WIEGO

Women in Informal Employment Globalizing and Organizing

Informal Economy Monitoring Study Sector Report: Waste Pickers

by Sonia Maria Dias and Melanie Samson

February 2016

inclusive cities

IEMS Informal Economy Monitoring Study

Informal Economy Monitoring Study Sector Report: Waste Pickers

Authors
Sonia Maria Dias is a sector specialist at WIEGO. She is a sociologist by training and a garbologist with specialization in Solid Waste Management by the University of Kitakyushu, Japan. She has been active in the waste management field in Brazil since 1985 with a focus on promoting the integration of social inclusion aspects into the technical planning of waste collection and recycling. Her PhD thesis in Political Science is on the role of participation in solid waste management in Brazil. She is based in Belo Horizonte, South-east Brazil.

Melanie Samson is a Senior Lecturer in Human Geography in the School of Geography, Archaeology and Environmental Studies at the University of the Witwatersrand and the Africa Waste Sector Specialist for WIEGO. She has a PhD in Political Science from York University. Her research focuses on the relationship between waste and value and on how analysis of the work and lives of informal workers allows for the development of theorizations of the economy and polity more relevant to postcolonial contexts.

Acknowledgements

Special thanks are due to the waste pickers in all five cities who dedicated valuable time to participate in the research. Huge thanks are due to partners in each city who embraced this research so passionately: the Asociación de Recicladores de Bogotá (ARB); the NGO Instituto Nenuca de Desenvolvimento Sustentável – INSEA and the waste pickers´ networks Redesol and Cataunidos in Belo Horizonte; the NGO Asiye eTafuleni in Durban; the Kenya National Alliance of Street Vendors and Informal Traders (KENASVIT) in Nakuru; and the waste pickers´ union Kagad Kach Patra Kashtakari Panchayat (KKPKP) in Pune. The commitment of these organizations was invaluable. Special thanks to the authors of the city-level Informal Economy Monitoring Study waste sector reports, which this report draws on.

Thanks are also due to our colleagues serving on the IEMS Technical Advisory Committee (TAC): Marty Chen, Sally Roever, Imraan Valodia, Michael Rogan, Zoe Horn, Rhonda Douglas, Francie Lund, and Caroline Skinner. This report benefitted greatly from the careful review of Sally Roever. Also we are grateful for the support provided by Imraam Valodia and Mike Rogan in analyzing quantitative data. Thanks to Karen McCabe, as well as Ana Carolina Ogando and Anisa Desai, who both provided qualitative research assistance. Thanks also to Demetria Tsoutouras, Carlin Carr, Megan MacLeod and Julian Luckham.

Publication date: February 2016

ISBN number: 978-92-95106-76-5

Published by Women in Informal Employment: Globalizing and Organizing (WIEGO). A Charitable Company Limited by Guarantee – Company No. 6273538, Registered Charity No. 1143510

WIEGO Secretariat
Harvard University
79 John F. Kennedy Street
Cambridge, MA 02138, USA

WIEGO Limited
521 Royal Exchange
Manchester M2 7EN
United Kingdom

www.wiego.org

Full citation: Dias, Sonia, and Melanie Samson. 2016. *Informal Economy Monitoring Study Sector Report: Waste Pickers*. Cambridge, MA, USA: WIEGO.

Cover photographs by: D. Tomich, D. Stols, J. Luckham, J. D. M. Mulford, P. Mburu

Design by: Julian Luckham of Luckham Creative

About the Informal Economy Monitoring Study

The Informal Economy Monitoring Study (IEMS) is a major, longitudinal study of the urban informal economy being undertaken initially at two points in time, 2012 and 2016, in 10 cities around the world: Accra, Ghana; Ahmedabad, India; Bangkok, Thailand; Belo Horizonte, Brazil; Bogota, Colombia; Durban, South Africa; Lahore, Pakistan; Lima, Peru; Nakuru, Kenya; and Pune, India. The study combines qualitative and quantitative research methods to provide an in-depth understanding of how three groups of urban informal workers – home-based workers, street vendors, and waste pickers – are affected by and respond to economic trends, urban policies and practices, value chain dynamics, and other economic and social forces. The IEMS will generate panel data on the urban informal economy.

In each city, a team of five researchers worked in collaboration with a local membership-based organization of informal workers from April 2012 to April 2013 to collect and analyze the first round of the data.

All city research reports, as well as sector reports (one each for home-based work, street vending and waste picking), a global report, and other information on the study can be found at www.inclusivecities.org and www.wiego.org.

Table of Contents

List of Tables

List of Figures, Diagrams and Charts

Executive Summary

Waste pickers provide solid waste collection in various cities around the world and sustain their livelihoods by reselling or making personal use of recyclable materials. Waste pickers from the Global South and beyond include: people sifting through garbage in search of food, clothing, and other basic daily needs; informal private collectors of recyclable materials who sell to middlemen or businesses; or even collectors/sorters of recyclable materials who are organized into unions, cooperatives, or associations. Despite circulating in various public spaces, waste pickers are largely invisible and stigmatized. The environmental and economic contributions of these informal workers to local governments, local communities, and value chains in many ways are unrecognized.

Waste pickers in Nakuru. Photo: P. Mburu

Waste pickers are one of the three urban informal worker groups – along with street vendors and home-based workers – who are the focus of the 10-city Informal Economy Monitoring Study (IEMS). The IEMS seeks to provide more recent and in-depth evidence of the contributions and challenges this group of informal workers faces across various cities. In addition, it looks to the way these workers respond to such challenges and how institutions help or hinder them in the process. The IEMS was a collaborative effort between researchers and membership-based organizations (MBOs) of informal workers in each city. Waste pickers from Belo Horizonte, Brazil; Bogota, Colombia; Pune, India; Nakuru, Kenya; and Durban, South Africa participated in the study.

The IEMS is based on both quantitative and qualitative methods. The qualitative component of the study consists of a participatory design that sought to capture workers' own perceptions and understanding of their realities through focus groups. Fifteen focus groups of approximately five participants were conducted in each city-sector. The quantitative component of the study consists of a survey administered to the 75 focus group participants per city-sector in addition to another 75 workers who did not participate in the focus groups. A total of 760 waste pickers participated in the study.

Key Findings

Individuals, Households and Enterprises

The waste pickers in the sample take part in various activities related to the handling of waste, ranging from collecting, composting, sorting, and processing and selling. Some waste pickers are also involved in administrative activities and political representation.

Unless waste pickers form organizations and choose to work collectively, waste picking is typically a highly autonomous form of labour in which the worker determines his or her own work schedule, decides what to collect, where to collect it, how to collect it, and to whom to sell. Waste picking in the five cities is not a seasonal activity. In Pune, for instance 90% of the waste pickers worked 12 months of the year.

Over 43 per cent of the surveyed men and women waste pickers were between the ages of 26 and 40, and nearly 21 per cent were between 41 and 50 years of age. Approximately 80 per cent of the waste pickers in the sample across the five cities had some primary or secondary schooling. Only 25 per cent of respondents reported having another work activity, thus indicating the relevance of informal waste picking as a main source of income. In addition, 56 per cent of men and 61 per cent of women waste pickers have worked in the sector for five or more years. In keeping with what workers perceive as benefits from an autonomous form of work organization, two-thirds of waste pickers surveyed in the five cities reported that they were own-account workers.

Driving Forces

Findings from the study reveal how workers across the cities are mainly concerned about two negative driving forces – value chain dynamics and city or government policies. Low prices and price fluctuations were common complaints across the cities related to value chain forces. Lack of laws, policies, and programmes that would serve to protect the informal workers and improve their working conditions was also mentioned as significant negative city drivers. It should be noted that there are striking differences across cities. In Nakuru and Durban, 72 per cent and 73 per cent of survey respondents, respectively, stated that lack of formal permission to work negatively affected their work. These differences can be attributed to several factors, such as the level of sector organization and government willingness and commitment to inclusivity. Factors such as harassment and lack of basic infrastructure were also mentioned as other relevant negative city forces. In all the cities, with the exception of Belo Horizonte, focus group data highlighted problems with some kind of abuse of authority. Forty-seven per cent of respondents in the survey sample stated that harassment was a key issue, given that 54 per cent of men and 41 per cent of women mentioned this problem. In addition, the lack of, and\or improvement of, existing infrastructure for sorting, storage, and processing of recyclables and safety measures also affects workers, as it negatively impacts workers' productivity and increases the chances for workers to have their materials, and even personal items, stolen.

Macroeconomic forces were only mentioned by waste pickers in Pune, which does not mean these forces do not affect waste pickers negatively in the other cities. Rather it indicates that waste pickers may not be as aware of how macroeconomic policies affect their work or that they tend to take greater notice of it in times of severe crises. Among the macroeconomic forces waste pickers noted was the increasing competition from other waste pickers, the rising prices, and the low prices of recyclable materials. In three focus groups in Bogota, participants linked decreases in recyclable prices to the Free Trade Agreement (FTA) signed between Colombia and the United States in 2011, exhibiting an awareness of how broader macroeconomic policy shaped dynamics within the recycling value chain in their country.

Focus group findings also identified the positive drivers in cities. Value chain dynamics were the most frequently identified positive driving force in Durban, Nakuru, and Pune. Government policies and practices were most frequently cited in Belo Horizonte, and "other" driving forces were most frequently mentioned in Bogota. Belo Horizonte stands out when it comes to the role of city/government as being a positive driver, reinforcing the importance of establishing channels of negotiation for the recognition of waste pickers' roles in solid waste management. When focus group participants made reference to the positive role of city/government practices, they often highlighted national and municipal government departments and the provision of materials and equipment.

Responses and Mediating Institutions

Overall, focus group data showed that approximately two-thirds of waste pickers are responding to different types of negative drivers on an individual level. Under a quarter of the responses occur at the organizational/collective level, while a small proportion was at the household/family level. Macroeconomic drivers were the only negative driving force for which there were a significant number of responses at the household level.

Organizational/collective level responses featured most prominently in Bogota and in Belo Horizonte, where waste pickers have been organized for many decades and where organizations are strong. The one anomalous situation was in Pune, where only just over one-fifth of responses were organizational/collective, despite the long history and strong presence of the Kagad Kach Patra Kashtakari Panchayat (KKPKP) trade union and SWaCH cooperative in the municipality.

Both the focus group and the survey data sought to capture the ways mediating institutions either positively or negatively impact waste pickers. Of the 402 total mentions to important institutions, private businesses were mentioned most frequently (131 references) across the five cities, followed by local government (95 references), community institutions and actors (58 references), and waste picker organizations and networks (50 references). Private businesses feature as more important institutions because they create a surplus of recyclables, especially when businesses donate materials instead of selling them to waste pickers. There was also general consensus that waste picker organizations and networks, NGOs, and international financial institutions played a positive role and assisted waste pickers in all five cities.

Linkages and Contributions

IEMS findings from the five cities show that waste pickers are not only one of the main stakeholders in formal solid waste systems, intersecting with these systems at several points in complementary ways, but are also an integral part of the recycling value chain and, thus to the formal economy. Survey findings reveal that over 75% of waste pickers reported that formal businesses are the main buyers of products, reinforcing the connection between informal workers' close links to the formal economy.

Waste pickers across the IEMS cities reported a range of services they offer, which vary from city to city: waste removal (in some of the cities this is the only service available in particular areas), transportation, recovery of recyclables, value-aggregation, semi-processing, and even composting and biogas production (only in Pune). In addition to public cleaning services and feeding the industries with recyclables, workers also reported ingenious ways of marketing materials collected.

Many focus group participants claimed they contribute to their city in a variety of ways: protection of the environment, city cleanliness, job creation, security, local development, public health, and encouragement towards cooperativism, among others.

Theoretical & Policy Implications

Theoretical Implications

In spite of the waste pickers' own perceptions of how they contribute to the economy and environment, study findings reveal a series of constraints linked to the integration of waste pickers within the formal systems of solid waste management (SWM). Difficulties faced by waste pickers are amplified when the public sector is weak or absent, which also impacts their position in the value chain. It is important to clarify that formal integration of membership-based organizations (MBOs) within SWM does not imply a lack of conflicts or challenges, as socio-technical systems are in constant transformation as a result of global processes, changes in the institutional landscape (governments/MBOs, etc.), and changes in legislation, etc.

One of the major constraints emphasized in the study include waste pickers' inability to negotiate with big generators of waste. This is because the workers are unable to deal with the process of giving quotations and bidding for recyclables. The study also points out that occupational health and safety problems increase workers' vulnerabilities. The major problems faced by waste pickers relate to contamination from biological and chemical hazardous waste, ergonomic problems, musculoskeletal problems, accidents, dog bites, injuries from sharp objects, fires caused by flammable liquids inside containers, and emotional vulnerability, among others.

There are two important theoretical lessons from the study. The first refers to how IEMS findings contribute to the ongoing debate about the role of the state and transformative modes of governance. The study showed not only how government grants might function as a cushion to fall back on in times of instability, but how the lack of such programmes adds layers of vulnerability to workers' lives. In addition, the study also revealed how the contexts of formally integrating workers into solid waste systems and the role government (at all levels) are fundamental factors for supporting waste pickers.

Second, the study also provides evidence that helps debunk some myths about informal workers and the waste picking sector more specifically. These myths are all related to various current theoretical debates on the organizing processes among informal workers, the informal sector, and solid waste management. The first myth is that waste pickers lack agency and are victims. The general lack of understanding of waste picking as an occupation often ignores the fact that waste pickers are capable of making choices and are important economic actors within SWM. The second myth is related to the idea that waste pickers are not (or cannot be) organized. Until recently, waste pickers were invisible not only to city officers and waste specialists, but also to labour movements and social scientists. IEMS findings revealed how waste pickers develop work specializations and establish territories based on agreements they may make with shop owners or residents. While the process of forming MBOs is still recent worldwide, the study provides examples of cities where organizing is present and has taken on various formats: cooperatives, first- and third-level associations, and unions. Lastly, the findings help challenge the myth that modern waste management systems cannot include waste pickers. Waste specialists who subscribe to conventional paradigms of waste management often resort to the argument of waste picking as a feature of pre-modern systems. The vision of modern solid waste systems is therefore associated with mechanization, the use of capital-intensive technology, and of service provision by private companies. Findings claim that formally integrating waste pickers makes sense since in many areas of some of the studied cities, these workers are the ones who are already providing the only collection of household refuse.

As argued earlier, the meaning of integration varies depending on the country/city contexts, but it also depends on the perspective of various actors – engineers, social scientists, and activists – who are bound to produce different meanings when speaking about integration. The IEMS found two main modes of integration: integration as recognition, which includes measures that facilitate access to mixed waste, registration, and assistance to families; and formal integration, considered a means of introducing waste pickers in either refuse collection and/or resource recovery within source segregation schemes with payments of waste pickers through contracts or subsidies. The latter would guarantee waste pickers a type of semi-formal status through formal agreements.

Policy Implications

One general policy lesson from this study is that waste pickers are vital players in the world economy by contributing to improving public health, reducing the costs associated with municipal solid waste management, and significantly reducing greenhouse gas emissions in the environment.

It is important to recognize then that government policies play an important role. Governments can catalyze processes by helping waste pickers form associations and/or cooperatives, opening dialogue channels with informal workers within government institutions, and also encouraging other organizations to do so by establishing multi-stakeholders platforms for participatory planning and by giving incentives to cooperatives/associations and micro-enterprises so they can enter new niches.

Governments can also implement processes of formal integration by devising a system whereby waste pickers are allowed access to recyclables by formalizing partnerships with waste pickers' MBOs through MOUs or other formal agreements; providing infrastructure for sorting, and baling, etc.; carrying out educational campaigns to help not only change the biases the general public holds towards informal workers, but also to encourage more segregation of recyclables; and finally, offering, on a regular basis, capacity building and management courses.

The study also suggests the importance of a holistic and comprehensive approach to formal integration both for MBOs and governments. Waste pickers' organizations and governments alike should be attentive to the fact that a holistic approach is necessary along with a thorough assessment of what formal integration might bring as challenges for both sides. For MBOs, for instance, there will be pressure for the professionalization of services provided by workers. In this sense, there might be a need for MBOs and their allies to professionally seek experts who have recognized technical

expertise in order to train them. On the other hand, city governments should realize that the process of integrating waste pickers is a long-term commitment.

Lastly, the research findings clearly indicated that MBOs are fundamental actors for waste pickers. They are relevant for building self-esteem and for the representation of workers' interests with government and market actors. They are relevant for training and qualification of waste pickers as both service providers and political actors. They are also relevant in contexts where progressive legislation has been passed so that they can oversee whether legislation is being implemented and/or assess unexpected outcomes from this legislation. In this sense, waste pickers' organizations fulfill social, political, and cultural functions. It goes without saying that in order to better fulfill their roles, MBOs should always be attentive to the importance of strengthening internal democracy and the flow of communication among members, which includes sharing information on relevant research for the sector.

Introduction

Waste picking is a key occupation in solid waste management in most cities in the global South. Waste pickers can range from poor people rummaging through garbage in search of food, clothing and other basic, daily needs to informal private collectors of recyclables for sale to middlemen or businesses, as well as organized collectors/sorters of recyclables linked to unions, cooperatives or associations (Dias, 2011a). It is believed that 1 to 2 per cent of the world´s urban population earns a living from waste picking (Bartone, 1988).

Waste picker in Bogota. Photo: J. D. M. Mulford

In many countries, waste pickers supply the only form of solid waste (SW) collection, benefiting public health, municipal budgets and the environment. For many poor people waste picking is the only work option available, making the occupation an important source of livelihood. They often face deplorable living and working conditions, low social status and receive little support from local authorities in addition to being harassed by them. The majority of waste pickers worldwide do not have access to any kind of state-sponsored social protection schemes. They face intimidation and exploitation by middlemen and have the lowest pay in the recycling chain (Samson, 2009; Dias, 2006). There is a prevalent view that engaging with waste pickers is not synonymous with the vision of modern SW systems, which is very often associated with mechanization and/or with the use of capital-intensive technologies, such as incineration. Consequently, city authorities usually concede privatization to large firms, as waste picking is seen as an outdated, traditional and primitive kind of work.

Waste picking as an occupation is widely misunderstood. The fact that waste pickers are capable of making their own choices is often ignored, as is their role as important economic actors within SW management and in the entire economy (Scheinberg, 2006). The forces that shape their livelihood are influenced by global processes, ideas and myths, as well as by local contexts (the specifics of the institutional landscape, local policy drivers, etc). These forces and processes operating in the field of solid waste create both threats and opportunities. The Informal Economy Monitoring Study

attempts to contribute to a better understanding of how waste pickers are affected by these forces and processes and how they react to them. In addition, the study seeks to deepen the understanding of workers' links and their significance to the economy.

IEMS: Objectives and Methods

The objective of the IEMS is to provide credible, grounded evidence of a range of driving forces, both positive and negative, that affect conditions of work in the informal economy over time. Using two primary data collection techniques—one qualitative, one quantitative—the study examines the impact of these drivers across and within sectors, and also informal workers' responses to them. Designed as a panel study, it is based on a collaborative approach between researchers and membership-based organizations (MBOs)[1] of home-based workers, street vendors and waste pickers to monitor the state of the urban informal economy over time. Its focus is on the ways in which three sets of driving forces—macroeconomic, city/government, and value chain—play out among different segments of the waste picking sector across cities and how those dynamics may inform current urban policy and planning approaches.

The qualitative component of the study is based on participatory informal economy appraisal (PIEA), an innovative method designed to systematically capture the perceptions and understandings of informal workers in their own words in a focus group setting.[2] Each city team[3] conducted 15 focus groups of about five participants each per sector.[4] Nine tools—organized around the themes of sector characteristics, driving forces and responses, institutional environment and contributions of the sector—were used to generate data related to the conceptual framework. The results of the focus groups were recorded into reports of about 10-12 pages on average immediately after each focus group was conducted. Those reports were then analyzed systematically and synthesized into a city report.

The quantitative component consists of a survey questionnaire administered to the 75 focus group participants, plus another 75 workers for a total of 150 respondents in each city-sector. The questionnaire is designed to supplement the focus group data by collecting information on the household profile and income sources of the workers, the asset profile of the workers' households, the enterprise or occupation of the workers and the linkages between their informal work and the formal economy. The questionnaires were administered using a data capture tool.[5]

The sampling approach was designed to allow some flexibility as demanded by local circumstances, while still enabling comparability with the results across cities. Each city team aimed to include only MBO members or affiliates. In the waste picking sector, a total of 75 focus groups were conducted across the five cities. The focus groups were stratified by sex and by the source of materials (fixed vs. variable) for the waste picking sector in that city, with some focus groups including a mix of different categories. The survey questionnaire was administered to the 75 focus group participants per sector, plus another 75 workers for a total of 150 in each city-sector. In the waste picking sector, 760 waste pickers from five cities were included in the survey. The table below shows the variables for each city.

---

1 The term "membership-based organizations" (MBOs) in this report refers to those representing informal workers. Informal workers' MBOs are a subset of the broader category membership-based organizations of the poor, which are broadly defined as organizations whose governance structures respond to the needs and aspirations of the poor because they are accountable to their members (Chen et al. 2007).

2 The qualitative methodology was developed collaboratively with Caroline Moser, Angélica Acosta, and Irene Vance, who also trained the city teams in data collection methods and data analysis. It is an adaptation of earlier participatory methodologies developed by Chambers (1994); Moser and Holland (1997); Moser and McIlwaine (2004); and Moser, Acosta and Vasquez (2006).

3 Each city team consisted of an MBO coordinator, two qualitative researchers and two quantitative researchers. A member of WIEGO's Technical Advisory Committee supported each city team through data analysis and report writing.

4 "Sector" refers to occupational group throughout this report. In three IEMS cities, two sectors were studied: street vending and home-based work in Ahmedabad, and street vending and waste picking in Durban and Nakuru.

5 The translation of data collection tools into local languages represents a potential shortcoming of the comparative methodology, as not all terms could be translated with the certainty that their meaning would be equivalent in all settings. An intensive training workshop, held before fieldwork began, was designed to prepare the field workers and local coordinators to ensure that the conceptual framework was kept as consistent as possible throughout the data collection process.

Table 1. Key Stratification Variables in the Waste Picking Sector by City	
City	**Stratification Variable**
Pune	Type of Waste Picker (Itinerant Waste Buyers, Fixed Waste Collectors and Itinerant Waste Collectors)
Bogota	Location of Work (fixed or variable)
Durban	Location of work (fixed or variable)
Belo Horizonte	Source of Income (collecting in the streets, working in internal activities such as sorting warehouses, political activity within organizations)
Nakuru	Location of work (dump, streets)

Source: IEMS Waste Picking Sector City Reports for Belo Horizonte, Bogota, Durban, Nakuru, and Pune

The findings presented here are not necessarily representative of the entire waste picking population in each city — only those affiliated with the participating MBOs.[6] This report synthesizes qualitative and quantitative data from the first (2012) round of IEMS fieldwork in the waste picking sector in five cities: Durban, South Africa; Nakuru, Kenya; Pune, India; Bogota, Colombia; and Belo Horizonte, Brazil.

Box 1. Skills Training

Waste pickers across the five cities reported many problems they face in the occupation. Some are related to the value chain, some to interface with government officials, some to the interface with the population in general. In exercises carried out during the Focus Groups, particularly during the institutional mapping, workers were quite assertive regarding how they are hindered and what could be done to overcome some of these problems. The Focus Group discussions raised points related to the need for skills training and qualification courses in issues such as learning negotiation skills to better handle deals with the scrap market; how to fight against harassment from the police, city officers and the population; how to add value to recyclables to help move up in the recycling chain; how to better position themselves in the eyes of the general population so that their environmental and economic roles stand out.

Investing in skills training has the potential to increase waste pickers' *validity*, i.e. recognition that they are legitimate economic actors, improvement in their social identity and acknowledgement in urban planning.

Report Structure

The report is organized into three parts to show the specific characteristics of the waste picking sector in these five cities, as well as the complexities involved in improving work conditions and alliances that would strengthen workers' livelihoods. This report draws on survey findings, analyses of focus group reports and analyses of city reports drafted by each city research team. Part One analyzes the individual, household and enterprise characteristics of the 760 waste pickers who participated in the survey in the five cities. This section describes the day-to-day labour process among different kinds of waste pickers and uncovers patterns around gender, product category and employment status that affect the earnings from waste picking on which most households are dependent. Part Two then analyzes the quantitative and qualitative data related to driving forces. It also examines the range of responses to these driving forces. Part Three offers theoretical, research and policy lessons derived from the first round of study.

It is important to acknowledge that we are greatly indebted to the city research teams and technical advisory committee members who conducted initial analysis of the focus group and survey data for their cities, as well as to the authors of the city sector reports who wrote excellent reports analysing the data from the perspective of their local and national contexts. The authors of these five-city waste picking sector reports were members of the teams that conducted initial analysis of the waste picking reports for Belo Horizonte and Nakuru and provided input into the reports on Pune, Durban and Bogota.

[6] However, in the waste picking sector there was no MBO in Durban and the MBOs in Nakuru had only very recently been formed. Ultimately this allowed for interesting comparative analysis of the difference that being members of MBOs makes, an issue which is interrogated and highlighted throughout the remainder of this report.

Part 1. Individuals, Households and Enterprises Characteristics

Waste picking is a complex economic and social phenomenon shaped by a range of local cultural, political and economic factors. As a result, waste picking varies quite significantly between countries, cities and even within the same city. A number of ethnographic studies have documented fairly well the daily activities of waste pickers, such as waste picking collection, sorting and selling of materials. However, the qualitative findings in the IEMS help demarcate more specifically the particularities of processes, such as activities related to political representation as part of the dynamics involved in running the MBOs. This kind of data sheds light on all the interactions involved in the waste sector. In addition, it provides details on the various activities waste pickers are involved in and the different systems they have created to organize labour and even develop work specializations. Table 2 presents the activities mentioned by waste pickers in one of the tools used in the focus groups.

Table 2. Types of Activities by City

City	Types Of Activity					
	Collection	Sorting	Operational	Administrative	Political Representation	Others
Belo Horizonte	Picking of recyclables from street (offices, businesses), collection at large generators or donors	Sorting materials by type in warehouses	Weighing, compressing, baling, shredding, driving pick up vehicles, warehouse maintenance	Coordination of internal work at warehouses; administration of coop offices (selling recyclables, accounting etc)	Participation in meetings with city officers, NGOs etc; participation at the national movement of waste pickers; negotiations with different levels of government officials	Carpentry workshops, paper recycling, crafts production

City	Types Of Activity					
	Collection	Processing	Transportation	Selling	Others	
					Leadership/ Management	Exchange Of Services
Bogota	Collection of recyclables from streets; people´s homes; businesses; sorting at warehouses	Storage, compaction, semi-processing (baling, labeling, cleaning from glue, clippings)	Transportation of materials from collection centres to warehouses mainly by trucks or horse-carts	Selling of recyclables daily, weekly or every 2 weeks	Management (of warehouses; skills development of waste pickers); leading processes; coordination; submission of projects to the municipality	Relates to unpaid activities that allows access to waste, such as cleaning the sites and organizing

City	Types Of Activity	
	Collection	Selling
Durban	Collection from street, curbside collectors or from landfills	Selling of recyclables to buy-back centres

City	Types Of Activity		
	Collection	Selling	Drainage Cleaning
Nakuru	Waste pickers collect 28 items for sale or personal/domestic purposes such as metals, aluminum, bonés, plastics, shoes and plastic soles	Selling to buy-back centres	Pickers working outside the dump report cleaning of drains

City	Types Of Activity					
	Recovery	Purchase Sorting	Processing	Selling	Dtd Collection	Composting/ Biomethana-tion
Pune	Collection of recyclables from either/or municipal skips, from generators - done by all 3 types of waste pickers; Fixed waste pickers also collect organic refuse in addition to recyclables	Itinerant waste buyers purchase recyclables Segregation by type done by all 3 types of waste pickers	Dismantling, grading, packing and transportation - done by all 3 types of waste pickers	Selling of recyclables in the market - done by all 3 types of waste pickers	Door-to-door collection of household waste by those formally integrated	Cleaning waste from stone and glass for the making of biogas

Source: IEMS focus group data (2012) (n=75 focus groups).

The data from Table 2 shows that in the cities where waste pickers are more organized—Pune, Belo Horizonte and Bogota —workers have a much clearer understanding of all the processes their work entails. In Belo Horizonte, for example, due to the nature of the formal integration of waste pickers, where the city is responsible for the collection of recyclables from the drop-off system and from the door-to-door selective waste collection, a whole new category of worker—the sorter—was created. Sorting occurs solely in the recycling warehouses where city trucks take materials for further sorting and processing. On the other hand, in cities like Nakuru and Durban, where organizing is nascent in the latter and non-existent in the former, waste pickers were not able to mention "sorting" as one of the activities they perform. Nevertheless, workers in these two cities are doing some kind of sorting, even if not in a sophisticated manner, since this is a necessary activity that facilitates the process of selling recyclables.

Lastly, Table 2 presents another interesting feature regarding the cities of Belo Horizonte and Bogota, where political representation is included in the type of work activities waste pickers perform. This may be related to the kind of representation model adopted by waste pickers in Latin America, in which greater emphasis is placed on having workers, not technical staff, perform all representational roles (sometimes supported by technical staff).

Waste pickers salvage materials mainly from municipal solid waste streams and/or from big generators such as office buildings or industries. While they use some of the collected materials themselves, they mostly sell into global value chains or into local informal economies. The specific materials collected in any one city are determined by the needs and capacity of the local industries to recycle given materials, fluctuations in global and local prices, the relative availability of virgin materials and new products and cultural norms. The history of organizing also plays a significant role in the characteristics of a given community of waste pickers. Waste picking is most often a family enterprise with parents, children and other members of a household engaged in collection, sorting and/or processing of materials. In our sample, they are mainly own-account workers unless they belong to a cooperative or association.

1.1 Waste Pickers: Basic Characteristics

Across the five cities, 760 waste pickers were included in the sample. Over 43 per cent of the surveyed men and women waste pickers were between the ages of 26 and 40, and nearly 21 per cent were between 41 and 50 years of age. However, there were important differences between the cities, which reflect the histories of waste picking and levels of organization in the cities. In Belo Horizonte and Pune, the two cities with longer histories of organizing, the waste pickers included in the survey were on average older than workers in the sample as a whole. Only 25 per cent of respondents reported having another work activity, thus indicating the relevance of informal waste picking as a main source of income.

The majority of both male (56 per cent) and female (61 per cent) waste pickers surveyed in the five cities have worked in the sector for five or more years. Ninety-five per cent of workers in Bogota, 94 per cent in Pune and 54 per cent in Belo Horizonte claimed to have been working in the sector for five years of more. On the other hand, only 28 per cent of workers in Nakuru and 26 per cent in Durban—cities where organizing nascent or non-existent—claimed they had been working for five years or more.

The IEMS indicated work takes place in a variety of premises: streets (45 per cent), people's homes (43 per cent), businesses (35 per cent), dumpsites (28 per cent) and from recycling warehouses (26 per cent). In Latin American cities, 72 per cent of waste pickers in Belo Horizonte and 46 per cent in Bogota work in warehouses, whereas in Durban 49 per cent of the waste pickers work on the streets. The city with the highest concentration of pickers working from dumpsites was Nakuru (63 per cent). These differences may be related to the level of modernization of SWM systems and the level of integration of workers within each city.

In general, waste pickers are typically considered to be poorly educated and illiterate. Table 3 challenges some of these assumptions as the majority of waste pickers in the sample in the five cities (80 per cent) had some primary or secondary schooling.

Table 3. Educational Level of Waste Pickers by Sex Across Cities (%)

	Male	Female	Total
All waste pickers			
None	13.39*	24.82	19.79
Some primary	45.24	44.50	44.82
Some secondary or more	41.37	30.68	35.39
N	**336**	**427**	**763**

* Statistically significant at the .05 level for all waste pickers, Durban and Pune.
Source: IEMS Survey Data (2012)

Survey findings reveal that women were more likely than men to have no education. Twenty-five per cent of women and 13 per cent of men claimed to have no formal education at all. Furthermore, waste pickers surveyed in the Latin American and African cities tended to have much higher levels of education than in Pune, India, where 50 per cent of men and 74 per cent of women surveyed had no formal education at all, and only 21 per cent of men and 11 per cent of women had some secondary education or more. The fact that women were more likely than men to have no education poses significant challenges for women's economic and political empowerment and to gender equity.

1.2 Enterprises: Status of Employment

Unless waste pickers form organizations and choose to work collectively, waste picking is typically a highly autonomous form of labour in which the worker determines his or her own work schedule, decides what to collect, where to collect it, how to collect it, and to whom to sell. In keeping with what workers perceive as benefits from an autonomous form of work organization, two-thirds of waste pickers surveyed in the five cities reported that they were "own account workers" (see Table 4 below).

Table 4. Status of Worker by Sex			
	Male	Female	Total
Own account worker/other	68.15	63.93	65.79
Members of Cooperatives	18.15	29.04	24.25
Employer	10.42*	4.22	6.95
Employee	3.27	2.81	3.01
N	**336**	**427**	**763**

* Statistically significant at the .05 level.
Source: IEMS Survey Data (2012)

Women were slightly more likely to be cooperative members and work in a cooperative. In all of the cities, men were more likely than women to be employers, with the exception being Bogota, where there was no difference between men and women. In Durban, where waste pickers were neither organized nor integrated into the municipal waste management system, 89 per cent of waste pickers claimed to be own-account workers and 11 per cent were employers, with men being twice as likely to be employers as women. Similarly, in Nakuru, where waste pickers were not integrated into the municipal system and were only just starting to organize, 90 per cent were own account workers, 4 per cent were employers, 5 per cent were cooperative members and 1 per cent were employees.

In Bogota and Belo Horizonte, 22 per cent and 96 per cent of waste pickers, respectively, were cooperative members. In Pune, despite the fact that the survey sample included members of the SWaCH cooperative, 88 per cent of waste pickers surveyed said that they were own account workers, 10 per cent were employers and only 1 per cent said that they were cooperative members. This finding may be attributed to the fact that although SWaCH affiliates are members of the cooperative, they are paid individually. In addition, it may reflect how individuals had different interpretations of what being a "cooperative" member meant. It is worth bearing in mind that informal workers do not fit into traditional employment categories (which are employer and employee). Overall, approximately 25 per cent of waste pickers surveyed in the five cities engaged in another work activity. The five-city average differed only marginally between men and women.

Although waste pickers generally tend to work alone, the study found that workers in all cities have either paid and/or unpaid help, 6 per cent and 7 per cent, respectively. Men in the sample were more than twice as likely to have paid help. Ten per cent of men and only 4 per cent of women reported that this was the case. Seven per cent of both men and women had unpaid family help, while 1 per cent of women and 2 per cent of men had unpaid non-family help.

1.3 Household Characteristics: Size and Composition, Head, Economic Portfolio

The average number of household members among waste pickers in the sample is four. Both male and female waste pickers had average household sizes of four (see Table 5 below). In Pune and Bogota, women had slightly larger households with an average size of five household members. There were more variations in household size among men when noting cities such as Durban, Nakuru and Pune. Household size did not, however, differ greatly between men and women in any of the cities.

Table 5. Average Household Size by Sex		
	Male	Female
All waste pickers	3.76	4.44
Belo Horizonte	3.63	4.44
Bogota	4.23	4.58
Durban	2.61	3.61
Nakuru	3.28	4.09
Pune	5.72	5.20

Source: IEMS Survey Data (2012)

There was greater differentiation between male and female waste pickers with respect to household dependency ratios, which averaged 0.63 for men and 0.55 for women. The dependency ratio was higher for men than for women in Belo Horizonte, Durban and Nakuru. While there were no differences in Bogota, the dependency ratio was higher for women than for men in Pune (see Table 6 below).

Table 6. Average Household Dependency Ratio by Sex for All Cities (%)

	Male	Female
All waste pickers	0.63	0.55
Belo Horizonte	0.73	0.59
Bogota	0.53	0.53
Durban	0.80	0.62
Nakuru	0.59	0.50
Pune	0.46	0.50

Source: IEMS Survey Data (2012)

As Table 7 indicates, the relative importance of survey respondents' income from waste picking for household income varied greatly from city to city.

Table 7. Main Source of Household Income, by Gender and City

	Belo Horizonte			Bogota			Durban		
	M	F	Total	M	F	Total	M	F	Total
Own informal work	79.59	60.00	66.44	33.33	34.12	33.77	71.59*	41.94	59.33
Informal work of others	10.20	10.00	10.07	33.33	38.82	36.42	4.55	4.84	4.67
Own formal work	0.00	5.00	3.36	15.15	7.06	10.60	1.14	0.00	0.67
Formal work of others	2.04	5.00	4.03	1.52	0.00	0.66	14.77	11.29	13.33
Other	8.16	20.00	16.11	16.67	20.00	18.54	7.95	41.94	22.00
N	**49**	**100**	**149**	**66**	**85**	**151**	**88**	**62**	**150**

	Nakuru			Pune		
	M	F	Total	M	F	Total
Own informal work	93.42*	67.82	79.75	89.47	81.72	84.67
Informal work of others	1.32	25.29	14.11	7.02	12.9	10.67
Own formal work	1.32	3.45	2.45	1.75	5.38	4.00
Formal work of others	0.00	1.15	0.61	0.00	0.00	0.00
Other	3.95	2.30	3.07	1.75	0.00	0.67
N	**76**	**87**	**163**	**57**	**93**	**150**

* Statistically significant at the .05 level for all cells in the table
Source: IEMS Survey Data (2012)

Income from waste pickers' own informal activity was most important in Pune, where it was the main source of household income in 85 per cent of waste pickers' households. This percentage was 80 per cent in Nakuru, 66 per cent in Belo Horizonte, 59 per cent in Durban and 34 per cent in Bogota. Bogota was the only city where both men and women similarly reported their informal activity as the main source of income. The greatest gender disparities were found in Durban, where waste pickers' informal income was the main source of household income for 72 per cent of men but only for 42 per cent of women, and in Nakuru, where the figures were 93 per cent for men and 68 per cent for women.

Many waste pickers lived in households where the main source of household income was informal work by another household member (10 per cent in Belo Horizonte, 36 per cent in Bogota, 14 per cent

in Nakuru and 11 per cent in Pune). The only city where this did not feature significantly was Durban, where only 5 per cent of survey respondents said that the main source of household income was from informal work by another household member. Income from formal work by another household member played a relatively more important role in Durban, where this was the main source of household income for 13 per cent of survey respondents. Interestingly, there was only a marginal difference between men and women. In Pune, none of the respondents' households had income from formal work by another member of the household as the main source of income. With the exception of Durban, none of the other cities reported formal wage of employment as a primary source of household income.

Table 8 below provides an overview of how access to other forms of household income varied across cities. Part of the explanation can be attributed to different government policies. Other sources of income probed in the survey included Government Grants, Unemployment Insurance, Workers' Compensation, Rental Income, Child Maintenance, Remittances and Pensions.

Table 8. Household Access to Other Sources of Household Income by Sex and City (%)

	Belo Horizonte			Bogota			Durban		
	M	F	Total	M	F	Total	M	F	Total
Government Grant	16.33*	35.00	28.86	15.15	20.00	17.88	19.32*	64.52	38
Unemployment Insurance	6.12	8.00	7.38	0.00	0.00	0.00	0.00	3.23	1.33
Workers' Compensation	2.04	2.00	2.01	0.00	0.00	0.00	0.00	1.61	0.67
Rental Income	2.04	1.00	1.34	1.52	2.35	1.99	4.55	9.68	6.67
Retrenchment Package	0.00	0.00	0.00	1.52	0.00	0.66	0.00	0.00	0.00
Child Maintenance	2.04*	12.00	8.72	3.03	9.41	6.62	3.41	11.29	6.67
Remittances	4.08	3.00	3.36	0.00	2.35	1.32	11.36	4.84	8.67
Pensions	12.24	18.00	16.11	0.00	0.00	0.00	3.41	6.45	4.67
N	**49**	**100**	**149**	**66**	**85**	**151**	**88**	**62**	**150**

	Nakuru			Pune		
	M	F	Total	M	F	Total
Government Grant	0.00	0.00	0.00	0.00	1.08	0.67
Unemployment Insurance	0.00	0.00	0.00	1.75	0.00	0.67
Workers' Compensation	0.00	0.00	0.00	0.00	0.00	0.00
Rental Income	2.63	0.00	1.23	1.75	0.00	0.67
Retrenchment Package	0.00	0.00	0.00	0.00	0.00	0.00
Child Maintenance	0.00	1.15	0.61	0.00	0.00	0.00
Remittances	7.89	4.60	6.13	0.00	0.00	0.00
Pensions	0.00	0.00	0.00	1.75	3.23	2.67
N	**76**	**87**	**163**	**57**	**93**	**150**

* Statistically significant at the 0.05 level for that specific source of income.
Source: IEMS Survey Data (2012)

In Nakuru and Pune survey respondents' households had virtually no access to other sources of income. The types of other income accessed in Belo Horizonte, Durban and Bogota differed greatly. In Bogota, the most common source of additional income was government grants, which were received by 18 per cent of waste pickers' surveyed households, followed by child maintenance (7 per cent). By contrast, in Durban and Belo Horizonte, government grants were the largest source of other income at 38 per cent and 29 per cent, respectively. In Belo Horizonte, this was followed by pensions (16 per cent), while in Durban, remittances (9 per cent), child maintenance grants (7 per cent) and rental

income (7 per cent) were other sources of income received. Twice as many women as men in Belo Horizonte and more than three times as many women in Durban received government grants. In a volatile market such as the recycling value chain, the existence of government programmes provides a cushion for times of uncertainty and constitutes what "livelihoods framework" has termed as "tangible assets".

1.4. Overview of Main Characteristics of City Solid Waste Systems and MBOs

Waste pickers, whether integrated or not within formal solid waste systems, are involved with other value chain actors and formal SWM systems. With regards to the connections with formal SWM systems, it is worth providing an overview of some of the basic characteristics for each of the five cities. These city-specificities help illustrate how waste pickers perform their activities, on both an individual and enterprise level, as well as explain organizing patterns. This overview also helps to understand the dynamics in the sector, which is discussed in the following section.

In **Durban**, waste is collected by the municipality through its waste department (DSW), which is a mixed system where permanent staff collect household waste in the former "white", "Indian" and "coloured" areas of the city and outsourced service is provided in the township areas (mainly black). There is no formal recognition of waste pickers in the municipal legislative framework, and waste pickers are not formally integrated into the solid waste system. However, it has been reported that the city´s system of buy-back centres (junk shops owned by the city but operated by private contractors)[7] has brought about positive change for pickers in the recycling chain. Waste pickers do not have a membership-based organization.

In **Nakuru**, since 2006, the municipality has contracted private companies and local community based organizations (CBOs) to collect waste from areas outside of the central business district and to drop off at the open dump '*Gioto*' (Lubaale and Nyang'oro, 2013, p. 5). Approximately 44 per cent of the waste is collected by private companies. While the remaining waste should be collected by the municipality, a considerable amount is left uncollected. Waste pickers have only fairly recently started organizing, as of 2010 through the work carried out by the Kenya National Association of Street Vendors and Informal Traders—KENASVIT. The membership based organization (MBO) representing the waste pickers—Nakuru Waste Pickers Association (NAWPA)—has 150 members. The main sources of materials are the *Gioto* dump and the business and residential areas of the city. There is no integration at all of waste pickers within the SW system.

In **Pune**, the city government is legally charged with the collection of waste. Although the city claims to have a sanitary landfill, it does not meet required standards, and local experts report that it functions more as an open dump. The municipality entered into concession agreements with several private players for running waste to energy plants, but primary collection of household waste is carried out by waste pickers through an agreement[8] with the SWaCH waste picker cooperative, which is linked to the Kagad Kach Patra Kashtakari Panchayat (KKPKP) waste picker trade union. Organizing of waste pickers in Pune dates back to 1993, when KKPKP was founded.

Bogota is the capital city of Colombia. The 2012 Census identified 13,694 waste pickers and 12 second-level organizations of waste pickers in the city. One of these second-level organizations is the Asociación de Recicladores de Bogotá (ARB). The ARB was created in 1990 and has more than 1,800 members from 17 grassroots organizations. The ARB undertakes activities related to collection, sorting, transportation, transformation (semi-processing) and the commercialization of recyclables. The ARB advocates on behalf of its members for secure access to recyclables, as well as for public recognition of the economic, social and environmental contributions of waste pickers' work. There are two main categories of waste pickers in Bogota: fixed source pickers and street/itinerant pickers. Bogota's waste management system has undergone significant transformations in recent years. In 1994 the city privatized the collection and disposal of waste. The city was divided into six areas and in each area a

[7] There are six municipal buy-back centres that mainly purchase paper/cardboard and scrap metal.
[8] The Pune Municipal Corporation provides SWaCH with equipment, infrastructure and funding for management costs.

private company was contracted to provide household collection, public sweeping and cleansing of public areas and roads, collection and treatment of hospital waste and collection of debris.[9]

Belo Horizonte is the capital city of the Minas Gerais state in southeastern Brazil. Its public cleansing agency (SLU) is in charge of the planning, implementation and monitoring of waste services. In 1993, the city adopted an integrated approach to solid waste that includes a sanitary landfill, a drop-off recycling scheme combined with curbside recycling in some areas, waste recycling at construction sites (in partnership with informal collectors of debris) and the organic recycling of waste from big producers (supermarkets, restaurants, etc). The role of informal waste pickers is recognized in the City's Organic Law and in Law 8052/2000. Integration of waste pickers began with a formal partnership with the cooperative Asmare, and, since 2003, the municipality began supporting other waste pickers' organization, though to varying degrees. A stakeholders' forum (The Municipal Waste and Citizenship Forum) was created in 2003. During the Forum, all cooperatives convene with representatives from the city government, private sector organizations and the municipal legislature with the goal of discussing social inclusion strategies in waste recycling. The main categories of waste pickers are street pickers, sorters, operational pickers and crafts-workers.

[9] Waste pickers contested their exclusion from this system and from the process to grant new tenders in 2002. In 2003, the Constitutional Court ruled that the city needed to build their capacity so that they could bid for the next round of contracts in 2011. The municipality failed to do this. As a result, in 2012 the Constitutional Court ruled that waste pickers must be given exclusive rights to collect recyclables and that they must be paid by the municipality for the recyclables that they collect. The new mayor, Gustavo Petro, seized this as an opportunity to radically transform the waste system to meet social and environmental needs. He created a zero-waste system and attempted to end the costly privatization contracts. As a result of sabotage by the previous contractors, he was unable to completely end privatization, but by 2014, 62 per cent of the service was being delivered by a state-owned company. Petro's efforts to transform the waste system led to an attempt by the Inspector General to remove him from office in December 2013. This situation was still not resolved by February 2014. It is important to note that the research for the IEMS was conducted in 2010, which was prior to the formal integration of waste pickers into the solid waste management system and the reversal of privatization. As such, the analysis focuses on the status of waste pickers under conditions of privatization and the lack of formal inclusion. Hence, it will provide a good baseline to determine the effects of the new system in future rounds of research.

Part 2 Dynamics in the Sector: Driving Forces and Responses

Though waste pickers are implicitly integrated into the waste management system, this is usually not recognized by society. Instead waste pickers are harassed, and their role as service providers and environmental agents still remains to be fully acknowledged in many places. Frequently, policies adopted at different government levels ignore waste pickers' contributions and actively undermine, marginalize and dispossess these workers. The vision for modern Solid Waste Management systems is very often associated with mechanization and the use of capital-intensive technology. With this waste-management perspective, waste picking is considered as outdated, traditional, primitive work—as several authors have pointed out—and compromises the human rights of waste pickers as workers (Dias, 2012; Medina, 2007; Vellis et al, 2012; Scheinberg, 2006).

Waste picker in Belo Horizonte. Photo: S. Dias

Waste pickers are often treated as victims, and in such cases society ignores how they are capable of making choices and are important economic actors within SW management (Scheinberg, 2006). Though conventional views argue that waste pickers are not capable of organizing, workers have been challenging this view, and across the world they are increasingly demanding voice, visibility and validity (Samson, 2009).

It is important to deepen the understanding of the forces that shape the livelihoods of waste pickers and how these forces are influenced by global processes and ideas, as well as by local contexts (i.e. the specificities of the institutional landscape; national, sub-national and local policy drivers; and the level of organizing, state responsiveness, etc). In this research we depart from the understanding that some of the forces and processes operating in the field of solid waste create both threats and opportunities. This section explores three main driving forces: macroeconomic, city/government policies and practices and value-chain dynamics, as well as how waste pickers respond to them.

The term "driving force" was used to refer to systemic factors that may impact, either in positive or negative ways, the occupations or livelihoods of urban informal workers. Focus groups and survey

questionnaires were used to investigate driving forces and responses. In the focus groups, a series of activities were used, such as listings of forces affecting workers, rankings of these forces and flow diagrams. It is assumed that the impact of the driving forces is mediated by institutions and actors, thus institutional mapping was another tool used to investigate key institutions and actors and how they impact the livelihoods of waste pickers. Through these tools, the study was able to map out what factors affected the workers, how they were affected and how they responded to them.

2.1 Overview of Main Driving Forces

Across the five cities, government policies and practices and value chain dynamics were the most frequently mentioned negative driving forces by focus group participants, with 84 mentions each. An additional category, which included "other" driving forces such as such as internal MBO process and health and safety, was mentioned 44 times. Macroeconomic forces were only mentioned 16 times and interestingly enough, all the references came from focus groups in Pune. Nevertheless, it should be noted that this does not mean macroeconomic forces do not affect waste pickers negatively in the other cities, rather it indicates that waste pickers are not aware of how macroeconomic policies affect their work or that they tend to take greater notice of it in times of severe crises. In fact, data from the Global Economy Crisis -GEC 2010 study carried out with informal workers to track down the effects of the 2008 crisis on their livelihoods showed that waste pickers identified a strong reduction in the demand for materials for waste recycling as well as a significant drop in prices for these recyclables. They were able then to associate a decline in incomes with the crisis.

Focus group participants in Belo Horizonte, Pune and Durban most frequently identified government policies and practices as the *negative* driving force affecting them, while in Bogota and Nakuru, value chain dynamics were cited most frequently. In Belo Horizonte, "other" driving forces tied with government policies and practices as the most frequently cited negative driving force, with half of the "other" forces relating to internal waste picker organization dynamics. Drawing from a listing and ranking exercise applied in all focus groups, Table 9 shows the number of instances in which a focus group listed these economic forces as a significant driver and then ranked them as one of the top three drivers overall.

Table 9. Negative Driving Forces Affecting Waste Pickers in Five Cities

Driving Force	Belo Horizonte	Bogota	Durban	Nakuru	Pune	Total
Government Policies and Practices	16	16	27	7	18	84
Value Chain Dynamics	15	24	11	26	8	84
Other	16	0	8	20	0	44
MacroEconomic	0	0	0	0	16	16
Total	**47**	**40**	**46**	**53**	**42**	**228**

Source: IEMS focus group data (2012) (n=75 focus groups).

Focus group participants also identified driving forces which *positively* affected their work. As Table 10 reveals, value chain dynamics were the most frequently identified positive driving force in Durban, Nakuru and Pune. Government policies and practices were most frequently cited in Belo Horizonte, and "other" driving forces were most frequently mentioned in Bogota.

Table 10. Positive Driving Forces Affecting Waste Pickers in Five Cities

Driving Force	Belo Horizonte	Bogota	Durban	Nakuru	Pune	Total
Value Chain Dynamics	5	13	25	31	23	97
Other	16	28	0	11	12	68
Government Policies and Practices	24	4	4	3	10	45
Macroeconomic	0	0	0	0	4	4
Total	**45**	**45**	**29**	**45**	**49**	**214**

Source: IEMS focus group data (2012) (n=75 focus groups).

Across all the cities, there were 228 references regarding negative drivers versus 214 references to positive ones. The city of Belo Horizonte stands out when it comes to the role of city/government as being a positive driver. In all the other cities, the most positive driver was related to the value chain dynamics.

2.2 Macroeconomic Forces

There is a body of waste literature that deals with the links between macroeconomic factors and waste production (and its ensuing environmental impacts), but virtually none of these studies are concerned with the interrelations between macroeconomic changes and the livelihoods of informal waste pickers. In this sense, there is a need to better understand how macroeconomic policies lead to additional stress on (or improvements in) the livelihoods of waste pickers.

Since the 1980's, some countries within this study pursued economic reforms that reduced subsidies on goods and full cost recovery for services. In addition, they pursued trade liberalization policies that stimulated imports of recycled materials (through tariffs reduction), affecting local markets of recyclables, as was the case for Colombia. From 2006-2012, countries like India, for instance, experienced persistent and elevated food inflation, and as the Pune city report points out, the experience of rising living costs for waste pickers can be traced back to macroeconomic reality (World Bank n.d). It is widely known that the world economy as a whole suffered a significant slow down during the year of 2008. However, a few countries managed to mitigate the impacts of the crisis. Some Latin American countries would be among those that not only adopted alternative measures to protect themselves from exogenous changes, but also invested in pro-poor social expenditures, including cash transfers for the poor and vulnerable, as was the case in Brazil (Barros et al, 2009; Cohen, 2012).

In spite of the fact that the GEC study indicated how the 2008 downturn caused a significant reduction of employment and incomes of waste pickers, macroeconomic factors were not seen as a priority within the IEMS, with the exception of Pune, as can be seen below.

Table 11. Negative Macroeconomic Driving Forces in Five Cities

Driving Force	Belo Horizonte	Bogota	Durban	Nakuru	Pune	Total
Proliferation of waste collectors	0	0	0	0	5	5
Rising Prices	0	0	0	0	4	4
Low prices of recyclables linked to broader macroeconomic issues	0	0	0	0	4	4
Generators supplying fewer recyclable materials	0	0	0	0	3	3
Total	**0**	**0**	**0**	**0**	**16**	**16**

Source: IEMS focus group data (2012) (n=75 focus groups). Drawing from a listing and ranking exercise applied in all focus groups, the table shows the number of instances in which a focus group listed these economic forces as a significant driver and then ranked them as one of the top three drivers overall.

The results for India, where rising prices is ranked as the second negative force, is consistent with data for annual inflation for that country as can be seen in the table below.

Table 12. Annual Inflation (Consumer Prices), 2007-2013 (Country-Level Data) (%)

	2007	2008	2009	2010	2011	2012	2013
Brazil	3.6	5.7	4.9	5.0	6.6	5.4	6.2
Colombia	5.5	7.0	4.2	2.3	3.4	3.2	2.0
South Africa	7.1	11.5	7.1	4.3	5.3	5.4	5.7
Kenya	9.8	26.2	9.2	4.0	14.0	9.4	5.7
India	6.4	8.4	10.9	12.0	8.9	9.3	10.0

Source: World Bank.

In the case of the city of Belo Horizonte, Brazil, one of the reasons why macroeconomic factors are not mentioned might be related to the fact that the period of data collection for the IEMS corresponds to a boom in the Brazilian economy. During that time, many social policies were implemented by the government, thus providing some safety nets for workers. In the Bogota city report, macroeconomic factors emerged only in the key informant interviews, where interviewees mentioned that changes in the world's economies impacted the dynamics of the global recycling chain. Bogota findings also highlighted how the level of impact on different players across the value chain differs according to the position these players occupy in the chain and also to how they were positioned within it. The section below examines responses for macroeconomic driving forces.

In three focus groups in Bogota, participants linked decreases in recyclable prices to the Free Trade Agreement (FTA) signed between Colombia and the United States in 2011, exhibiting an awareness of how broader macroeconomic policy shaped dynamics within the recycling value chain in their country. As one participant noted in the focus group: "...it is because of the FTA to a certain extent, material prices went down because it is cheaper for buyers to buy them in other countries where it is cheaper" (FG 15). Key informant interviewees in Bogota also raised the issue of the impact of the US dollar's devaluation in Colombia: "Industries used to produce to compete with materials that were imported at COP$2,800 for US$1, but now they have to produce for a COP$1,800 rate, and although it is true that international prices have increased, this increase does not compensate the former" (interview 2). The same interviewee discussed the impact from trade liberalization policies implemented in Colombia in the 1980s and the agreements that have been signed in more recent years, which stimulated imports of recycled materials due to tariff reductions: "Tariffs to third countries went down from 15 to 10 per cent, so it is now more attractive to import paper from China than before" (interview 2).

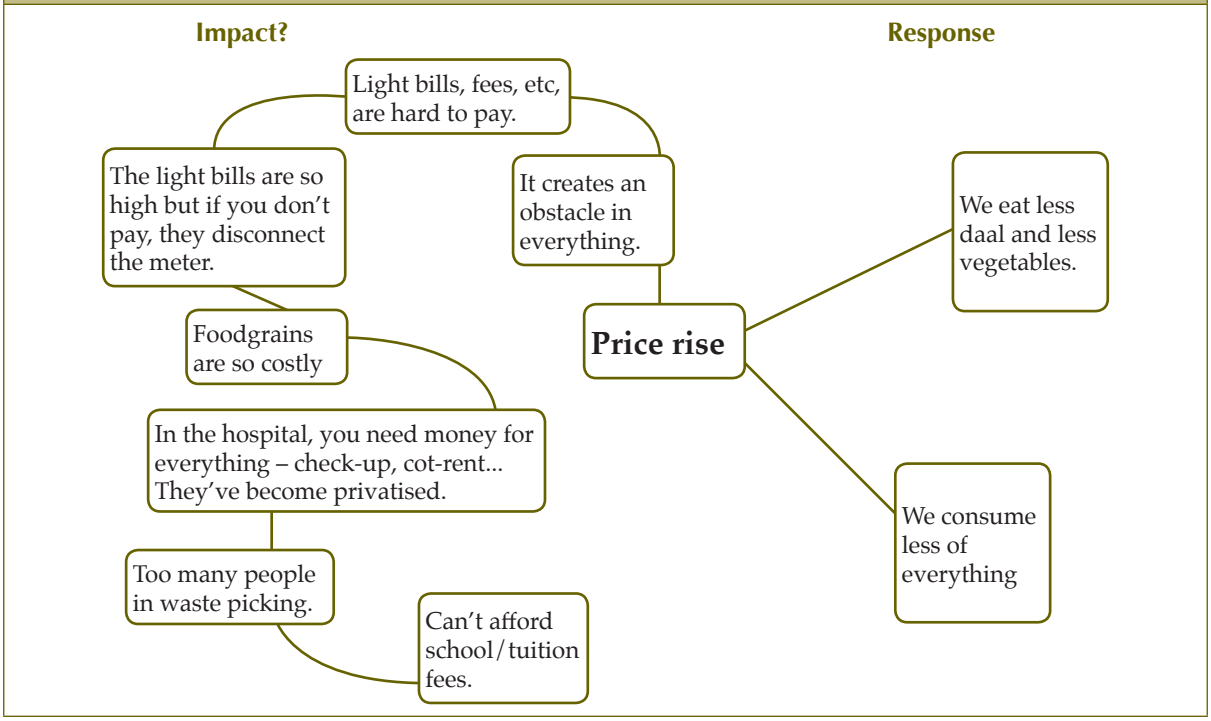
Although macroeconomic forces did not receive as many references as other driving forces, quotes from Focus Group discussions provide some insight into three forces: rising prices, demand and competition. Each of these will be further explored in the following sub-sections.

2.2.1. Rising Prices

As noted above, Pune was the only city in which focus group participants explicitly made references to macroeconomic driving forces as negatively affecting their work.

Figure 1 depicts how the general rise in prices in India affected waste pickers and how they responded to this situation. India experienced spiralling inflation between 2006 and 2012, with double-digit inflation rates from 2010 to 2012. Given this experience, the government pursued full cost recovery for all services, resulting in significant price hikes (Chikarmane 2014). In Figure 1, men and women itinerant waste pickers, itinerant waste buyers and door-to-door collectors in Pune graphically demonstrate how the increase in prices, linked to inflation, has caused waste pickers to struggle to pay for basic items such as food, school fees and health care. Workers were forced to cut back on essentials and could not even afford vegetables and lentils, a staple food. As one waste collector exclaimed, "This price rise is terrible. The prices of everything that we buy increase and the price of recyclables come down!" (FG 13). The rising prices for routine household consumption, low selling prices for recyclables and the lack of basic protection has a direct impact on household nutrition, education, health and living conditions.

Figure 1. Causal Flow Diagram of Impact of Price Rises Increases and Responses in Pune"



Source: Mixed focus group of 6 men and women participants representing all three worker categories of itinerant waste picker, itinerant waste buyer and door to door collector in Pune FG13

As can be seen in Table 13, all the cities, with the exception of Belo Horizonte, Brazil, experienced a sharp decline in selling prices for recyclables. Lower prices result in a lower income with direct effects on household expenditures. "Now, instead of giving the children two treats for lunch, we can only give one," explains a participant in Bogota (FG 11).

Table 13. Selling Prices for Waste Compared With This Time Last Year, by City (%)

	Belo Horizonte	Bogota	Durban	Nakuru	Pune	Total
Lower	17.16	76.82	50.34	67.92	56.25	54.69
Higher	50.75	13.91	20.41	19.50	11.11	22.59
Same	32.09	9.27	29.25	12.58	32.64	22.72

Source: IEMS survey data (2012) (n=735)

The combination of rising prices and low selling prices affects workers' livelihoods. As a participant in Nakuru indicates, it impacts food security, "When the price is that low and the cost of living is high, it reduces our ability to support ourselves in life" (FG 7).

Also, in Pune, a participant explains that "We don´t eat daal [lentil soup] any longer ... what you want, you can't afford, and what you can afford is not edible" (FG 13). There might also be implications on worker's productivity as workers might not have the power to pull collection carts. This is because, in most cities, human traction vehicles, which require a great deal of strength and energy from workers, are used to collect materials.

Though rising prices is a systemic force in nature, it is interesting to note that responses from workers in Pune are primarily at the individual and household level. Turning to private loans and/or cutting back on consumption are common coping mechanisms as indicated by a participant: "We will have to make do with less nutritious food" (FG14).

2.2.2. Low Demand

Financial viability of waste enterprises is usually associated with feasibility of logistics, availability of working capital and the amount of material traded. Survey data shows that cooperative members were able to collect more material as compared to own-account workers (Table 14).

Table 14. Amount of Waste Collected Compared to This Time Last Year, by Status in Employment (%)						
	Belo Horizonte	Bogota	Durban	Nakuru	Pune	Total
Lower	17.16	76.82	50.34	67.92	56.25	54.69
Higher	50.75	13.91	20.41	19.50	11.11	22.59
Same	32.09	9.27	29.25	12.58	32.64	22.72

Source: IEMS survey data (2012) (n=732)

One reason for this may be due to the fact that cooperative members have access to support from their organization, which may contribute to their ability to collect more materials. On the other hand, own-account workers are usually quite dependent on scrap dealers for working capital. As a participant in Pune pointed out: "Why does he [the scrap dealer] advance us money? Not out of the goodness of his heart! He sits on his backside and earns money from our walking miles". As another participant put it,"All our money goes in surviving - we never have excess. (…) the scrap shop owner, he's like a boss in a private limited company. He decides if we work or don't. It's all apt to him" (FG 4). But even in cities like Belo Horizonte, where waste pickers have access to recycling warehouses, they are still trapped by the middlemen. For example, one participant stated: "We don't have other buyers, so we have to sell to them" (FG13). At the end of one of the focus groups in Belo Horizonte, a participant commented "that they should sell directly to industries and not have the intermediaries because then they would make more [money]" (FG 13).

In Nakuru, a participant explained that "supply is high but the demand is low". He went on to explain that "...for instance, in December there is (sic) many bones and buyers refuse to buy bones explaining that they need to finish selling the old stock before commencing buying bones again" (FG 13).

Survey data referring to level of the demand for recyclables by city shows that 74 per cent of workers in Bogota and 83 per cent in Pune claim to have more buyers. These are higher percentages when compared to the other three cities, where workers claimed to have an average of 46 per cent of buyers.

2.2.3. Competition

Economic crises tend to drive people into informal activities. In this sense, it is easier to enter into waste picking, given it requires little education. Those who have some working capital might enter the recycling chain as small dealers, while those with none might enter as a picker and/or sorter. Table 15 shows an increase in competition for all cities but less so for Belo Horizonte, Brazil. Brazil was one of the countries that better navigated through the 2008 economic crisis in the years that followed it. There was a safety net to which workers in general could rely on to overcome impacts of the downturn. Competitive pressures in the other four cities were much greater than in Belo Horizonte.

Table 15. Number of People Collecting Waste Compared to This Time Last Year, by City (%)						
	Belo Horizonte	Bogota	Durban	Nakuru	Pune	Total
More	57.14	88.08	80.27	91.82	79.14	80.19
Less	30.95	5.96	5.44	4.40	10.79	10.80
Same	11.90	5.96	14.29	3.77	10.07	9.00

***Statistically significant at the .001 level ($\chi 2$).
Source: IEMS survey data (2012) (n=722).

Looking at the sources of competition both at qualitative and quantitative data, large companies and other collectors are the two major sources. This reflects the pressure all cities have in terms of privatizing solid waste systems, as well as how recycling is increasingly becoming a second source of earnings for other workers (some are formal refuse collectors).

Bogota stands out as a city with the strongest competitive pressure from all sources as can be seen in Table 16. Competition in Bogota comes from many sources. As a participant says, "The security guards, the cleaning ladies and even the building superintendents have begun to recycle, and they take the best stuff". References were also made to the cleaning services companies: "They are very negative because they don't want us to be recognized for doing a job that is equal to the one they do; they want to demonstrate that they have the trucks and the money" (FG 2). Participants also

mentioned competition from other collectors such as "homeless people on the street and other waste pickers," and went on to explain that "the non-organized waste pickers leave a mess behind, and those of us who are organized have to keep everything spic and span" (FG 3).

Table 16. Major Sources of Competition*, by City (%)

	Belo Horizonte	Bogota	Durban	Nakuru	Pune	Total
Municipal workers	24.11	92.00	70.75	49.35	15.17	50.75
Cooperatives	27.56	80.79	63.57	51.95	0.00	46.11

*Table shows the percentage of respondents who identified the source of competition as a major problem.
**Over half the sample from Belo Horizonte was missing on this questionnaire item so the results are likely less reliable than for other questions.
Source: IEMS survey data (2012) (Ns range from 658 to 737).

In Pune, access to waste was impacted by the many claimants to recyclables, as well as competition from other informal workers and waste management companies. A participant stated, "Everyone is out to collect scrap. Domestic workers, watchmen and everyone. Bhangarwallas [male itinerant buyers] are all over. The other day one woman called me and her domestic worker stopped her from selling me the material, saying sell it to me. The customer disappointed me saying what to do, she works for me" (FG 1).

A participant in Nakuru called for more cooperation among waste pickers: "We [waste pickers] should cooperate and form groups. In the groups we'd be able to do a lot more for ourselves. Waste pickers have increased. Nowadays everyone is turning to picking waste. Street families and others are all joining and increasing our numbers" (FG 12).

2.3. Urban Policies & Practices

Contrary to the myth that waste pickers' work is disconnected from formal systems, evidence from the IEMS shows significant links and contributions to cities. Waste pickers provide a service that in many places is not available at all.

Thus, whether it is officially recognized or not, waste pickers are an integral part of municipal waste management systems across the world. As a result, government policies and practices strongly impact the lives of waste pickers. It is therefore not surprising that in the focus groups conducted, government policies and practices were the negative driving force most frequently mentioned in three of the five cities (Belo Horizonte, Pune, and Durban) and the second most frequently cited in Bogota.

Table 17. Government Policies and Practices as Negative Driving Force in Five Cities

	Belo Horizonte	Bogota	Durban	Nakuru	Pune	Total
Laws, policies and programmes related to waste	1	8	4	2	14	**29**
Harassment	0	2	7	3	1	**13**
Security	3	0	0	0	0	**3**
Poor service delivery	0	0	0	2	0	**2**
Insufficient pay from government	1	0	0	0	0	**1**
Total	**16**	**16**	**27**	**7**	**18**	**84**

Source: IEMS focus group data (2012) (n=75 focus groups). Drawing from a listing and ranking exercise applied in all focus groups, the table shows the number of instances in which a focus group listed these economic forces as a significant driver and then ranked them as one of the top three drivers overall.

The main negative driving forces related to government/city policies were discussed among participants of the focus groups (Table 17). The most significant driver was related to city/government laws and programmes related to waste, which was particularly salient in Pune and Bogota. The second most negative driving force mentioned across cities was related to harassment. In all cities—with the exception of Belo Horizonte—focus group participants mentioned some kind of abuse of authority. A third set of city-related drivers relates to infrastructure, whether that be the lack of basic infrastructure including shelter or storage space or deteriorating infrastructure.

2.3.1 Government Laws, Policies and Programmes

In Nakuru and Durban, 72 per cent and 73 per cent of survey respondents, respectively, stated that *lack of formal permission* to work negatively affected their work. In Bogota, where waste pickers had been battling the city for the right to continue their work this figure was 66 per cent. However, in Belo Horizonte, lack of formal permission affected only 24 per cent of survey respondents. It is important to note the differences between the various categories of workers in the two cities. In Pune, only 1 per cent of fixed waste pickers and 12 per cent of itinerant waste pickers identified this as a problem, compared to 29 per cent of itinerant waste buyers, reflecting their different levels of integration into the municipal waste management system. In Belo Horizonte 43 per cent of waste pickers working outside of warehouses were concerned with lack of integration, while this affected only 17 per cent in the warehouses. It is important to understand the nuances of the responses for Belo Horizonte. As it was reported earlier, the city government has established both a formal agreement with the cooperatives, considered to be service providers in their municipal recycling scheme, and ensured integration of waste pickers in its Organic Law. However, waste pickers are always wary about the continuity of formal integration once the threat of privatization is ever-present, and waste management has increasingly become a higher priority in sanitation.

2.3.2 Harassment

Issues regarding harassment in the cities ranged from city officials who harass and/or take advantage of workers given their positions of authority to disrespect from the community in general. A participant in Durban says, "The municipality is harassing us because we do not have permits to go inside. They do not want us to get in the dump. They are also chasing these cars away that are helping us" (FG 4).

In Nakuru, focus group participants named harassment by municipal officials as the key negative driving force related to government policies and practices. In the institutional mapping activity during Nakuru's focus groups, the municipality was the only institution that was found to greatly hinder waste pickers. Overall, 47 per cent of waste pickers surveyed in the five cities also stated that harassment was a key issue which negatively affected their work. Interestingly, more men than women prioritized harassment, with 54 per cent of men and 41 per cent of women highlighting this problem. In Nakuru and Pune there was virtually no gender difference, while in Bogota and Durban the difference was minimal. The greatest gender difference in terms of mentions on harassment appears in Belo Horizonte, where the driver was cited as a problem by 37 per cent of men and only 21 per cent of women. This was perhaps related to the fact that fewer women in Belo Horizonte work on the streets. This reinforces the finding that 36 per cent of waste pickers who worked outside warehouses in the city reported problems with harassment, compared to only 22 per cent who worked in warehouses. Those who work in the streets engage with the population in a more direct manner and are more likely to get involved in conflicts where harassment or disrespect by individuals may occur. These would be related to problems arising due to heavy traffic, to waste littering by pickers who might not be careful when searching for recyclables in dustbins left on the curb and to discrimination in general. As one male waste picker noted in Durban, "Taxi drivers harass us when we push our trolleys along the road" (FG 14).

In Durban, although there was only a small difference between women and men reporting harassment as a problem (73 per cent vs 81 per cent), 84 per cent of waste pickers working at a single point compared to 70 per cent working at multiple points felt that harassment negatively affected their work. It would seem, then, that location is a key issue determining whether waste pickers are harassed during their work.

2.3.3. Infrastructure for Operational Activities and Workplace Security

Issues regarding infrastructure for operational activities and workplace security clearly impacts workers' health and safety, as well as their productivity. Some of the challenges of working in precarious environments involve having to double their work load or to suffer from certain health problems. In addition, a lack of proper storage can also impact the quality of the materials, thus lowering their value. Two distinctions are worth making with regard to this problem in the cities. In some cities, workers reported problems related to the very absence of infrastructure or a workplace facility, whereas in others, workers were specifically discussing problems with deteriorating infrastructure, which is linked to relations with the city government. Inadequate infrastructure was also identified as a problem in the survey: 57 per cent of respondents in the five cities indicated that lack of space was a problem.

Workers highlighted lack of infrastructure and theft as being equally pressing key issues. The lack of proper storage facilities and even safety measures increases the chances for workers to have their materials and even personal items stolen. Space was of greatest concern in Durban, where 83 per cent of waste pickers identified it as a problem. In Durban, waste pickers had never received infrastructural support from the municipality. In Bogota, 70 per cent of respondents concurred, as did 66 per cent in Belo Horizonte. By contrast, respondents in Pune and Nakuru were less likely to identify space as a problem, as only 40 per cent in Pune and 30 per cent in Nakuru felt they had insufficient space. It is important to note that in Pune, this was primarily an issue for fixed waste pickers and itinerant buyers, as only 29 per cent of itinerant waste pickers felt that lack of space was a problem.

In Belo Horizonte, problems with the deterioration of existing infrastructure for sorting/storage of recyclables was identified as a key negative factor related to government policies and practices. In the early years of the agreements with the municipality, the local government had provided waste picker cooperatives with necessary infrastructure. However, the facilities were neither taken care of nor upgraded. By 2012, this was clearly hindering the work being done in the cooperatives.

2.3.4. Positive Aspects of Government Policies and Practices

Focus groups in the five cities each identified driving forces related to government policy and practices that positively affected their work. Belo Horizonte and Pune were, however, the only cities in which government policy and practices were frequently raised as positive forces, and in the other cities these forces received positive mention only three or four times. In Belo Horizonte, focus group participants highlighted the positive role of national and municipal government agencies and the national/city policy. Waste pickers in Pune also noted the positive impact of national/city departments and policies and further reported how they were positively affected by the city providing them with equipment and materials. Focus group participants in Bogota highlighted the positive role of national/city policy and the constitutional court case. In Durban, they noted the positive impact of national/city departments and the provision of materials, and in Nakuru they mentioned national/city policy.

Depending on the kind of work carried out by waste pickers in each city, they are affected by government policies and practices in different ways. The IEMS revealed how the type of work being done and the location of work are relevant factors as this can result in more exposure to competition (internal or external of the waste picking communities), thus adding a layer of vulnerability to an occupation which is by nature hazardous. For example, in Pune, while the threat of privatization was a great concern for fixed pickers who feared they would lose their work if contracts were given to private companies, this was not a concern for itinerant waste pickers. Privatization of solid waste was not perceived as a significant threat to itinerant waste pickers because their transactions with waste generators was based on the selling and purchasing of goods, rather than the sale of services (Chikarmane 2014). By contrast, the removal of municipal skips (containers) was perceived as a key negative driving force related to government policies and practices by itinerant waste pickers. Itinerant waste collectors who participated in the Pune Focus Groups noted that the reduction in the number of skips meant that they had to walk longer distances and spend more on transportation (FG 10 and 12). One itinerant waste collector explained that she spent 25 rupees (about US $0.45[10]) travelling to and from work: "You tell me," she said "Is it worth it?" (FG 10). Another itinerant waste picker clearly allocated responsibility for their reduced income to the municipality, noting "[a]ll the skips are gone, what are we to survive on? We're going straight to the corporation and saying 'Give us jobs. You've taken away the skips, fine. So now employ us'" (FG 12).

In Belo Horizonte, for instance, those working in the recycling warehouses as "sorters" were more positive about the city policies. This may be attributed to the fact they have regular access to waste once they rely on the city for bringing them materials. On the other hand, those who are street pickers have to face competition from other waste pickers in accessing recyclables. It is important to note that, overall, waste pickers in the five cities did not have a clear picture of all the policies affecting them. In fact, as qualitative researchers have pointed out elsewhere (Dias 2009), the service dimension of waste picking brings about performance pressures, which most often force waste pickers to be too work-focused. In the case of Belo Horizonte and Bogota, for instance, key informant interviews with key leaders were a more effective way to garner information regarding government policies and practices.

[10] 1 Indian rupee was equal to US $.018 on August 1, 2012 per the mid-market rate reported by www.xe.com. This rate is used for all conversions throughout this paper.

Box 2. Waste Picking and Vulnerability

Beall (1997) in her work on waste pickers in Southeast Asia argues that the vulnerability of waste pickers is not only related to the precarious nature of the work as survival strategy but it is also related to who they are and to where they are located; therefore, gender and location are important factors in what the author calls "vulnerability zones". IEMS findings not only give evidence to these factors—gender and location (who and where)—but also associate vulnerability to other relevant factors, such as levels of organizing, specific characteristics of the recycling market and the formal solid waste city context (and the extent to which pickers are integrated or not). Durban is an interesting example to consider since, given the gender differences in earnings, it is a city with a predominant gendered division of labour. In Durban, women primarily collect plastics and cardboards, while men collect metals, which is a more profitable material. Not surprisingly, women's earnings were much lower than men's (mean monthly earnings of R1169 versus R1871) in this city. In Bogota, women's turnover working at source was 26 per cent lower than men. In Pune, average earnings of waste pickers varied by gender and were higher for male than for female workers irrespective of work location. In Belo Horizonte, men claimed to have a higher income than women (regardless of location). Interestingly enough, when compared with other women in the informal market, women waste pickers have a higher income, though the same relationship does not hold when comparing male waste pickers to other males in the informal market. Thus, for Belo Horizonte, IEMS findings reveal that waste picking is more advantageous work for women than for men when compared to the broader informal economy.

Value addition (segregation, bundling, semi-processing, etc) is fundamental to enabling a secondary raw material to be traded higher in the value chain, which may make a difference in terms of workers' vulnerability. Waste pickers are at the bottom of the recycling hierarchy and receive the lowest pay in the value chain, thus being the actor most vulnerable to economic instabilities within this value chain. This is especially so for those workers from cities where sorting infrastructure (and equipment such as scale, shredders, etc) is not available and for those who are not organized. Other factors add layers of vulnerability. In terms of organization, in Pune, for instance, survey findings indicated a relationship between years of membership and earnings. There seems to be a correlation between members who had been with the union longer and having higher earnings. Comparing organized pickers with non-organized workers, the latter are more vulnerable to cheating practices from middlemen, as well as are in a weaker position to negotiate prices for recyclables. In other words, there is greater asymmetry in "calculative power" in favour of middlemen who can impose their terms of negotiations upon atomized informal workers. In this sense, the MBOs function as a kind of protective shield by representing workers in negotiations and by training them in important skills to help improve their condition. This is not to say that organized waste pickers are not subject to exploitative relationships, but rather to stress that in comparison to non-organized workers, the latter seemed to be more vulnerable. A shift in power dynamics (collective action) tends to bring about greater ability to influence governments and, to some degree, markets. For instance, cooperatives in Belo Horizonte have developed a bidding process whereby medium to large intermediaries compete to buy their recyclables.

IEMS findings also identified means of transport as a key factor in adding a layer of vulnerability (this was particularly stressed in the cities of Durban and in Pune). Lack of shelter and well-equipped sorting/storage warehouses also adds to the vulnerability of workers because they are subject to the forces of nature (weather was one of the negative forces in the cities of Nakuru and Durban, for instance). They cannot aggregate value (by sorting or other processes) to materials, and they cannot store recyclables in a safe place. They are therefore more subject to stealing and harassment. As a consequence, workers cannot negotiate better prices with middlemen. Exposure to all sorts of occupational risks is also a factor in increasing vulnerability.

Thus, IEMS findings points to the existence of multiple axes of vulnerability and second research on the role of organizing in poverty reduction.

2.4. Value Chain Dynamics

Generally speaking, the nature of integration into municipal waste management systems in each city, which involves both the extent to which waste pickers are dependent on the market (reliance solely on the commodity value of recyclables, i.e. no payment for collection services) and the ways in which they access the market (such as dependence on middlemen due to lack of recycling industries nearby and/or lack of working capital), all inform how waste pickers in the different cities (as well as different kinds of waste pickers within the same city) perceive driving forces related to Value Chain Dynamics.

Focus groups in the five cities identified a number of negative driving forces related to Value Chain Dynamics. Low and fluctuating prices was by far the most frequently cited negative driving force related to Value Chain Dynamics, comprising 33 out of the total of 84 mentions. At a frequency of 14, problems accessing materials was the second-most cited, although it was only raised in Bogota. Exploitative and dependent relations with buyers and insufficient materials were each raised 10 times.

Table 18. Value Chain Negative Driving Forces in Five Cities

	Belo Horizonte	Bogota	Durban	Nakuru	Pune	Total
Low and fluctuating prices of materials	11	10	1	10	1	**33**
Problems accessing materials	0	14	0	0	0	**14**
Insufficient materials	2	0	1	7	0	**10**
Exploitative and dependent relations with buyers	1	0	4	3	2	**10**
Proliferation of scrap shops	0	0	0	4	5	**9**
Discrimination from and poor relationships with customers/ people	0	0	5	0	0	**5**
Lack of market information	0	0	0	1	0	**1**
Competition from other waste pickers	0	0	0	1	0	**1**
No recycling industry in the state	1	0	0	0	0	**1**
Total	**15**	**24**	**11**	**26**	**8**	**84**

Source: IEMS focus group data (2012) (n=75 focus groups).

In Belo Horizonte and Nakuru, low and fluctuating prices was the most frequently mentioned negative driving force related to value chain dynamics, while in Bogota, problems accessing materials concerned the majority of the focus group participants. Although access to waste emerged as the main negative force in Bogota, price instability came up second. As one male picker expressed, "This is the most important struggle for us as organizations: the stabilization of prices" (FG 6). Corroborating how severe a problem this is, in Belo Horizonte, waste pickers claimed that a drop in prices makes them more dependent on middlemen, which is aggravated by the distance of recycling industries from the city. A female waste picker in that city stated that due to price fluctuation "there is no money to pay the debts (gets out of control: one month you receive something, another (month) something else" (FG 14). As for access to waste, Bogota pickers associated the problem with competition from other actors, such as, among others, new private small actors (cleaners/ security guards/NGOs), big private companies and new entrants in waste picking. Also, in Bogota, waste pickers said that it is "difficult to sell to industries because we cannot provide the volume they demand" (FG 10). Even the smallest price fluctuations affect workers' enterprises in the recycling chain. Markets are increasingly global in nature and recyclables, like any other commodity, are subject to market fluctuations. Some of the factors that play a part in the volatility of recyclables are supply and demand, the price of virgin materials, taxes, shipping costs, etc. Very often in a given country it is cheaper to import raw materials than to use recyclables. This affects waste pickers dramatically as they may not be able to find any markets for the materials they collect.

Interestingly enough, for Pune and Durban, fluctuating prices did not emerge as a top negative driving force. In Pune, the proliferation of scrap shops was the most commonly cited negative force. The issue was raised primarily by itinerant waste collectors who receive fewer materials from residents who bypass the itinerant buyers and sell directly to the more accessible scrap shops. In Durban, value chain dynamics was not a major concern. Only a few problems were raised among focus group participants, including discrimination and poor relationships with customers. Discrimination affected waste pickers' ability to work, as one focus group member from Durban noted, "It disturbs us to be undermined by other people when we are doing our job. It makes it difficult for us to carry on with our job. Sometimes you will stay at home for maybe two weeks without going out if somebody has said something that is undermining to you" (FG 8). Other key negative driving forces related to the value chain frequently raised in the five cities included insufficient materials, lack of market information, competition from other waste pickers and no recycling industry in the state.

2.4.1. Value Chain Positive Forces

Value Chain Dynamics were the most frequently identified positive driving force in Durban, Nakuru and Pune. Worker autonomy featured most prominently in Durban and Pune, while focus group participants in Nakuru focused on access to materials. Worker autonomy and access to materials received the highest number of mentions in Bogota, and in Belo Horizonte generators of waste were most frequently mentioned as a positive driving force related to the value chain. Other value chain dynamics which positively affected waste pickers in the five cities were market access, price, middlemen/buyers,[11] support and good working relationships, certification of warehouses, access to storage space and trucks that collected recyclables.

2.5. Other Driving Forces

As can be seen in Table 19 below, focus groups in three of the five cities also identified a number of other driving forces affecting their work.

Table 19. Other Negative Driving Forces Identified by Focus Groups in Five Cities

	Belo Horizonte	Bogota	Durban	Nakuru	Pune	Total
Health, safety & working conditions	3	0	2	10	0	**15**
Weather	0	0	6	4	0	**10**
Lack of recognition, prejudice & harassment by society	4	0	0	6	0	**10**
Internal MBO processes - lack of unity	8	0	0	0	0	**8**
Mega Events	1	0	0	0	0	**1**
Total	**16**	**0**	**8**	**20**	**0**	**44**

Source: IEMS focus group data (2012) (n=75 focus groups).

Health, safety and working conditions was the most frequently cited other negative driving force across the three cities (accounting for 15 out of 44 mentions) and was the most frequently identified other negative driving force in Nakuru. The negative effects of the weather on their ability to work and lack of recognition, prejudice and harassment by neighbours and members of society had the next highest frequency as each was mentioned 10 times. Not surprisingly, the cities that mentioned weather as a distinctive negative driving force are the cities where infrastructure for sorting is not provided by the municipalities.

[11] See Box 4 on waste pickers' relationships with middlemen.

Despite political and cultural differences among cities, waste pickers in the five cities used remarkably similar language to describe how they are viewed and treated by society and how this affects them:

> *"Members of the public discriminate against us. They think we are thieves because we are always dirty when working"* (Nakuru FG 8).
>
> *"You are called a thief. We are always being discouraged. People do not think our work is anything,"* said a woman belonging to a group of waste pickers at the dumpsite (Nakuru FG 2).

In Belo Horizonte and Pune, waste pickers speak of discrimination, but also pointed out changes that have occurred over the years as a result of their collective struggles. In Pune, for instance, a waste picker pointed out that "before the trade union, we just had to set out on the road and the police would come after us calling us thieves" (FG 10).

Internal MBO processes were the greatest concern for focus groups in Belo Horizonte, which highlighted the ways in which divisions within their own organization negatively affected their work and struggles. Focus group participants stated that internal divisions led to disorganization and waste of materials in the warehouse run by the cooperative, consequently creating bad relationships not only with co-workers, but also with the community in general. Often times, this leads to disappointment and frustration with the organization. Focus group participants noted that when members are not informed of developments in the cooperative "this humiliates" the workers. Nevertheless, workers recognized these problems were not just because of the leadership, but also stemmed from a lack of interest among some members when it came to organizational issues (Belo Horizonte FG14).

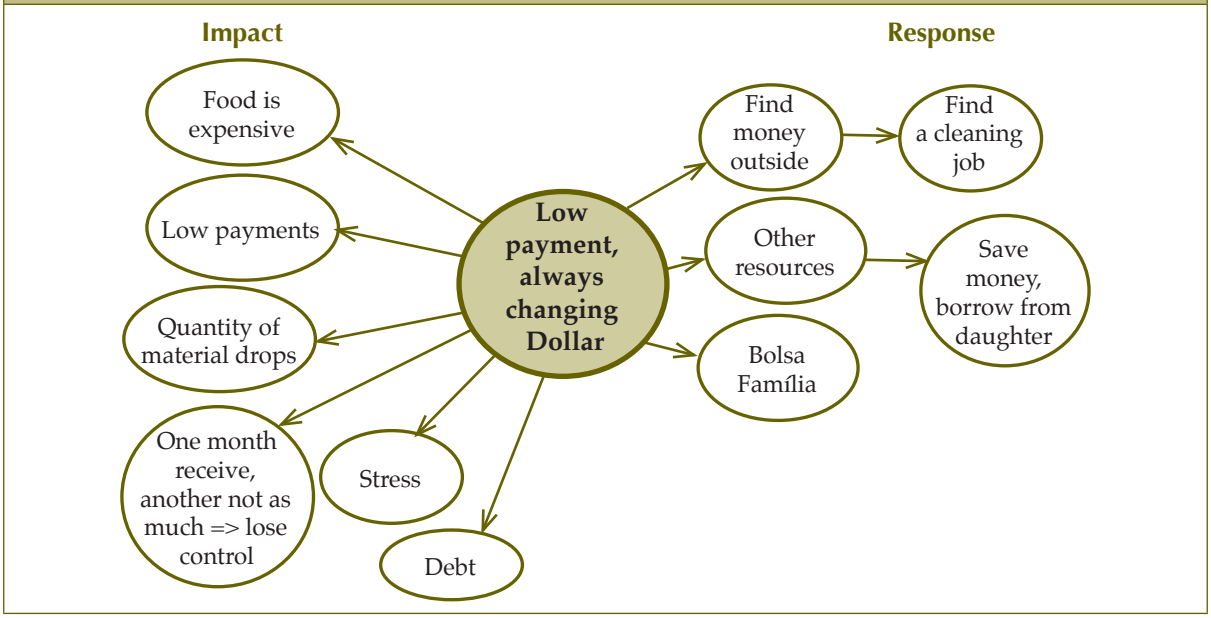
2.5.1. Positive Forces

Focus group participants in the five cities identified a number of other driving forces that positively affected their work. In Bogota, the MBO was mentioned as the most positive "other" driving force, receiving 15 out of 29 mentions. The MBO was also the most frequently mentioned "other" positive driving force in Belo Horizonte. The category of "other" positive driving forces also included training, pride in work, ability to earn an income, social recognition, environmental protection, individual and collective capacity, community members, donations, prayers, weather, membership fees, resistance and support from NGOs.

2.6. Responses to Driving Forces

The IEMS is interested not only in how waste pickers are affected by key negative driving forces, but also in how they respond to them. This issue was probed in both the survey and focus groups. Each focus group was asked to select two driving forces that affected them negatively and to draw a causal flow diagram for each, capturing the impacts and responses to those specific forces. Figure 2 below from Focus Group 14 in Belo Horizonte provides an example of how this was done. The diagram shows how waste pickers are affected by price instability which forces prices for recyclables down thus lowering their income (low payment). It also shows how they respond to this force in that city. In this focus group, one woman commented on the importance of a cash-in benefit as a coping alternative in these situations by stating, "When I am tight on money, what saves me is *Bolsa Família*" (FG14), indicating the existence of government policies that function as a cushion for pickers of that city to rely on.

Figure 2. Causal Flow Diagram of Most Important Negative Value Chain Dynamic – "Low Prices"



Source: IEMS focus group data (2012), Belo Horizonte FG 14

Analysis of the waste pickers' responses to driving forces explored the level of responses being categorized into three distinct levels: individual, household/family or organizational/collective level. Table 20 below provides an overview of how frequently waste pickers in focus groups in the five cities stated that they responded to key negative driving forces individually, as a household/family, or collectively/organizationally.

Table 20. Level of Responses to Key Negative Driving Forces

DRIVING FORCE	RESPONSES			
	Individual	Household/ family	Organizational/ Collective	Total
Value Chain Dynamics	96	6	21	**123**
Government Policies and Practices	41	5	31	**77**
Other	41	0	14	**55**
Macro-economy	21	12	4	**37**
Total	**199**	**23**	**70**	**292**

Source: IEMS focus group data (2012), 75 Focus Groups in Five Cities.

As can be seen from Table 20, approximately two-thirds of responses to negative driving forces identified by the focus group participants in the five cities occurred on an individual level. Under a quarter of the responses were organizational/collective, while a small proportion was at the household/family level. The macro-economy was the only negative driving force for which there were a significant number of responses at the household level. As Pune was the only city where focus groups identified the macro-economy as a negative driving force, this response at household/family level was restricted to Pune. Organizational/collective responses featured most prominently in relation to government policies and practices (31/77 responses).

As Table 21 below illustrates, the types of responses varied between the cities. To a large extent these related to the levels of organizational development and to the existence of government support policies in the different cities.

Table 21. Level of Responses to Negative Driving Forces by City												
Driving Force	**Belo Horizonte**				**Bogota**				**Durban**			
	Ind	**Hshld/ Family**	**Org/ Colltve**	**T**	**Ind**	**Hshld/ Family**	**Org/ Colltve**	**T**	**Ind**	**Hshld/ Family**	**Org/ Colltve**	**T**
Government Policies and Practices	2	0	9	11	1	1	7	9	16	0	0	16
Value Chain Dynamics	17	1	0	18	8	0	10	18	5	0	0	5
Macro-economy	0	0	0	0	0	0	0	0	0	0	0	0
Other	2	0	4	6	0	0	0	0	6	0	0	6
TOTAL	**21**	**1**	**13**	**35**	**9**	**1**	**17**	**27**	**27**	**0**	**0**	**27**

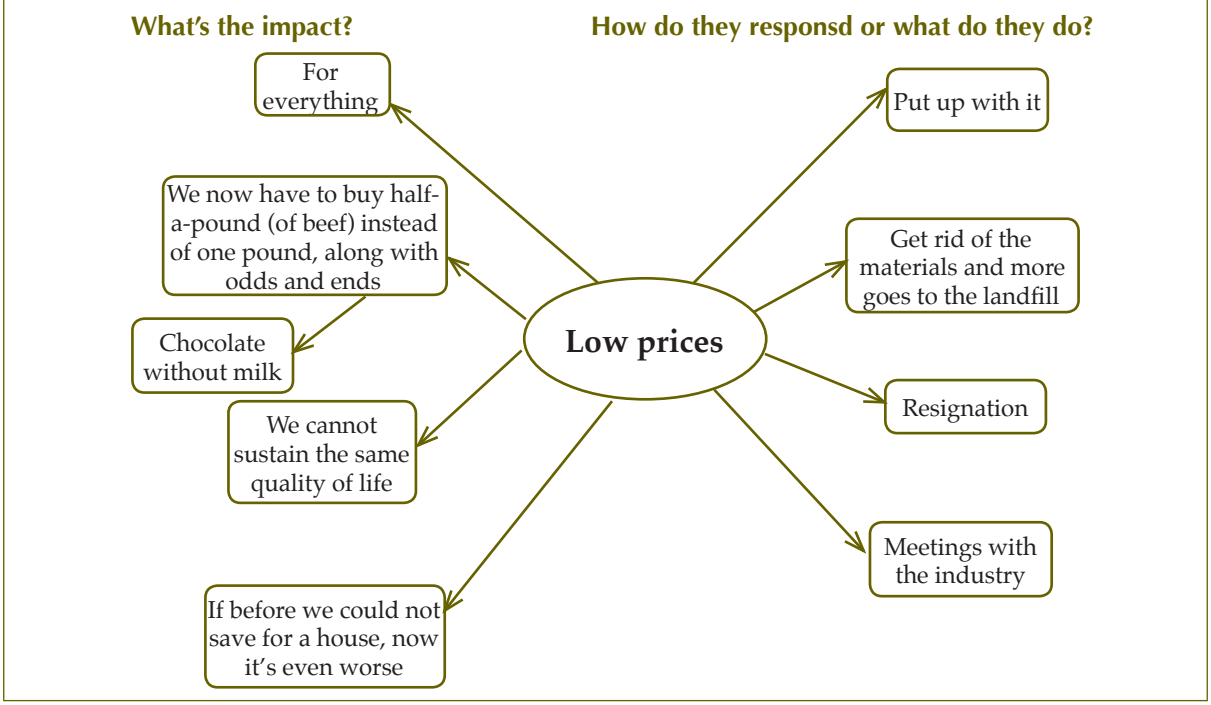
Driving Force	**Nakuru**				**Pune**			
	Ind	**Hshld/ Family**	**Org/ Colltve**	**T**	**Ind**	**Hshld/ Family**	**Org/ Colltve**	**T**
Government Policies and Practices	10	0	10	20	12	4	5	21
Value Chain Dynamics	47	3	5	55	19	2	6	27
Macro-economy	0	0	0	0	21	12	4	37
Other	31	0	5	36	2	0	5	7
TOTAL	**88**	**3**	**20**	**111**	**54**	**18**	**20**	**92**

Source: IEMS focus group data (2012), 75 focus groups in five cities

In Durban, where participating waste pickers were not organized at all, it is not surprising that none of the responses to key negative driving forces were organizational/collective. In Nakuru, where waste pickers were just beginning to organize, under one-fifth of the responses were collective/organizational. By contrast, in Belo Horizonte and Bogota, where waste pickers have been organized for many decades and where organizations are strong, organizational/collective responses included over one-third and just under two-thirds of the responses, respectively. The one anomalous situation was in Pune, where only just over one-fifth of responses were organizational/collective, despite the long history and strong presence of the KKPKP trade union and SWaCH cooperative in the municipality.

Collective/organizational responses featured most prominently in Bogota and in Belo Horizonte in response to negative driving forces related to government policies and practices. In Bogota, 78 per cent of responses to this key negative driving force were organizational/collective, and in Belo Horizonte the figure rose to 82 per cent. Surprisingly, in Nakuru, half of the responses to government policies and practices were collective/organizational, while in Pune only 24 per cent of responses fell into this category. Interestingly, Bogota was the only city in which focus group participants identified a significant proportion of responses to value chain dynamics (56 per cent) as having been collective/organizational. The example from Bogota illustrates how waste pickers face price instability by applying a range of coping strategies of a collective nature. These would include (see figure below) meetings with the industry, public workshops and marches or protests (Bogota FG 14).

Figure 3. Flow Diagram of Impacts and Responses to Low Prices



Source: IEMS focus group data (2012), Bogota FG 14

The types of responses differed among cities, as well as among the different categories of waste pickers within the same city. For example, in Pune, itinerant waste pickers and door-to-door collectors, who are unionized and belong to a cooperative, were far more likely than itinerant waste buyers to identify organizational/collective responses. While itinerant waste buyers in Pune are also members of the union, they work as independent businesses, thus it is understandable that they would be more likely to seek individual solutions to their problems.

Part 3. Institutions, Linkages and Contributions

Waste pickers are, as any other actor in the informal economy, profoundly affected by institutions, particularly when considering aspects such as their working conditions, permission to work and income. This section presents the main institutions waste pickers engage with and their perception on how they hinder or support their work. It also describes the linkages between waste pickers and other actors. Lastly, this section deals with the perceptions waste pickers have on their contributions to urban solid waste systems, the city and to the community at large.

Waste pickers in Pune. Photo: L. Vryenhoek

3.1. Mediating Institutions

Both the focus groups and the survey asked waste pickers to identify mediating institutions that either positively or negatively impact their work. It should be noted that many waste pickers struggled to understand what was meant by "institutions". During participatory tools used in the focus groups, participants were asked to identify "institutions/agents". This explains why in some focus groups participants highlighted the roles of particular individuals, such as thieves or security guards in the sections discussing institutions. Table 22 below provides an overview of the broad categories of institutions and agents that focus group participants identified as having an impact on their work.

3.1.1. Overview of Relevant Institutions

Focus groups identified a wide range of institutions and actors that affect their work. As can be seen in Table 22, private businesses were mentioned most frequently (131 references) across the five cities, followed by local government (95 references), community institutions and actors (58 references) and waste picker organizations and networks (50 references). Additional types of institutions that waste pickers felt affected their work included national governments, NGOs, international financial institutions and other institutions relevant to local contexts, such as the FIFA World Cup in Brazil.

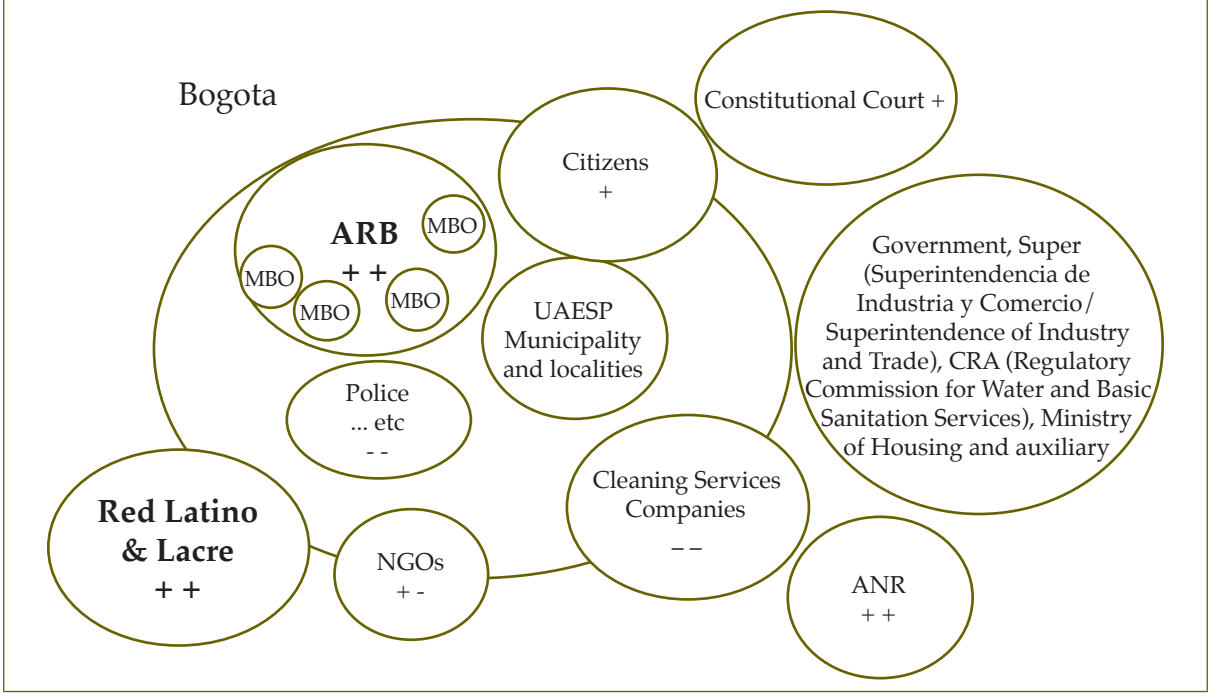
Table 22. Reference to Important Institutions among Waste Pickers						
	Belo Horizonte	**Bogota**	**Durban**	**Nakuru**	**Pune**	**Total**
National Government Institutions and Agencies	9	8	0	9	0	**26**
NGO's	10	7	7	5	1	**30**
Waste Picker Organizations and networks	10	22	1	4	13	**50**
International Financial Institutions	0	1	0	0	0	**1**
Local Government	9	20	28	19	19	**95**
Community		14	16	23	1	**58**
Private Business	31	12	10	47	31	**131**
Other (World Cup, Trucks, Drivers)	1	0	10	0	0	**11**
TOTAL	**70**	**84**	**72**	**107**	**65**	**402**

Source: IEMS focus group data (2012) (n=75 focus groups).

Focus group findings revealed that private businesses were the most frequently mentioned institution in Belo Horizonte, Pune and Nakuru; however, it was only the third most mentioned institution in Bogota and Durban. The institution cited most frequently by waste pickers in Bogota was the waste picker organizations and networks, while in Durban it was local government. In many ways, these findings are indicative of the phase of organizational development in the different cities. Waste pickers in Bogota recently secured landmark court victories through their organizations, and hence it is understandable that these organizations should feature as the most important institution for waste pickers in this city. In Durban and Nakuru, because the waste pickers are only beginning to organize, waste picker organizations barely feature in their mapping of the institutional context. Interestingly, waste picker organizations and local government ranked behind private companies in Belo Horizonte and Pune, two cities with strong, well established waste picker organizations. While waste picker organizations and local government played critical roles in securing waste pickers' livelihoods in the past, waste picker organizations now have established agreements with local government. With these agreements, private businesses feature as more important institutions, because they create a surplus of recyclables, especially when businesses donate materials instead of selling them to waste pickers.

After having identified the main institutions that affect their work, focus groups were asked to assess their relative importance, and to note whether each institution affected them positively, negatively or both positively and negatively. Figure 4 from Bogota provides a good example of how this was done. As one can see the municipality, La Unidad Administrativa Especial de Servicios Públicos (UAESP), is right at the centre of the diagram, indicating its decisive role in the livelihoods of waste pickers.

Figure 4. Institutional Mapping



Source: IEMS focus group data (2012), Bogota FG 15

The results on relevant institutions across the five cities are presented in Table 23.

Table 23. Waste Pickers' Perceptions of Whether Institutions Help, Hinder or Do Both

	Help	Hinder	Help and Hinder	TOTAL
Private Business	81	22	28	**131**
Local Government	22	55	18	**95**
Community	21	25	12	**58**
Waste Picker Organizations and Networks	46	2	2	**50**
NGOs	25	2	3	**30**
National Government	13	4	9	**26**
Other	7	4	0	**11**
International Finance Institutions	1	0	0	**1**
TOTAL	**216**	**114**	**72**	**402**

Source: IEMS Focus Group Data (2012), (n= 75 focus groups)

As Table 23 demonstrates, there was general consensus that waste picker organizations and networks, NGOs and international financial institutions played a positive role and assisted waste pickers in all five cities. Of the 50 references to waste picker organizations and networks, the workers perceived these institutions as being largely positive with 46 references. NGOs were also regarded as helpful institutions, being mentioned as positive in 25 of the 30 references.

3.1.2. Membership Based Organizations

It is interesting to note that three out of the four negative or ambivalent assessments of waste picker organizations and networks came from Durban and Nakuru, the two cities where waste pickers are not organized. In Belo Horizonte, a city where waste pickers are organized, there was only one negative assessment of waste picker organizations and networks, leaving 9 out of 10 with positive references. Critical comments related to the role of waste picker organizations in Belo Horizonte revolved around the need for greater democracy in the organization and the dissatisfaction with the role of leaders (FGs 10, 13, 14). In Pune, survey findings indicated a possible relationship between

years of membership and earnings. For example, the majority (69 per cent) of workers with the lowest earnings have been members for five years or less and very few (only 4 per cent) have been members for 15 years or more. However, the same relationship was not found for the other two cities with strong traditions of organizing (Bogota and Belo Horizonte).

Poignantly summing up the role of waste picker organizations in their lives, one focus group respondent from Bogota stated, "It is our heart, it is our spine" (FG 2).

Box 3. Waste Pickers' Perceptions on the Importance of their Organizations

"It is 100% important, because it has brought us together, it is the head, it is the core" (Bogota FG 7).

"What does PMC [Pune Municipal Council] do for us? Everything is done by the Workers' Cooperative….They don't really give us anything directly. The Coop staff, or we ourselves, speak to citizens and get what we need. The Coop is the most important institution in our lives. It ensures that our work-related issues are resolved and that citizens and the municipality accept our work and our demands…." (Pune FG14).

"It represents us before against the UAESP, [so that] we can continue working as waste pickers" (Bogota FG 12).

IEMS findings give evidence to the importance of increasing waste pickers' voice as organizational strength and representation are relevant in the struggle for their rights as workers with the city, to increase their ability to negotiate prices and to achieve respect. As one waste picker puts it, "We have the backing of the organization, so citizens respect us" (Pune, FG 9).

3.1.3. Non Governmental Organizations and Other Institutions

NGOs were seen in a uniformly positive light in Belo Horizonte, Nakuru and Pune and as almost entirely positive in Durban. In Belo Horizonte, for instance, the Catholic NGO *Pastoral de Rua* was the first to take notice of waste pickers and was instrumental in helping them achieve the first sorting area. As one participant reports: "Pastoral [de Rua] was the first to help us get access to this plot of land" (FG 1). In Durban, waste pickers reported having received support for skills development, teaching, campaigns and working tools: "We used to have lots of problems before Asiye eTafuleni was introduced to us" (FG 9). However, focus group participants in Bogota had a slightly more mixed assessment of NGOs, as four out of seven mentions were positive, one was negative, and two were both positive and negative. Despite the recognized support NGOs might bring with regards to training, they are also seen by recyclers in Bogota as a source of competition, given they possess certain knowledge on the recycling process. According to the participants, the concern is that they can take away recyclables: "Some take the best materials, and others procure sources for the warehouses" (Bogota FG 14). Also, in Bogota, international organizations and global networks such as Environment and Development Action (ENDA) and WIEGO were mentioned as helpful to waste pickers (though it should be noted that it was mainly the waste picker leaders who seemed to have more information and knowledge on these organizations): "WIEGO supports Asociación de Recicladores de Bogotá (ARB), and that is why it support us. ENDA has helped a lot with trainings" (FG 8).

Perceptions on community institutions and actors were split among workers. In addition, one-fifth of the responses regarded community institutions as simultaneously positive and negative. Churches, schools and hospitals were the only community institutions almost universally seen as helpful. Thieves were regarded as a hindrance whenever they were mentioned. Security guards were seen as helpful virtually as often as they were seen as a hindrance. This is mainly due to their role as gatekeepers who can either grant waste pickers access to recyclables or chase them away. Mixed assessments were also made concerning community/neighbours, the media and chiefs or village elders, which raises the question of what waste pickers can do to ensure that community institutions and actors become allies.

3.1.4. Private Business

Private businesses were seen as helping waste pickers in almost two-thirds of the instances in which they were mentioned as an important institution. This is primarily attributed to the fact these that

businesses provide waste pickers with materials they can sell.[12] However, one-fifth of the time private businesses were mentioned as being both positive and negative, and one-tenth of the time they were viewed as completely negative. Often times in these cases the waste pickers were referring to how middlemen exploit them.

Box 4. Waste Pickers' Complex Relationships with Middlemen

It is not surprising that waste pickers have mixed views about middlemen. In fact, without the middlemen who direct recyclables to the private recycling industries so that recycling can actually take place, waste pickers could not access these markets. This is because waste pickers do not produce the amount of recyclables demanded by the industries. However, it seems that waste pickers are fully aware of the exploitative nature of the relationship, as this was clearly expressed in the focus group findings. In addition, survey data corroborated these perceptions, indicating that poor negotiation of prices for recyclables is a relevant issue for 60 per cent of workers across the five cities.

In Belo Horizonte, while middlemen were mentioned, they were featured less prominently, probably due to the nature of formal integration that has taken place in that locale for more than 20 years.

In Pune, the perceptions of middlemen were quite negative. A common view of middlemen is expressed in the following statements made by waste pickers from different cities:

"Why does he advance us money? Not out of the goodness of his heart! He sits on his backside and earns money from our walking miles" (Pune FG 4).

"The scrap shop owner, he's like a boss in a private limited company. He decides if we work or don't. It's all up to him" (Pune FG 4).

"The scrap dealer treats us well because we walk for two hours and fetch him material, which he gets by sitting in one place. And he makes profits since he buys it from us at a lower rate and sells it at a higher rate!" (Pune FG 4).

"Who do we have contact with? The shopkeeper who buys our recyclables is very important. Why will we collect if he is not there and there is no market for our materials? Yes they cheat and don't always give us the correct prices and don't buy certain materials. At least they buy our materials through the year and we get some money" (Pune FG 1).

"If we don't have anything to sell on some day, we can ask him for a few rupees and he will always give it to us. Our homes run on his money, on the loans we take from him, how can we say he is bad?" (Pune FG 8).

"Some exploit waste pickers because they do not pay the right price" (Bogota FG 6).

"They hinder us through pricing, because when they want to lower their prices they just do it and this complicates our work, and it´s not fair" (Bogota FG 6).

3.1.5. Other Waste Pickers

Crucial questions around worker solidarity were raised by focus group participants, generally referring to those workers who were not part of workers' organizations. There were varied answers across the five cities. In Belo Horizonte, other waste pickers were mentioned as being helpful, whereas in both Bogota and Nakuru they were seen as a hindrance or as playing a mixed role. As much as this represents competition for the workers, some waste pickers in Pune strongly associated the issue of new entrants with lack of opportunities: "We can´t call it a problem. People are doing this out of destitution. If everything is going well for a person, why should he do this work? It´s those whose hearth is cold because there´s nothing to cook who are joining. Two or three rupees earned here or there makes a difference to everyone" (Pune FG 13).

3.1.6. Local Governments and Sub-national and National Governments

Assessments of local government varied greatly among the municipalities. In Belo Horizonte, where the waste picker organizations have a long history of engaging local government and negotiated an

[12] The category private business here refers to large generators of waste (like offices, companies), which are considered a valuable source of recyclables for pickers. In some instances this category may be referring to middlemen.

accord with the local government as far back as 1993, the local government was identified as a helpful institution eight out of the nine times it was mentioned.[13] As one focus group participant noted, the municipal waste department was considered "fundamental because of the material it brings" (FG 7). A movement leader in Belo Horizonte did, however, note disagreements with the SLU (the municipal waste management department) over the nature of the relationship between the SLU and the cooperative:

> *SLU claims that it cannot bring more selective waste to the warehouses because the warehouses are full and the waste pickers cannot handle the materials. But we want a different discussion: adequate warehouses, adequate technologies, adequate equipment, so that we can increase the potential of the people's productivity and, at the same time, humanize the work, which is degrading inside the warehouses. Then there is a conflict between waste pickers and the SLU* (interviewee 3, 19/12/12).

In contrast to the positive assessment given to the local government in Belo Horizonte, the situation in Bogota was different, given the fact waste pickers were forced to take the municipality to court in order to prevent it from granting recycling contracts to private companies, greatly hindering the waste pickers. Participants in the Bogota focus groups repeatedly noted the local government's bias towards private companies. One waste picker referred to it as a "permanent enemy" (Bogota FG 14), and another succinctly captured the problem observing, "it [the local government] is fighting to get us out of our trade, the waste picking occupation" (Bogota FG 12). A negative assessment was also made of the municipality's role in Durban, where the city government has not officially recognized the waste pickers and constant reports of police harassment are noted by waste pickers. In Nakuru, the local government was seen as either being negative or having both positive and negative effects on waste pickers, with only one positive assessment. Perhaps most interestingly, in Pune, where waste pickers have an official agreement with the municipality to provide waste management services via the SWaCH cooperative, only seven out of 19 mentions of the role of the municipality were seen as helpful. Five were seen as hindering waste pickers, and seven references to the local government's role were seen as both positive and negative.

It is worth noting the variations on different workers' perceptions of the municipality. For instance, itinerant waste buyers confessed to having little to do with the municipality. Fixed pickers, however, who interacted on a daily basis with municipal staff, seem to be more critical of the relationship. A fixed waste picker commented: "the Corporation should understand us and not blame us for every little thing that is wrong. If there is a mess near the skip, they say SWaCH people have thrown it—but it´s not us! You see these citizens ... and they just reach out and throw a plastic bag of waste in the direction of the skip." (FG 4).

Among the waste pickers, opinions on the national government were more divided. Assessments of national government were clearly linked to distinct phases of struggle between the workers and the government and the role of national government institutions in these processes. In Belo Horizonte, the national government was seen as positive mainly because it has adopted a number of policies and laws that favour waste pickers. In Bogota, waste pickers generally held very negative opinions of national government institutions: "The government is, indeed, very negative…all of them: the Super, the CRA, and the ministries…they always want to get rid of us and they issue decrees…to confuse the waste pickers and avoid complying with the Court's ruling" (FG 15). Yet they emphasized that the government's attitude has strengthened their bonds as waste pickers: "With laws against waste pickers the government has made us stronger as a union" (Bogota FG 5).

Waste pickers in Bogota singled out the Constitutional Court as a positive national government institution. As one waste picker noted, "The Constitutional Court, that was the one that granted us validation as waste pickers in Bogota; it gave us recognition, it ruled in favour of waste pickers, pretty cool, no?" (FG 10).

Section 4 of this report analyzes the role of government on all its levels.

[13] Focus group participants from Belo Horizonte did, however, register critical assessments of the current administration, which they feel is less open to waste pickers than the previous ones (FG 3).

3.2 Linkages and Contributions

In this section we explore the linkages between the work done by waste pickers and the economy and city. Findings from both the survey and focus groups also reveal the waste pickers' perceptions on their overall contributions. In general, IEMS findings from the five cities show that waste pickers are not only one of the main stakeholders in formal solid waste systems, intersecting with these systems at several points in complementary ways, but are also an integral part of the recycling value chain and thus to the formal economy.

3.2.1. Linkages to Formal Actors in the Recycling Chain

As Table 24 indicates over 75 per cent of waste pickers reported that formal businesses are the main buyers of products. In Bogota, this is even higher as nearly 98 per cent of waste pickers reported that formal businesses are their main buyers. These findings are consistent with the IEMS hypothesis regarding informal workers' close links to the formal economy.

Table 24. Main customers/buyers by sex

	Male	Female	Total
Formal businesses	71.97	78.11	75.42
N	**289**	**370**	**659**
Informal businesses	49.01*	37.07	42.33
N	**253**	**321**	**574**
Other informal workers	16.97	13.03	14.74
N	**218**	**284**	**502**
Personal family / friends	7.87	3.93	5.65
N	**216**	**280**	**496**
General public	34.84	31.68	33.09
N	**244**	**303**	**547**
Private individuals	30.30	29.14	29.64
N	**231**	**302**	**533**
Other	5.04	7.08	6.27
N	**139**	**212**	**351**

* Statistically significant at the .05 level for that specific customer/buyer.
Source: IEMS Survey Data (2012)

IEMS findings for the waste picking sector help to debunk the myth that the informal economy is not linked to the formal economy. From the study it becomes clear that there are extensive backward and forward linkages between different informal and formal actors across the five cities in addition to examples of formal integration of waste pickers' work within SW systems. In fact, across all five cities' formal/informal business linkages were reported. For instance, in Durban a male waste picker reported: "I collect cardboard boxes from Blue Waters Hotel and sell them to South African Waste Paper" (FG 9). In Pune, almost all workers sold the collected materials to formal businesses.

In the context of low- and middle-income countries, where the culture of waste segregation is virtually non-existent, waste pickers are the key economic actors who provide materials for the formal recycling sector.

3.2.2. Linkages to Formal Solid Waste Systems

Formally recognized or not, waste pickers play an important role in cities' SW systems. In some areas of certain cities, these workers provide the only collection of household refuse that there is. In Pune, for instance, where there is no municipal service for household waste collection, itinerant waste buyers and fixed pickers are aware they provide waste collection services to the general public and to individuals. Fixed waste pickers in the city have been formally integrated as service providers for refuse collection and they are authorized by the municipal authority to collect user fees for household

waste collection. This means greater work and income security in addition to improved work conditions for these workers in Pune. In Belo Horizonte, the various groups participating in the study have also been formally integrated as service providers for the collection of recyclables since 1993.

Waste pickers across the IEMS cities reported a range of services which vary from city to city: waste removal (in some of the cities this is the only service available in particular areas), transportation, recovery of recyclables, value-aggregation, semi-processing and even composting and biogas production (only in Pune).

In addition to public cleansing services and feeding the industries with recyclables, workers also reported ingenious ways of marketing materials collected, such as in Nakuru where one woman explained, "We sell egg shells, and bottle tops, bones, and cans to artists and designers" (FG 4). Furthermore, in Belo Horizonte, one of the cooperatives administers a cultural bar that sells crafts made of recycled materials.

In Bogota, informal recyclers collect recyclables from residential sources such as buildings, houses and condominiums, as well as from private companies, industrial sources and public institutions. In all the cities, workers described linkages with the transport industry as they all have to make use of motorized vehicles to transport goods. Overall, waste pickers in all of the cities identified supply chain linkages that play a crucial role in the effective provision of solid waste services (contributing to good standards of public health and resource conservation) and in the production of secondary raw materials that feed the whole recycling chain, including formal and informal scrap stores (small to medium), large intermediaries and the recycling industries.

3.2.3. Waste Pickers´ Contributions

Waste pickers mentioned a variety of ways in which they perceive they contribute to their city, including protection of the environment, city cleanliness, job creation, security, local development, public health, encouragement towards cooperativism, among others. Table 25 highlights the waste pickers' perceptions of their three main contributions in each city.

Table 25. Waste Pickers' Perceptions on their Contributions

City	Top Contributions	Indicative Quote
Pune	City cleanliness Provision of raw materials Employment	"So much difference we make! They get a clean city without paying us a paisa. The gutters would be blocked with their damn plastic bottles without us. Then everyone would come running to the corporation to shout and complain" (FG 13).
Nakuru	Employment Environmental health Contribution to the economy	"When we pick up waste, nails, bottles and other items, our environment is clean. When we sell, we start a chain of revenue generation and collection from the buyers all the way to manufacturers. This great because it does not really need financial capital to get started" (FG 14)
Durban	Keeping the city clean was the most common response Creation of employment Contribution to recycling	"We are decreasing the number of unemployed fellow mates. For example, if I am busy with something else, I will ask my friend or any other person available to take my load and drop it where I work after that I will pay the person" (FG 14).
Bogota	Protection of the environment Reduction of pollution Lowering of fees for cleansing services to residents	"We are the poorest of the earth, that´s what we are … the lungs of the earth" (FG 10).

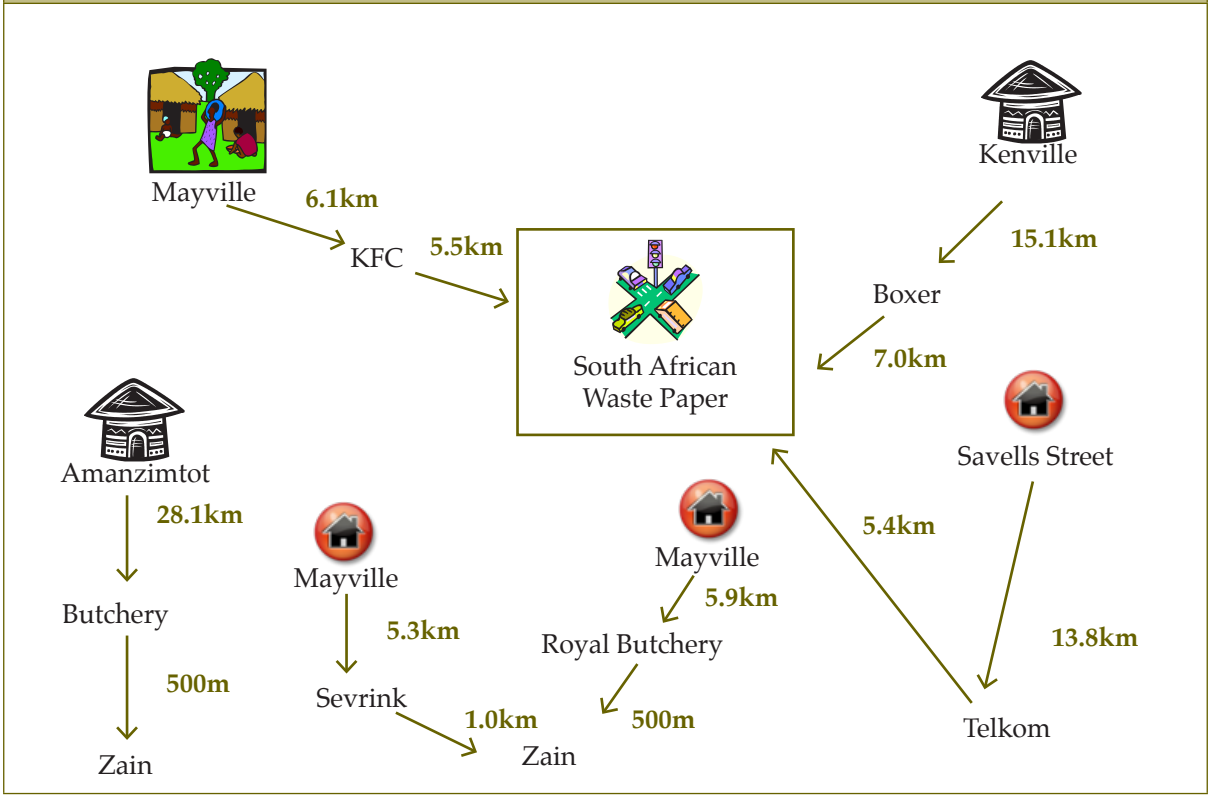
City	Top Contributions	Indicative Quote
Belo Horizonte	Creation of employment Encouragement towards cooperativism Preservation of the environment (keeping the city clean and educating people towards the environment)	"Our work together teaches ways of cooperating with one another" (FG 11).

Source: IEMS Focus Groups (2012)

Focus group findings reveal that the most mentioned contribution among waste pickers in all cities is related to the strong belief they contribute to the environment, which involves public health issues, the reduction of pollution and maintaining city cleanliness. The second most mentioned contribution was related to employment. In four out of the five cities, waste pickers discussed this contribution as being important. Lastly, workers noted contributions to the economy in three out of the five cities.

In spite of all their contributions to the economy, the environment and to the cleanliness of the city, focus group participants also identified a range of constraints. In Durban, waste pickers stressed that they walk long distances in order to collect waste materials. It takes them long hours to collect the amount of recyclables necessary to receive enough pay for the day. A male waste picker explained: "I come from Kennedy and I go to the dumpsite where I spend hours collecting brass until it is enough to give the money. I then go the scrap yard and sell" (FG 2). Survey findings corroborate that "walking great distances" was the most prominent problem associated with the occupation, accounting for nearly 63 per cent of the responses. This issue was followed by "lack of security," which was chosen by slightly over 61 per cent of the participants. The spatial map below illustrates how relevant distances are for the city of Durban:

Figure 5. Spatial Map of Economic Linkages



Source: FGR11, 5 females and 1 male waste picker collecting from multi points

3.2.4. Ladder of Integration into Formal Solid Waste Systems

Integration of waste pickers, or lack thereof, within the formal systems of solid waste management affects their livelihoods—for better or worse. Difficulties faced by waste pickers are amplified when the public sector is weak or absent, also impacting their position in the value chain.

In this report we have used the term "formal integration" to refer to some level of acknowledgment and support given to waste pickers by city governments, indicating public recognition (varying in degrees from city to city) of the contribution they make to solid waste systems. We also use it to demonstrate that there is some degree of improvement in work conditions. The idea of a "ladder of integration" might be useful to compare the five cities, which will be further explored in this section. The constraints discussed by focus group participants varied across cities and depended on the level of integration. The main constraints are discussed below, in addition to how the cities are situated along what we are defining as a "ladder of integration".

3.2.4.1. Main Constraints

While walking long distances to collect materials was a concern in Durban, in other cities, such as Belo Horizonte, waste pickers stressed the distance of recycling industries as a significant constraint to moving up in the recycling chain. Workers claimed that in order to sell to industries, they needed bigger spaces for storage. In Bogota, the issue of the large quantities required by industries also came up as a relevant topic in the focus groups. In Pune, workers emphasized competition (between informal workers and scrap dealers) and large variations in sales/income as relevant issues they have to contend with. Workers in Bogota also stressed that they transported materials to scrap dealers at their own cost. It is worth noting that in Belo Horizonte, cooperatives bear the cost of transportation for materials they collect from big waste generators, but the city takes on the cost of transporting recyclables to the pickers' warehouses through its municipal recycling scheme (a mixture of drop-off and door-to door schemes). Another factor related to moving up in the value chain was the inability to negotiate with big generators of waste, as was stressed in Pune. This is because the workers are unable to deal with the process of giving quotations and bidding for recyclables.

Finally, waste pickers reported they are subject to occupational risks as they deal with putrefied matter, sharp materials and unsanitary work conditions in general. Health and safety issues came up quite frequently in Pune, with 91 per cent of itinerant waste pickers, 67 per cent of fixed pickers and 63 per cent of itinerant waste buyers mentioning this as a pressing problem. One participant said, "They don't appreciate the danger involved in our work. Pushing that loaded cart on uneven roads is really dangerous. Loading unsorted garbage into the truck is also dangerous. If citizens put glass bottles etc. in it, when the automatic loader is working, sometimes the glass shatters. It happened just the other day, and anyone nearby can lose an eye. You have to make sure there is no stone or glass when you load the machine. It's so dangerous." (Pune FG 4).

In other cities, workers also pointed out health and occupational problems. The major problems faced by waste pickers relate to contamination from biological and chemical hazardous waste, ergonomic problems, musculoskeletal problems, accidents, dog bites, injuries from sharp objects, fires caused by flammable liquids inside containers, emotional vulnerability, among others. In Belo Horizonte, body pains were a common complaint as a participant stated, "I see the majority of the people complaining of muscle pains and back pains" (FG13). In Nakuru, lack of gloves and masks were raised as a participant stated, "We don't have protective gear. Our work is hazardous. We are exposed to dangerous materials which always harm us" (FG 14). In Durban, a participant expressed acutely another key problem — emotional vulnerability: "It disturbs us to be undermined by other people when we are doing our job, it makes it difficult for us to carry on with our job, and sometimes you will stay at home maybe for two weeks without going out if somebody has said something to undermine you" (FG 8).

In addition, infrastructure is a key problem which adds to the vulnerability of waste pickers and impacts their health. In these cases, and especially in cities where shelters or sorting/storage space are not provided, heavy rains provoke significant losses for the workers. Market risks were a common theme in all cities with waste pickers having to deal with seasonal variations in prices for recyclables as reported in the city reports.

3.2.4.2. The Ladder of Formal Integration

The use of the "ladder of formal integration" is an attempt to depict the different levels of formal integration of informal waste workers into solid waste (SW) systems across the five cities included in the IEMS. The situations depicted in the ladder range from no integration to full integration. It is evidence based, i.e. we identified the features of the work carried out in the cities (as per description in each city report) and how, if at all, they are formally integrated within the SW system. However, it is important to clarify that formal integration of MBOs within SWS does not imply a lack of conflicts or challenges, as socio-technical systems are in constant transformation as a result of global processes, changes in the institutional landscape (governments/MBOs etc) and changes in legislation, etc.

A word of caution—we do not claim that our categories are capable of being generalized to other contexts. Municipal solid waste systems are social, political, economic and technical systems. They are created according to specific histories, challenges, contexts and social relations within these cities. Even when attempts are made to import models from elsewhere, they are transformed by these local forces once they are implemented. No two municipal solid waste management systems will be identical, and, therefore, no two approaches to formal integration can be the same, nor should they strive to be. Each city will need to negotiate and develop its own best approach to formal integration.

However, based on the IEMS research as well as review of other studies (Dias et al, 2008; Samson, 2009) it would seem that there are some key principles which should underpin formal integration:

1. *Broad consultation and empowered participation:* involvement of waste pickers' through their representatives as full partners in negotiation processes; participation framed as an ongoing process (via stakeholders' platforms);
2. *Strengthening of the economic environment:* payment for waste pickers' labour and/or compensation through subsidies; schemes for payment of environmental service rendered;
3. *Access to finance:* credit lines for equipment (scales, shredders, etc.), as well as micro-financing schemes;
4. *Legal framework:* proper contracts with payment for environmental service ("diversion rate") stipulated; laws and bylaws that recognize pickers as legitimate actors;
5. *Work Conditions:* provision of infrastructure for sorting/storage/processing; capacity building; support given to MBOs so they can enter new niches in the recycling chain; establishment of social protection schemes and proper programs to address specific risks (child labour; child care); upgrading plans to move from work in open dumps to safer schemes (such as inclusion in door-to-door domestic and/or segregated collection).

Categories of Formal Integration in the Five IEMS Cities

1. *No formal integration:* characterized by lack of support from the city (even if minimal) and repressive policies.
2. *No formal integration with some degree of tolerance and minimal support:* characterized by lack of formal acknowledgment of waste pickers´ service and of support. However, there is an environment of tolerance (in some cases the city owns buy-back centres, providing waste pickers with a structured way to commercialize their materials).
3. *Transition to formal integration:* characterized by a context where former repressive measures are replaced by supportive measures, though the scenario is still uncertain as to the consolidation of support and acknowledgment of waste pickers.
4. *Formally integrated:* In addition to having a formal agreement in place (MOUs/contract/covenant) to structure the relationship with the MBO, this level is characterized by the existence of three or more of the following support mechanisms provided by the municipality: source separation scheme in place with waste pickers' MBO as partners; provision of infrastructure (all or some of the following: sorting place (i.e., sheds or warehouses); equipment (i.e., scales, shredders, etc); vehicles for collection; legal recognition (such as Organic Law); bylaws, decrees; compensation for environmental service rendered; payment for collection).

Drawing from evidence summarized in section 1.4, we can affirm that the degree of formal integration in the five cities varied substantially:

1. No formal integration: Nakuru
2. No formal integration with some degree of tolerance and minimal support: Durban
3. Transition to formal integration: This was the situation in the city of Bogota at the time when the research for the IEMS was conducted. It should, however, be noted that in the intervening period Bogota has implemented a number of policies related to formally integrating waste pickers, thus indicating it may soon be better characterized in category #4.
4. Formally Integrated: Pune and Belo Horizonte

The policy implications of this analytical resource—the ladder of integration—are explored at length in section 4.1.4 below.

Part 4. Conclusions: Findings, Theoretical Lessons and Policy Implications

In this concluding section, the key findings regarding main characteristics, drivers, linkages and contributions are summarized. Theoretical lessons and policy implications are also examined.

Waste picker in Durban. Photo: A. Griffin

4.1. Theoretical Lessons

This section provides insights into the main theoretical lessons learned from the study and some consequent policy implications.

4.1.1. The Role of the State & Transformative Governance

The advancement of neo-liberalism has informed discourses and practices based on the assumption that government authorities should not and are not capable of assuming the main responsibility of protecting people's livelihoods. Individuals and communities are increasingly pressured to rely on their own resources to confront hardships (economic, climate changes, etc). Furthermore, many cities throughout the world are investing less and less on urban infrastructure and services for vulnerable segments of the population. It is no wonder that there is a growing body of literature on poverty that focuses particularly on the benefits of community engagement in service provision. However, critical scholars have dwelt upon the fallacies of such approaches and have shown how gender, race and caste play a significant role in the models of service provision in the case of solid waste management services in Africa and Asia (Samson, 2008; Beall, 1997). In South Africa, the promotion of community involvement in poor areas is often a disguise for accessing free volunteer cleaning work, while well-off areas are offered top quality services by private or state companies (Samson 2003; Miraftab 2004; Samson 2008). Similarly, Beall argues that in the Global South, community-based organizations are encouraged "... to take responsibility for waste management in their neighbourhoods, in the context of government failure to provide adequate service (1997, p. 951)."

Another body of literature has focused in on the strategic role of the state (Castel, 1995) and even its transformative function (Heller, 2001). Recent debates on the 2008 downturn have "brought the state back in" and highlighted several measures related to the process of strengthening the state, including

the adoption of pro-poor social expenditures (such as cash in transfer to the disadvantaged), tax incentives for investments, opening of credit lines from national banks for waste pickers (Brazil) and other social programmes. Overall, these have worked towards strengthening the economy as a whole in efforts to counter the negative effects of the economic crisis. Dias (2009) has extensively researched the role of the state in bringing about transformative modes of waste governance in various cities throughout Brazil.

The IEMS findings contribute to the ongoing debate about the role of the state and transformative modes of governance. The study showed not only how government grants might function as a cushion to fall back on in times of instability, but how the lack of such programmes adds layers of vulnerability to workers' lives. In addition, the study also revealed how the contexts of formally integrating workers into solid waste systems and the role government (at all levels) are fundamental factors for supporting waste pickers.

The case of Belo Horizonte (along with Pune) is an interesting one to consider in light of the formal integration of waste pickers within SW systems and the support both the federal and local governments give to MBOs. In this sense, Belo Horizonte is an example of how state intervention has been perceived as a positive driving force by the workers and has been, overall, acknowledged as beneficial to them. However, as IEMS evidence also points out, there have been some changes in the ways the local government engages with and supports the MBOs in Belo Horizonte, leading to some criticisms with regard to what many workers claim is a departure from the transformative vision that inspired the government in the early 1990s when formal integration occurred. Discussions on public policies involve gains and setbacks, requiring constant reinvention by political actors. However, it is still impressive that formal integration is still in place in the city after 21 years. Findings from the focus groups and key informant interviews indicate that this is mainly due to two factors: 1) the force of the organizing process in the city (the MBOs are all active participants of the national movement of waste pickers and participate in many socio-governmental platforms), and 2) the commitment of dedicated officers at the sanitation agency who pressure the mayor's office to continue with inclusive policies in SW. This speaks to the body of literature that stresses that the state is not a homogenous entity; there are struggles, conflicts and disputes within different government agencies that limit or broaden the possibilities for influencing policies.

4.1.2. Linkages to Formal Economy and Solid Waste Systems

The study also provides evidence that helps debunk some myths about informal workers and the waste picking sector more specifically. These myths are all related to various current theoretical debates related to the organizing processes among informal workers, to the informal sector and to solid waste management.

- *Sector Myth - Waste pickers are poor victims:* the general lack of understanding of waste picking as an occupation often ignores the fact that waste pickers are capable of making choices and are important economic actors within SW management. IEMS findings have shown waste pickers to be protagonists of their own destiny; they are capable of making choices and should be involved as one of the main stakeholders in solid waste systems. Identification of their strengths and challenges, coping mechanisms, responses and strategies are fundamental to securing sustainable livelihoods. IEMS findings thus feed into the theoretical debate on urban livelihood systems.
- *Sector Myth - Waste pickers are not organized:* the idea that waste pickers are (or cannot be) organized has been one of the prevailing myths about the sector. Until recently, waste pickers were invisible not only to city officers and waste specialists, but also to labour movements and social scientists. It is true that one of the main characteristics of this work is the fact that it is often done on an individual basis (or as a family). Yet even when working in dumps or in the streets, IEMS findings revealed how waste pickers develop work specializations and establish territories based on agreements they may make with shop owners or residents. The findings speak to a body of recent research that has shown various ways in which waste pickers structure their work and find informal ways of "organizing" themselves, particularly by creating self help groups or designating a spokesperson to deal with issues that affect them (Medina, 2007; Scheinberg, 2006). It is also true that the process of forming membership-based organizations is still recent worldwide. Furthermore, the study provides examples of cities

where organizing is present and has taken on various formats: cooperatives, first and third-level associations and unions. Thus, these examples contribute to an emerging literature on informal workers organizing (Samson, 2009; Dias, 2011b).

- *Sector Myth - Modern waste management systems cannot include waste pickers:* Waste specialists who subscribe to conventional paradigms of waste management often resort to the argument of waste picking as a feature of pre-modern systems. The vision of modern SW systems is therefore associated with mechanization, the use of capital intensive technology and of service provision by private companies. However, there is a growing body of literature in different areas (ecological modernization theories, participatory governance, solidarity economy and social movement theories, to name a few) that are documenting and conceptualizing new modes of governance and social provision. Within the specialized field of waste, quite a few scholars are already arguing for a shift in thinking by interrogating whether it makes sense to ignore informal waste workers in labour abundant countries and to rely on collecting systems that are based on high fuel consumption in the context of climate change challenges. Is it possible then to conceptualize modernization processes of SW in a way that is reconciled with the need to address the livelihoods of waste pickers?

  The IEMS gives evidence to the claim that formally integrating waste pickers makes sense since in many areas of some of the studied cities these workers are the ones who are already providing the only collection of household refuse. In accordance with UN-Habitat, the "informal sector is clearly any city's ally—if the city had to deal with these quantities of material as waste, then their costs would rise dramatically" (2010, p. 208). IEMS has also shown examples of formal integration within the five cities with the inclusion of the informal waste workers into the formal municipal systems. In this sense, the solid waste management is an integrated "mix of complementing systems" (Scheinberg, 2011).

  The study, therefore, fuels the debate about the meaning of "integration" (Vellis et al, 2012; Dias, 2008). As argued earlier in this report, the meaning of integration varies depending on the country/city contexts, but it also depends on the perspective of various actors—engineers, social scientists, and activists—who are bound to produce different meanings when speaking about integration. The IEMS found two main modes of integration: integration as *recognition*, which includes measures that facilitate access to mixed waste, registration, assistance to families, and *formal integration*, considered a means of introducing waste pickers in either refuse collection and/or resource recovery within source segregation schemes with payments of waste pickers through contracts or subsidies. The latter would guarantee waste pickers a type of *semi-formal* status through formal agreements.

IEMS findings also speak to the body of literature that discusses waste as a "common pool resource" (Cave, 2012). Who does waste belong to after it is discarded? Can we conceptualize it as a common property resource after the generator discards it?

Finally, as indicated elsewhere in this report, the IEMS illustrated the various linkages of this sector group with the formal economy and thus can contribute to the broader debate of informal-formal linkages. The informal sector intersects with the formal economy at various points and is an integral part of modern economies. In fact, they are fundamental actors in securing the secondary raw materials the global recycling industries depend on.

4.1.3. Policy Implications

We argue in this study that waste pickers are vital players in the world economy. Waste pickers contribute to public health, reduce the costs associated with municipal solid waste management and significantly reduce greenhouse gas emissions in the environment. We argue that waste systems need to take into account "… (1) *waste picker agency* (promoting the voice of waste pickers in urban governance, thus legitimizing their collectives); (2) *the drafting of comprehensive public policies designed to formally integrate them into solid waste management* (paying waste pickers and their organisations for the environmental services they provide), *planned through participatory processes* (the State has a role to play in securing the livelihoods of informal workers), and (3) *the re-structuring of the recycling chain towards more equitable distribution of gains* so as to make the waste pickers' organizations and livelihoods sustainable" (Dias, 2012). However, the extent to which informal workers are included in a given system varies from city to city as it is context based.

4.1.3.1. Government Policies Matter

The difficulties faced by waste pickers are amplified when the public sector is weak or absent. From the analysis of the five cities and workers' perceptions, we could see that national and sub-national policies are important for the waste picking sector. But what can governments do then? Based on what the research has illustrated, there are key elements that are worth noting. Below we summarize these points.

Governments can *catalyze processes* by helping waste pickers form associations and/or cooperatives, by opening dialogue channels with informal workers within government institutions and also encouraging other organizations to do so, by establishing multi-stakeholders platforms for participatory planning and by giving incentives to cooperatives/associations and micro-enterprises so they can enter new niches.

Governments can *implement processes* of formal integration by devising a system whereby waste pickers are allowed access to recyclables, by formalizing partnerships with waste pickers MBOs through MOUs or other formal agreements, providing infrastructure for sorting, baling and etc, by carrying out educational campaigns to help not only change the biases the general public holds towards informal workers, but also to encourage more segregation of recyclables, and finally by offering, on regular basis, capacity building and management courses.

4.1.3.2. Formal Integration Requires a Holistic Approach.

The study suggests the importance of a holistic and comprehensive approach to formal integration both for MBOs and governments.

The two cities where workers are formally integrated (Pune and Belo Horizonte[14]) pointed out the implications that integration can bring about for workers and their organizations. Some of these consequences include: pressure on service delivery (quality, frequency, etc.), pressure for accountability (performance indicators, regular reporting systems), and the introduction of business-like modus operandi that might be at odds with some characteristics of the occupation (time flexibility, to name one). These challenges were clearly outlined in the Pune City Report:

> ...we reflect on what integration has meant for the relationship between waste pickers and the municipal government. Collective bargaining power has been somewhat eroded by integration. Whereas earlier the waste pickers could justifiably argue that they were helping the municipality without getting anything in return, now the PMC and PCMC are in a position to demand accountability from SWaCH based on the terms of the formal agreement. Those waste pickers that have become service providers have to follow rules that could be seen to curtail the entrepreneurial independence that they were used to (Chikarmane 2014, *draft version*).

As Samson (2009, p. 87) puts it, "formal integration entails transforming the terms, and nature" of the relationship established between the state, waste pickers and residents. Waste pickers' organizations and governments alike should be attentive to the fact that a holistic approach is necessary along with a thorough assessment of what formal integration might bring as challenges for both sides. For MBOs, for instance, there will be pressure for the professionalization of services provided by workers. In this sense, there might be a need for MBOs and their allies to professionally seek experts who have recognized technical expertise in order to train them.

On the other hand, city governments should realize that the process of integrating waste pickers is a long-term commitment. Understanding the complexities of waste picking takes time, investment and a willingness to think outside of the box in order to see waste management beyond conventional approaches. This might mean the city needs to have a clear vision of waste pickers as legitimate partners and how they fit within an integrated and sustainable waste management system; to train MBOs to meet requirements for accountability and for public cleansing departments, in particular; and to qualify officers to interact with waste pickers in respectful and empowering ways.

There were a number of problems identified by waste pickers across the cities. Regardless of context specificities, one of the problems that stood out was the absence or deterioration of existing

[14] The city of Bogota was formally integrated but the fieldwork happened before the Bogota Zero Waste Program came into effect.

infrastructure. A holistic approach implies rethinking the existing systems (informal collection systems) and the physical structures (sheltered spaces for sorting/storage/processing; equipment, etc) necessary to improve waste pickers' work environment.

4.1.3.3. Membership-based Organizations Matter

The research findings clearly indicated that MBOs are fundamental actors for waste pickers. They are relevant for building self-esteem and for the representation of workers' interests with government and market actors. They are relevant for training and qualification of waste pickers as both service providers and political actors. They are also relevant in contexts where progressive legislation has been passed so that they can oversee whether legislation are being implemented and/or assess unexpected outcomes from these legislations.

The study found that waste pickers' organizations fulfill social, political and cultural functions, which are very important given the instability of monetary gains derived from commercialization of recyclables (even in contexts where they are formally integrated into solid waste systems). Donor agencies and NGOs should invest in encouraging the organizing of waste pickers, specifically in contexts where they do not exist or are weak. In addition, governments should not marginalize waste pickers' MBOs; they should be regarded as key actors in solid waste management.

The study found that MBOs are important in challenging prevailing prejudice and harassment towards waste pickers. Harassment and prejudice were key problems identified by waste pickers (though to varying degrees) across the five cities. It goes without saying that city-wide and nationwide social mobilization processes are important for overcoming stigma associated with waste pickers, creating an ethical constraint towards their working conditions, and enhancing the contribution they give to the environment. MBOs play a critical role in pushing forward such processes. In addition, in the contexts where formal integration exists, city governments should also invest heavily in environmental education to encourage citizens to segregate their waste, which would lead to maximizing recycling and reducing occupational risks for waste pickers. This would also disseminate the information of the valuable environmental role waste pickers have in society, further working towards the elimination of the stigma suffered by these workers.

Finally, it goes without saying that in order to better fulfill its roles, MBOs should always be attentive to the importance of strengthening internal democracy and the flow of communication among members, which includes sharing information on relevant research for the sector.

4.4. Concluding Remarks

This research departed from the understanding that some of the forces and processes operating in the field of solid waste create both threats and opportunities for waste pickers. It departed also from the understanding that waste pickers are key economical and environmental actors. The research gave credible evidence that they establish a number of linkages with formal recycling actors and also to the claim that government policies matter. Governments should implement comprehensive policies that provide long-term solutions. The state (all levels) has a role: it can shape solid waste systems addressing environmental and social concerns. Deliberate policies that favour employment hold the key to achieving human and economic development.

The research also reinforced the fact that organizing is fundamental for improving waste pickers' livelihoods and establishing their place in urban systems. The level of organizing, the political vision of MBOs and their ability to frame their demands and messages properly and the interaction with different recycling chain actors—governments and the market—are all relevant in securing safer livelihoods for waste pickers.

In a value chain where waste pickers are found at the bottom, we may conclude that organizing holds the key to securer livelihoods.

References

Barros, Ricardo, Mirela de Carvalho, Samuel Franco and Rosane Mendonça. 2009. "Markets, the State and the Dynamics of Inequality: Brazil's Case Study." Research for Public Policy, Inclusive Development, RBLAC-UNDP, New York.

Bartone, Carl. 1988. "The Value in Wastes." *Decade Watch* (September).

Beall, JoAnn. 1997. "Policy arena – social capital in waste - a solid investment?" *Journal of International Development.* Vol.9 (7), pp. 951-961.

Castel, Robert. 1995. *Les métamorphoses de la question sociale. Une chronique du salariat.* [The Metamorphoses of the Social Question. A Chronicle of Wage-earning Employment]. Paris: Fayard.

Cavé, Jeremie. 2012. "Urban solid wastes in southern countries: from a blurred object to common pool resources." ISWA World Congress 2012.

Chambers, Robert, 1994. "The Origins and Practice of Participatory Rural Appraisal." *World Development*, Vol. 22 (7), July, pp. 953-969.

Chen, Martha. Jhabala, Renana. Kanbur, Ravi and Richards, Carol. (2007). Membership Organizations of the Poor. New York: Routledge

Chikarmane, Poornima. 2014. "City Report - Informal Economy Monitoring Study: Waste Pickers in Pune, India." Manchester, UK: WIEGO.

Cohen, Michael. 2012. *The Global Economic Crisis in Latin America: Impacts and Responses.* New York: Routledge.

Dias, Sonia. 2006. "Waste & Citizenship Forum – Achievements and Limitations." Solid Waste, Health and the Millenium Development Goals CWG-WASH. Workshop Proceedings. 1-6 February 2006, Kolkata, India.

Dias, Sonia. 2009. *Trajetórias e Memórias dos Fóruns Lixo e Cidadania no Brasil: Experimentos Singulares de Justiça Social e Governança Participativa*. (PhD Thesis), Universidade Federal de Minas Gerais, Brazil.

Dias, Sonia. 2011a. Waste Pickers Livelihood Profile. WIEGO internal document.

Dias, Sonia. 2011b. "Strengthening Waste Picker Organizations." *Recovering Resources, Creating Opportunities: Integrating the Informal Sector Into Solid Waste Management.* GIZ. Eschborn: Deutsche Gesellschaft fur Internationale Zusammenarbeit.

Dias, Sonia. 2012. "Waste and Development – Perspectives from the Ground." *Field Actions Science Reports* [Online], Special Issue. Available at http://factsreports.revues.org/1615 (Accessed on 19 May 2015).

Dias, Sonia, Fabio Cidrin and Gama Alves. 2008. "Integration of the Informal Recycling Sector in Solid Waste Management in Brazil." Study prepared for GTZ´s sector project "Promotion of concepts for pro-poor and environmentally friendly closed-loop approaches in solid waste management.". Available at www.gtz.de.

Heller, Patrick. 2001. "Moving the State: the Politics of Democratic Decentralization in Kerala, South Africa, and Porto Alegre." *Politics and Society*. Vol. 20(1), pp. 131-163.

Lubaale, Grace N. and Owen Nyang'oro. 2013. "Informal Economy Monitoring Study: Waste Pickers in Nakuru, Kenya." Manchester, UK: WIEGO.

Medina, Martin. 2007. *The World's Scavengers: Salvaging for Sustainable Consumption and Production.* Lanham: AltaMira Press.

Miraftab, Faranak. 2004. "Neoliberalism and Casualization of Public Sector Services: The Case of Waste Collection Services in Cape Town, South Africa." *International Journal of Urban and Regional Research* 28 (4): 874–92.

Moser, Caroline and Jeremy Holland. 1997. *Urban Poverty and Violence in Jamaica*. Washington, DC: IBRD/World Bank Latin American and Caribbean Studies.

Moser, Caroline and Cathy McIlwaine. 2004. *Encounters with Violence in Latin America. Urban Poor Perceptions from Colombia and Guatemala*. New York and London: Routledge.

Moser, Caroline, Angélica Acosta and María Eugenia Vásquez. 2006. *Mujeres y paz. Construcción de consensos.* Bogota: Social Policy International.

Samson, Melanie. 2003. *Dumping on Women: Gender and Privatisation of Waste Management.* Johannesburg: SAMWU and the Municipal Services Project.

Samson, Melanie. 2008. "Rescaling the State, Restructuring Social Relation: A Feminist Analysis of Local Government, Transformation in Post-Apartheid Johannesburg and its Implications for Waste Management Workers". *International Feminist Journal of Politics*. Vol 10(1), pp. 19-39.

Samson, Melanie. 2009. (Ed). *Refusing to be Cast Aside – Waste Pickers Organising Around the World.* Cambridge, MA. USA: WIEGO.

Scheinberg, Anne. 2006. "Waste Pickers: Poor Victims or Waste Management Professionals?" Paper no. 56, presented at the Sixth Meeting of the Collaborative Working Group on Solid Waste Management in Low-Income Countries (CWG), Kolkata.

Scheinberg, Anne. 2011. *Value Added: Modes of Sustainable Recycling in the Modernization of Waste Management Systems.* PhD Thesis, Wageningen University, Netherlands.

UN-Habitat. 2010. "Solid Waste Management in the World´s Cities." *Water and Sanitation in the World´s Cities 2010*. London: Earthscan, 2010.

Vellis, C.A., D.C. Wilson, O. Rocca, S.R. Smith, S. Mavropoulos, and C.R. Cheeseman. 2012. "An Analytical Framework and tool (InteRa) for integrating the informal recycling sector in waste and resource management systems in developing countries." *Waste Management and Research*. Vol 30(9), pp. 43-66.

World Bank. (n.d.) *Inflation, consumer prices (annual %)* [Data file]. Retrieved from http://data.worldbank.org/indicator/FP.CPI.TOTL.ZG?page=1)

The Informal Economy Monitoring Study (IEMS) is an initiative of the Inclusive Cities project. Inclusive Cities is a collaboration of membership-based organizations (MBOs) of the working poor, international alliances of MBOs, and support organizations working together as partners to improve the situation of the working poor. Launched in late 2008, Inclusive Cities aims to strengthen MBOs in the areas of organizing, policy analysis, and advocacy in order to ensure that urban informal workers have the tools necessary to make themselves heard within urban planning processes.

Both the Informal Economy Monitoring Study and the Inclusive Cities project are coordinated by Women in Informal Employment: Globalizing and Organizing – WIEGO (see www.wiego.org) – a global action-research-policy network that seeks to improve the status of the working poor in the informal economy, especially women. WIEGO has convened a Technical Advisory Committee (TAC) to guide the project.

IEMS Technical Advisory Committee

Martha Chen (Harvard University), TAC Chair and WIEGO International Coordinator

Sally Roever, IEMS Director and WIEGO Urban Research Director

Michael Rogan (Rhodes University), IEMS Quantitative Research Coordinator

Imraan Valodia (University of the Witwatersrand), Advisor

Sonia Dias, WIEGO Waste Sector Specialist

Rhonda Douglas, WIEGO Global Projects Director

Zoe Horn, WIEGO Research Officer, IEMS

Francie Lund (University of KwaZulu-Natal), WIEGO Social Protection Programme Director

Melanie Samson (Public Affairs Research Institute (PARI), University of the Witwatersrand), WIEGO Africa Waste Picker Programme Coordinator

Shalini Sinha, WIEGO Home-based Work Sector Specialist

Caroline Skinner (African Centre for Cities, University of Cape Town), WIEGO Urban Policies Programme Director

Caroline Moser, Angélica Acosta and Irene Vance designed the qualitative research tools and trained the qualitative researchers in data collection and analysis.

About Inclusive Cities: Launched in 2008, the Inclusive Cities project aims to strengthen membership-based organizations (MBOs) of the working poor in the areas of organizing, policy analysis and advocacy, in order to ensure that urban informal workers have the tools necessary to make themselves heard within urban planning processes. Inclusive Cities is a collaboration between MBOs of the working poor, international alliances of MBOs and those supporting the work of MBOs.

For more information visit: www.inclusivecities.org.

About WIEGO: Women in Informal Employment: Globalizing and Organizing is a global action-research-policy network that seeks to improve the status of the working poor, especially women, in the informal economy. WIEGO builds alliances with, and draws its membership from, three constituencies: membership-based organizations of informal workers, researchers and statisticians working on the informal economy, and professionals from development agencies interested in the informal economy. WIEGO pursues its objectives by helping to build and strengthen networks of informal worker organizations; undertaking policy analysis, statistical research and data analysis on the informal economy; providing policy advice and convening policy dialogues on the informal economy; and documenting and disseminating good practice in support of the informal workforce.

For more information visit: www.wiego.org.