: A Case Study', *Journal of Science of the Total Environment.* 371(1): 1-10.

Pappu, A., M. Saxena and S.R. Asokar (2007) 'Solid Waste Generation in India and their Recycling Potential in Building Materials', *Journal of Building and Environment* 42(6): 2311-2324.

Press Information Bureau (Last updated 2010) 'Rating of Class One Cities on Sanitation Parameters , . - may 21, 2010. - .' (a webpage of Press Information Bureau, Government of India). Accessed May 21, 2010 <http://www.pib.nic.in/release/release.asp?relid=61746>.

Raje, D.V., P.D. Wakhare, A.W. Despande and A.D. Bhide (2001) 'An Approach to Assess Level of Satisfaction of the Residents in Relation to SWM System', *Journal of Waste Management and Research* : 12-19.

Rathi, S. (2006) 'Alternative Approaches for Better Municipal Solid Waste Management in Mumbai', *Journal of Waste Management* 26(10): 1192-1200.

Ringquist, E. (2006) 'Environmental Justice: Normative Concerns, Empirical Evidence, and Government Action', in N.J. Vig and M.E. Kraft (eds) *Environmental Policy: New Directions for the Twenty-First Century*, pp. 239-263. Washington, DC: CQ Press.

Scheinberg, A. and A.P.J. Mol (2010) 'Multiple Modernities: Transitional Bulgaria and the Ecological Modernisation of Solid Waste Management', *Environment and Planning C: Government and Policy* 28: 18-36.

Sharholy, M., K. Ahmad, G. Mahmood and R.C. Trivedi (2008) 'Municipal Solid Waste Management in Indian Cities – A Review', *Waste Management* : 459-467.

Shekdar, A.V. (1999) 'Municipal Solid Waste Management – the Indian Perspective', *Journal of Indian Association for Environmental Management* 26(2): 100-108.

Siddiqui, T.Z., F.Z. Siddiqui and E. Khan (2006) 'Sustainable development through integrated municipal solid waste management (MSWM) approach – a case study of Aligarh District', National Conference of Advanced in Mechanical Engineering, Jamia Millia Islamia pp1168-1175.

Singh, S.K. and R.S. Singh (1998) 'A Sudy on Municipal Solid Waste and its Management Practices in Dhanbad–Jharia Coalifield', *Indian Journal of Environmental Protection* 18(11): 850-852.

Srinivasan, K. (2006) 'Public, Private and Voluntary Agencies in Solid Waste Management: A Study in Chennai City', *Economic and Political Weekly* June 3: 2259-2268.

UNDP-Ministry of Housing and Urban Poverty Alleviation (2009) 'India: Urban Poverty Report 2009', New Delhi, India. Oxford University Press.

UNEP-GRID (Last updated 2008) 'Urban Population - Status and Trends' (a webpage of UNEP/GRID-Arendal). Accessed May 15, 2010 <http://maps.grida.no/go/graphic/urban_population_status_and_trends>.

Watson, M. and H. Bulkeley (2005) 'Just Waste? Municipal Waste Management and the Politics of Environmental Justice', *Local Environment* 10(4): 411-426.

Wratten, E. (1995) 'Urban Poverty: Characteristics, Causes and Consequences', *Environment and Urbanization* 7(1).

Yoshizawa, S., M. Tanaka and A.V. Shekdar (2004) 'Global Trends in Waste Generation', Global Symposium on Recycling, Waste Treatment and Clean Technology (REWAS 2004), 26-29 September, 2004 Madrid, Spain.

Zurbrugg, C. (2002) 'Urban Solid Waste Management in Low-Income Countries of Asia', Urban Solid Waste Management, Scientific Committee on Problems of the Environment (SCOPE), Durban, South Africa.

**