

Building Sustainable Livelihoods:

Results of the GTZ-CWG Study of the Economic Aspects of the Informal Sector In Solid Waste




Proceedings of the 9th CWG Workshop held in Gouda, Netherlands, January 20-25, 2007

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Cover photo: Informal metal collector in Gouda, the Netherlands

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CHAPTER 1 INTRODUCTION

This document is a report on the proceedings of the workshop “Building Sustainable Livelihoods: The Solid Waste Informal Sector In the Modernisation of Waste in Low and Middle Income Countries”, held in Gouda, Netherlands, from January 22 through 25, 2007. This meeting constitutes the 8th Collaborative Working Group on Solid Waste in Low and Middle Income Countries (CWG) workshop, which follows CWG’s previous workshop in Kolkata, India in February, 2006 on “Solid Waste, Health and the Millennium Development Goals”

The timing of this workshop is designed to come together with the completion of a research project by WASTE, advisers on urban environment and development (WASTE) in Gouda, Netherlands, in association with SKAT of St. Gallen, Switzerland, local researchers from six different countries, and an international team of experts. This report, the “Economic Aspects of Informal Sector Activities in Solid Waste Management” was contracted by the German Technical Cooperation Agency (GTZ). The study was co-financed by the CWG. GTZ formulated the tender for this project as part of its response to the millennium development goals (the MDGs). The study is part of the sector project “Promotion of concepts for pro-poor and environmentally friendly closed-loop approaches in solid waste management (SWM).”

Funding support for this workshop was provided by CWG, GTZ, Sandec and WASTE, with WASTE providing logistical support for the workshop schedule and venue.

Participants included:

- ◆ researchers and participants in the project
- ◆ the GTZ project officers
- ◆ city teams and invitees of the city teams from each of the countries in which the research project was conducted
- ◆ staff of WASTE, Skat, and Sandec
- ◆ members of the CWG core group (steering committee)
- ◆ members of the CWG global informal sector network/platform
- ◆ invited participants from the CWG network
- ◆ students and staff from Wageningen University in the Netherlands

A full participant and contact list is provided in Annex 1.

The structure these proceedings are as follows. Section 1 provides the context for the workshop and the associated research project. This will include a brief description of the research objectives and the research partners. Section 2 outlines the workshop schedule and lists the objectives that the workshop had set out to address. Section 3 reviews the major workshop sessions and the associated presentations and subsequent discussions. Annex 1 provides a list of attendees and their contact information. Annex 2, only provided on CD-Rom, includes all of the PowerPoint Presentations given by the participants.

1.1 Workshop Context

In many low- and middle-income countries, collecting, sorting and recycling provides income to hundreds of thousands of people worldwide, as it did in OECD countries until the late 20th century. They work on the streets; at dumpsites; and, in more modernised

solid waste systems, in transfer stations, separation plants or at the landfill. They are the principal actors in recycling, collecting and valorising recyclables and organic waste from households and businesses and scavenging from containers; In cities where the formal waste collection system does not provide collection to all areas and households, the solid waste informal service sector also makes service agreements with individual households or businesses to remove their waste, either periodically or on a schedule.

The solid waste and recycling informal sector operates in parallel or in competition to formal, government-sponsored solid waste and recycling systems. Internal migrants, low social classes and castes, ethnic minorities, refugees, and others who have few skills or resources can enter the solid waste informal sector with relative ease, and, if they are willing to suffer the social stigma and the risks to their health and safety, can earn a livelihood off of the discarded resources that make their way into the commons.

The cities they serve get the operational and environmental benefits of recycling activities and the social and governance benefits of reduced poverty among vulnerable populations and the multiplier effects of thousands of households having a household income at or above minimum wage. The downside of these activities is their public image, the fact that the recycling activities are dirty, the environmental and health impacts on the workers and the places where the recycling is done, and the fact that in many cases waste picking is a family activity, and children participate in it rather than going to school.

Informal sector waste pickers and recyclers tend to work long hours, with primarily muscle-powered equipment, and are responsible for most waste recycled in cities before the modernisation process. The income that these micro-entrepreneurs earn keeps them and their families from starving, and is a key activity that prevents poverty in vulnerable populations and it has been documented to be sufficiently attractive for most of them to keep on working in the sector despite very poor working conditions and health hazards.

Informal waste workers activities make an economic contribution in their cities by recovering materials to feed local, regional, or international industries. This has a positive environmental benefit in terms of reducing the resource and extraction impacts of industrial activity, and an energy benefit because the processing of recycled materials usually takes less energy than extracting and processing virgin materials. They make an environmental contribution by reducing the volume of material reaching the legal or illegal disposal site, avoiding emissions from disposal and extending the life-time of capital facilities. There are some local environmental costs associated with the “dirty” way of processing materials.

When informal recyclers interact with new or modernising formal waste collection system, it leads to friction, reduced efficiency, competition between the (micro) private and public sector, and/or open conflict between formal and informal structures. Reduced efficiency is the case when informal recyclers create a mess when they extract recyclables from containers in the streets, making more work for the formal collection crews. Collection time and efficiency is also lost when formal collection workers slow the collection to separate the recyclables and sell them for their own benefit.

Beginning in the 1980s a range of social scientists and waste management specialists have worked on developing new approaches to integrating the informal sector into the modernisation process. By now there is a considerable body literature concerning their

operations and the social circumstances in which the informal sector operates. Much of the socially motivated activity has a focus on eradicating child labour, or on social improvement strategies focused on facilitating an exit from waste work to “something better.” These socially motivated interventions appear to have pleased no-one, including the waste pickers themselves, who may be making a rational economic choice to pick waste because it provides the highest possible income or the best range of options in their circumstances.

A number of advocates for the informal sector, in Brazil, Manila, India, Mexico, and Cairo (and a range of other cities) have worked along different lines, focusing on documenting, recognising, and ultimately legitimising the activities of the informal sector and integrating them into the formal solid waste system, which is usually also undergoing growth, modernisation, or privatisation.

This attempt at integration of informal sector activities into formal solid waste management systems has met with strong resistance and has often failed or been abandoned. This may have to do with the fact that advocates and planners are hampered by the lack of reliable economic data with regard to benefits and drawbacks of informal sector activities in relation to the formal solid waste sector. What there is comes mostly in the form of eleventh-hour advocacy actions aimed at resisting large-scale privatisation of the formal solid waste (collection and disposal) system.

Thus it is within this context that this workshop was convened to discuss the challenges to the informal sector solid waste workers from the modernisation of the formal sector solid waste system and the potential impacts of the local economy as the result of this dynamic.

1.2 The Research

The goal for GTZ and the CWG in financing the study “Economic Aspects of Informal Sector Activities in Solid Waste Management”, which was conducted by WASTE, advisers on urban environment and development, Gouda, Netherlands and Skat, St. Gallen, Switzerland, is to support practitioners, public sector policy-makers, donors and investment banks in making good decisions about how to handle the informal solid waste sector when they are modernising their solid waste systems. The aim of the study was to provide reliable arguments within discussions about the impact of informal sector activities in municipal solid waste management in economic terms. As the informal sector often is regarded as little profitable, not organised or not trustworthy, only few cooperation models between public, private and informal private sector have been initiated so far. An economic argument within this discussion is supposed to be fruitful and positive.

The strategy deployed to investigate the economic aspects of the informal sector is based on a case analysis of the solid waste formal and informal sector, and the interactions between them, in each city. Each city partner created a detailed case analysis of the relationship between the formal and informal solid waste sectors.

The six cities studied are:

- 1 Cairo, Egypt
- 2 Cluj-Napoca, Romania
- 3 Lima, Péru
- 4 Lusaka, Zambia
- 5 Pune, India
- 6 Quezon City, the Philippines

Each city developed a *City Report*, based largely on existing data, supplemented by strategic fieldwork designed to triangulate or sharpen desktop information through the use of limited field studies. The cities then proceeded to use the case data and information to model the process steps in their formal and informal solid waste systems. This created the information base to answer questions about the cost-effectiveness, efficiency, and costs and benefits of current, real informal and formal sector activities. The analysis of the *status quo* then served as the basis for an exercise to model the impacts of changes in these activities driven by future hypothetical or real policy choices.

To achieve this analysis of impacts, each city team, supported by a team of international economists, environmental scientists, sociologists and waste management specialists, also processed and analysed their own city data in one baseline and four additional excel workbooks, that analysed both capital and operating costs of solid waste handling but projected environmental and socioeconomic impacts associated with such activities. In order to carry out this quantitative analysis, the city partners researched and diagrammed their waste systems, and then did additional economic research on the waste materials handling process steps to be able to model costs and benefits, effectiveness, efficiency, energy use, employment, and other operational aspects of their solid waste systems.

The project had an important secondary goal, to strengthen the capacities of the six city partners to act as agents of change in their cities. Each city partner increased their own abilities to collect and analyse data, strengthening their capacity to understand and analyse the informal solid waste sector, assess the informal sector's relationship and effect on the formal sector, and to formulate policy and programmatic responses to improve both the condition and position of the informal sector on the one hand, and the performance and cost-effectiveness of the total solid waste system on the other.

Additionally, the structure of the project also made it necessary for the city partners to get data from their city governments about processes and plans. At a minimum this created awareness that the city was participating in an international project, but in many cities it went much further, and the city partners engaged their local authorities and other stakeholders in formulating scenarios and evaluating policy options for the future. Ultimately it resulted in several cities anticipating the study results in policy decisions that supported integration of the informal sector in the modernisation process.

CHAPTER 2 GTZ STUDY CLOSING MEETING

On January 20 & 21, just prior to the CWG workshop, the project team met at the “GTZ-CWG Informal Sector Study Closing Meeting”. This working meeting was an opportunity for the entire research team, which included the city partners and the backstopping team of economists, environmental scientists, engineers and sociologists to discuss the study’s results and lessons learned. Representatives from GTZ and CWG were also in attendance so to provide feedback and critique of the work to date.

Programme for the GTZ-CWG Informal Sector Study Closing Meeting: 21-22 January 2007, WASTE

Date	Time	Focus of Session	Questions/Goals/Results	Chair
21 Jan				
	09:30	Opening at WASTE office	Coffee, tea, juices	Anne
10:00	13:00	Debriefing the project Internal evaluation of the project and results GTZ and CWG feedback	1. Discuss the critique the results: what did we learn, or not 2. Discuss and critique the process; what worked, what didn't 3. Discuss how to use the methodology further, how to disseminate, how to use for advocacy, etc. 4. Give input to an internal evaluation note 5. Discuss intellectual property issues	Reka and Oscar
		<i>Lunch</i>		
14:00	15:30	Impacts and prospective in the cities themselves; ♦ the City Teams report back ♦ strategy discussion for the CWG workshop sessions ♦ conclusions	Arrive at priorities and, if possible, agreements: 1. What are the issues relating to modernisation and the informal sector in the cities themselves? 2. What were impacts of the project on the cities? 3. What are the main challenges and the way forward in those cities?	Bharati and Anne
16:00	18:00	Impacts and prospective in the method and its global impacts; ♦ further methodology development ♦ extension (more cities) vs. deepening (pilot projects, following the cities further) ♦ research agenda with a focus on Africa?	Arrive at priorities and, if possible, agreements: 1. What kinds of follow-up might be useful, take the model further, in other cities, more in depth? 2. What did the project leave undone in terms of methodology? 3. What approaches needed for local environmental impacts, better socio-economic impact analysis 4. What are goals for this work the future? What is (on) the research agenda? 5. What roles for the study participants, GTZ, the CWG, etc.,	Michael and Justine
19:00		Dinner in Gouda		
19:00		First CWG core group meeting/dinner		

Date	Time	Focus of Session	Questions/Goals/Results	Chair
22 Jan				
	08:30	WASTE office open	Coffee available	Ivo
08:30	10:00	Individual preparation session: in hotel rooms or at WASTE where there are computers, flip charts, etc. available)	<ol style="list-style-type: none"> 1. Lima and Cairo prepare to present their city baseline reports and conclusions 2. Anne and Michael prepare presentation on results of study 3. Guenther, or if not present, Juerg, Bharati, and Anselm, prepare presentation on follow-up 4. Pune and Quezon prepare needs analysis for advocacy for the CWG 5. Cluj and Lusaka prepare presentation on their integration scenarios Others prepare modernisation presentations	Jonathan
10:15	10:30	Coffee and break		
10:30	12:00	“Practice” presentations, for comments from the group, 5-7 minute version of each for feedback.	<ul style="list-style-type: none"> ◆ Baseline and costs: Lima / Cairo ◆ Environmental impacts: Pune / Quezon ◆ Integration approach: Cluj / Lusaka Cities and Modernisation Presentations: <ul style="list-style-type: none"> ◆ Lima, Oscar Espinoza ◆ Quezon City: Lizette Cardenas ◆ Delhi: Bharati Chaturvedi ◆ Lusaka: Mike Kabungo 	
12:00	13:00	Impacts and perspective on the integration of the informal sector in the modernisation of solid waste systems: plenary discussion about what the study participants and financiers want to see happen <ul style="list-style-type: none"> ◆ dissemination and replication strategies ◆ role of GTZ, the CWG, WASTE, the city partners ◆ publishing in journals, presenting results at conferences ◆ integration in work of the German Ministry, DGIS, and GTZ ◆ discussion: what is going to happen with the project products: ◆ who is going to do what with them in what languages, ◆ agreements about use of the information and intellectual property ◆ for what things can the CWG become the institutional memory of the project? 		Sanjay and Jonathan
13:00	14:00	Break, move, and Buffet Lunch		

A number of points were raised in this meeting which provided context to subsequent discussions during the workshop to follow. The process allowed an initial summary statement about the process and final project team partners. Some of the highlights of these summaries are as follow.

Lima, Peru: The methodology of process flow diagrams and the development of system mass balances led them to have a complete view of the entire system that handles solid waste within the city. This methodology is continuing to be utilized to understand the dynamics of glass and PETE plastic generation and handling, recovery and disposal and is projected to be used to do a similar analysis of electronic waste.

What was not as well understood was the methodology for quantifying environmental and social impacts, and as such, this aspect of the study was less internalized for future analysis by the city partner.

Cluj-Napoca, Romania: Unlike the other partners, very little of the entire waste stream is handled by the informal sector, and whatever is, is done by Roma. Unfortunately, the formal sector has no real knowledge of the informal sector's role, nor when tenders are developed for solid waste services are the Roma even recognised as having a stake in such modernisation decisions.

The reality of Romania becoming a member of the EU adds another layer of complexity to understanding how best to integrate the work of the informal sector with the formal.

Lusaka, Zambia: This study was eye-opening in regards to truly understanding the role of the informal sector in the materials handling and diversion of materials from disposal. This study changed the perception of how best to move forward with privatisation of solid waste management in the city.

The mass balance analysis brought to the fore-front the reality that there was a very large volume of waste that was being generated but could not be accounted in the recovery and formal disposal process steps. The question to be answered is to determine where this waste was going.

The analysis of costs and revenues changed the perception of city officials regarding this sector of the population, with the realisation that often their income was higher than formal sector workers.

The social implications of the study were also quite important. The questions needed to quantify the socio-economic impacts made city decision makers more aware of the situation of the informal sector.

Ultimately, the question now facing the city-partner is how to best translate the findings from this study into a useful tool that can be expanded to other areas.

Quezon City, Philippines: There is already a National law that recognises the role of the informal sector, but this study provided an analytic confirmation of the benefit this sector plays in handling and recovering solid waste. The city's previous estimates only accounted for formal sector collection of recyclables, this analysis showed the added diversion as the result of informal sector activities. As a result this analysis provided needed documentation to show that the city was meeting its obligation to diverting 35% of its waste stream from disposal, as is required by law.

The Excel model for the mass balance and the associated cost-revenue will be given to the city with training on how to utilize it into the future. In addition the research methodology has already been repeated in another community in the Philippines.

Pune, India: The process allowed a number of different stakeholders to come together to discuss how best to integrate the informal sector into the overall solid waste system. The addition and subtraction scenario analysis was very important in that the discussions of

how best to integrate the discourse and representatives of official city and state agencies into the process of investigation, and to support good decision-making.

During the study itself, the modelling seemed difficult and complex and could only be understood by the higher level formal sector solid waste officials. However, the methodology now can provide the basis to look at additional questions of integration, especially in the areas of environmental socio-economic impacts.

GTZ: Feels the analysis was quite expansive and went beyond what was specifically asked. But it was also felt that the conclusions being developed need to be framed in a more concise manner so that it can be presented to other local decision-makers responsible for developing solid waste plans so that the informal sector is integrated into future implementation strategies.

The direct cost analysis is the key message to make to others about this study. The socio-economic and environmental impacts are interesting but not the key reason for solid waste system modernisation decisions. In regards to the direct costs, the question is how best to account for 'labour' costs of the informal sector when their daily income is based on sales of materials and not a wage?

Such a study can not be done again in all the cities that could benefit from the results from such of an analysis, so what needs to be developed is a strategy for how best to disseminate the results to those that could use it for their own decision-making.

WASTE: The methodology was quite useful in understanding the whole (informal) solid waste management system. There are still refinements in the quantitative methodology, especially in the development of socio-economic and environmental cost impacts. Also, the current model is cumbersome and could benefit from refining. Nevertheless, it is apparent that all the city partners gained both breadth and depth of understanding how solid waste is generated, collected, recovered and disposed within the city and exactly how the informal and formal sectors interact in the handling of these materials.

The sustainability of the research approach is two-fold. The first is the decision of utilising local partners to conduct the research and complete the cost analysis has left in place expertise that can expand this type of analysis to other communities. Beyond this these individuals can provide the basis for training others in utilising this kind of a modelling approach.

In addition, the development of the addition and subtraction scenarios created a process of information sharing and scenario development that involved a variety of local stakeholders and was critical in gaining support from local solid waste officials in considering the future role of the informal sector in solid waste management planning.

Following up on GTZ's point about disseminating the results, there does need to be a strategy developed to create a more concise document for dissemination that would be useful for not only local decision-makers but also those who provide aid and those that develop policy at the regional, state and national levels. In addition, there is an opportunity to develop a concurrent strategy on how to best utilize the now already established expertise in the city-partners so expand such analyses to other regions and countries.

CHAPTER 3 WORKSHOP PROGRAM

The workshop was designed to create an opportunity for CWG members come together to share in the results of the GTZ-CWG study sector and to discuss the impacts to the formal sector from the modernisation of the solid waste management system. The workshop also had a goal to pro-actively address what needs to be done to understand, but above all mitigate future negative impacts from modernisation on the to the informal sector in solid waste. To do this, it is necessary to use the project results as a basis for a discourse about how to best approach integration of the informal sector into the formal sector's strategic thinking about solid waste management.

An additional topic presented in the workshop focused specifically on the Kyoto funding possibilities for future solid waste management alternative utilising *Clean Development Mechanisms* (CDM) and *Joint Implementation Mechanisms* (JI). In addition, the workshop attendees had an opportunity to visit an informal sector operation in Gouda that is recovering material for recycling.

The CWG Workshop Programme follows.

Programme for the CWG Workshop and Study Visit, 22-25 January 2007

“Building Sustainable Livelihoods: The Solid Waste Informal Sector in the Modernisation of Waste Management in Low and Middle-Income Countries”
Sponsored by GTZ, WASTE, Sandec and the CWG; Hosted by WASTE, Gouda, the Netherlands

Day 1, 22 January

	Time	Session	Description of session	Chair and moderator
	13:00	Lunch		Coordination: Karin
14:00	14:45	Opening of CWG Workshop: <ul style="list-style-type: none"> ◆ Guenther Wehenpohl: GTZ overall recycling and poverty reduction programme and the Informal Sector Study ◆ Juerg Christen: The CWG and the DGIS project 	<ul style="list-style-type: none"> ◆ Introduction round ◆ Presentation of the workshop “Solid Waste Informal Sector in the Modernisation of Waste Management in Low and Middle-Income Countries” 	Chair: Anne Scheinberg Opened by: Aat van der Wel, Director, WASTE. and Juerg Christen, Director Skat/CWG
15:00	17:30	Presentation: GTZ-CWG study Results <ul style="list-style-type: none"> ◆ Overall results: WASTE/M. Simpson ◆ Baseline and costs: Lima / Cairo ◆ Environmental impacts: Pune / Quezon / ◆ Integration approach: Cluj / Lusaka 	<ul style="list-style-type: none"> ◆ What does the study tell us about the state of the art in relation to the informal sector in solid waste? ◆ What does it say about costs? ◆ How does it help policymakers and activists envision the future? ◆ What does it “prove”? ◆ Discussion: what does this study suggest about future activity 	Chair: Guenther Wehenpohl, Moderator: Sanjay Gupta, Discussants: Joep Bijlmer, Bharati Chaturvedi
19:00	22:00	Dinner, Restaurant “Buiten”, Gouda screening of the DVD “60 kilos” presentation by Producer Bharati Chaturvedi Screening and presentation by Sonia Dias of film on waste pickers in Brazil (first half only)		

Day 2, 23 January

	Time	Session	Description of Session	Facilitator
09:00	11:00	Orientation to the Cities and Modernisation: Anne Scheinberg <ul style="list-style-type: none"> ◆ Lima, Oscar Espinoza ◆ Quezon City: Lizette Cardenas ◆ Delhi: Bharati Chaturvedi ◆ Lusaka: Mike Kabungo 	<p>What does modernisation involve, what are the trends and patterns? How does this work in the cities? What has changed in the modernisation process? Where does modernisation begin and where does it end, what usually is gained and what lost, how do the dynamics change, and what does it mean for the informal sector?</p> <p>Practical examples, discussion. How does this type of analysis change the policy and planning dynamics of the modernisation process, winners and losers, etc.?</p>	Chair: Sanjay Gupta Discussant: David Wilson
11:30	13:30	Focus on the Analytic and Process Methodology in the study: <ul style="list-style-type: none"> ◆ Michael Simpson: process flow and materials balance modelling ◆ Justine Anschutz: socio-economic impacts ◆ Evgenia Tasheva (on behalf also of Yamini Gupta): carbon equivalents and environmental impacts ◆ Anne Scheinberg: multi-city action research 	<p>The study itself was based on a number of approaches that were blended together and combined. What kinds of advantages and disadvantages do these approaches, separately and together, have? What aspects of the methodology need to be further worked out, how, by whom? Which ones are suitable for replication-dissemination? What can they be further used for? Is there a need for a global data base of this type on cities?</p>	Chair: Rueben Lifuka; Moderator: Poornima Chikarmane, Discussant: Michael Simpson
13:30	14:30	Lunch		
15:00	18:00	Forum discussion on the Informal sector: Panel members: <ul style="list-style-type: none"> ◆ Cairo: Ezzat Naeim Gendy ◆ Cluj: Eugen Veres ◆ Bangalore: Anselm Rosario ◆ Belgrade: Aleksandra Mitrovic 	<p>Goal of the discussion: By the end of this session we hope to be able to capture the common similarities and challenges, and to reach to some proposed ideas for integration, or solutions of other common problems, based on the experiences of each country.</p> <p>Some discussion questions: What is the informal sector, what do they do, what are their problems, what do they want in the process of modernisation? What about WEEE, medical waste, organics, urine, biogas? How can strengthening recycling and recovery activities create improvements in lives and livelihoods?</p>	Chair: Lilliana Abarca, Moderator: Martina Kolb, Discussants: Mansoor Ali (environmental) and Mayling Simpson-Hebert (socio-economic)
19:00	21:00	CWG Core Group Meeting and dinner	Free Evening for other participants	

Day 3, 24 January

	Time	Session	Description of Session	Facilitator
09:00	10:30	Focus on Carbon Trading, Joint Implementation, and the like <ul style="list-style-type: none"> ♦ Reka Soos: Carbon trading in Romania ♦ Sandec: Bundling of small-scale composting under CDM ♦ David Wilson: building on this experience – structured discussion 	Is there a potential for a small CDM based on informal sector activity, especially composting and recycling? What actions are necessary to make this reality?	Chair: Michael Simpson, Moderator: Oscar Espinoza, Discussant: Jonathan Hecke
10:30	11:00	Coffee break		
11:00	13:00	Focus on the Future: policy, activism, privatisation. Presentations: Policy: Bharati Chaturvedi Social action: Sonia Dias Privatisation: Rueben Lifuka	What are the different lines of work that come out of this study? Considering the priorities if GTZ, DGIS, the CWG, WASTE, Skat, and the cities, what are the priorities and how can these be matched to the needs and wants of the sector themselves? What happens next?	Chair: Guenther Wehenpohl, Moderator: Lizette Cardenas
13:30	14:30	Lunch		
15:00	17:30	Focus on Development Cooperation Interventions and the MDGs: Presentations: <ul style="list-style-type: none"> ♦ GTZ programmes: Guenther Wehenpohl ♦ USAID: Sanjay Gupta ♦ DFID: Mansoor Ali 	What strategic edges can the study and its results provide? What can bilateral and multi-lateral donors and banks learn about sustainable modernisation? How can the lessons of the past be more than object lessons in failed policies? How can these findings and what they tell us inform the MDG system and process? Is this a topic for European donor co-ordination?	Chair: Sonia Dias; Moderator: Mansoor Ali; Discussant: Joep Bijlmer
17:30	18:00	Formal Closing	Anne Scheinberg and Guenther Wehenpohl	
19:30	22:30	Closing Festive Dinner buffet in Gouda		with staff of WASTE

Study visit, Thursday January 25 (see separate description of study visit, led by Justine Anschutz)

	08:30	Departure from WASTE office		
	14:00	Return to WASTE office, lunch, shopping		
	15:00	18:00	Planning session with members of the India informal sector SWACHH Network to discuss an international resource platform headquartered in India, WASTE office	facilitated by WASTE

3.1 Workshop Welcome

The formal aspects of the workshop were opened with a welcoming remarks from Aat van de Wel, Managing Director of WASTE, from Dr. Günther Wehenpohl, working under the German Agency for Technical Cooperation's (GTZ) *Recycling and Poverty Reduction* program and the contract officer for the WASTE-Skat research study, "Economic Aspects of Informal Sector Activities in Solid Waste Management" and from Juerg Christen,

secretariat for the Collaborative Working Group for solid waste management (CWG), which is supported through funds from DGIS (Ministry of Foreign Affairs) of the Netherlands government.

Dr. Günther Wehenpohl: The GTZ Sector Project “Recycling Partnerships”

Dr. Wehenpohl introduced the GTZ “Recycling Partnership” initiative with the goal to show that it is reasonable to integrate the informal sector into a formal waste management system while improving efficiency and reducing negative environmental impact by applying the principles of recycling management. Activities under this initiative include pilot projects, training, advocacy, information dissemination and networking, with a focus upon entrepreneurial skills training and stakeholder capacity building.

Juerg Christen: Skat: Introduction to CWG and the DGIS Project

Juerg Christen introduced CWG as an informal knowledge network of a community of practice. CWG “members”¹ share a common interest in improving the urban environment in low and middle-income countries through improved management of solid waste. The CWG partners work together on concrete projects from developing tools and guides to implementing projects, workshops and creating publications. The overall objectives to meet the CWG goal is to eradicate extreme poverty and to ensure sustainability through the activities of advocating for policy changes, building local capacity, expanding the network of knowledge and expertise and developing and disseminate information.

Mr. Christen highlighted the 2005 through 2007 funding from DGIS through a *TMF* (a theme based financing grant) which provided core funding, with an expected 35% from matching funds. This grant was specifically to raise the profile of solid waste management with decision makers at the city, national and international level combined with capacity building, networking and knowledge dissemination activities. This funding supported the development of this workshop and also co-financed, in conjunction with GTZ, the WASTE – Skat research study “Economic Aspects of Informal Sector Activities in Solid Waste Management”.

3.2 Workshop Presentations and Discussions

3.2.1 January 22, 2007: Day 1

Afternoon Session: GTZ-CWG Study Results

This session was structured to present the overall results from the study, and then give individual city-partners the opportunity to present specific results from their cities. The first presentation, about analysing baseline conditions for Lima and Cairo, was followed by one about environmental impact results, presented by the teams from Pune and Quezon City. The final session presentations focused on the results of modelling the scenarios on

¹ Like many platforms, the CWG has permeable boundaries, and membership is open to – and can be claimed by – anyone at any time who has a relationship to solid waste management in low- and middle-income countries.

removing or integrating the informal sector into formal sector activities, presented by the partners from Cluj and Lusaka.

Michael Simpson, WASTE – Gouda, Netherlands, “Economic Aspects of Informal Sector Activities in Solid Waste Management”

Mr. Simpson, as Research Director for this multi-city research project, summarised the approach utilized for this analysis by outlining the mass balance approach for quantifying materials from generation through recycling or disposal and how this was translated to net cost analyses of both the formal and informal sector solid waste materials handling by mapping out the process steps involved and the associated costs and revenues with each of these activities.

Besides modelling the current conditions, two scenario analyses were performed by the city-partners. The first was a “subtraction” scenario with objective of projecting added net costs to society if the informal sector was removed from materials handling of solid waste. The “addition” scenario, was developed by each of the city-partners, in conjunction with input from local stakeholders, to determine the net costs and benefits to society if the informal sector was integrated into planned formal sector solid waste management activities.

Finally, the study also attempted to quantify environmental and socio-economic impacts associated with each of the three scenarios. The environmental impacts used the global benchmark of greenhouse gas (GHG) emissions related to (1) GHG avoidance through recycling instead of extraction of raw resources; (2) fuel and electricity use, and (3) emissions and methane generation due to waste disposal. The CO₂ equivalents were calculated and monetised utilising international prices for carbon credits. The socio-economic impacts were not monetised to the same extent but where possible quantified impacts of employment, gender & child labour, income and efficiency, occupational health.

Oscar Espinoza, IPES – Lima, Peru, “Economical Aspects of Solid Waste Informal Sector In Lima & Callao”

Mr. Espinoza provided an example of the development of a baseline process flow and associated mass balance, as well as examples of Excel sheets developed to ascertain net costs not only of the baseline scenario, but also for the subtraction and addition scenarios utilized within his communities. The conclusions that resulted from this analysis were that the Excel modelling approach will be appropriate to use in other cities within Peru. In addition, the utilisation of the materials balance has already been used by IPES to analyse the collection and handling of glass bottles and PETE plastic containers. He noted the importance of the creation of the process flow diagram (PFD) as a visual representation, in that it allowed city officials to see how integral the informal sector was to the handling of solid waste.

It was estimated that 20% of all solid waste generated in Lima and Callao is managed by the informal sector and that the incomes for the informal sector workers is a bit higher, on average, than the legally established formal sector minimum wage. But is also the case

that the informal sector workers are continually exposed to risks through accidents, disease, theft, persecution from police and local authorities.

Berti Shaker, CID – Cairo, Egypt, “Cairo Solid Waste Management System (Baseline & Costs)”

Cairo was by far the largest city studied under the research project, with a population of greater than 17 million. This city was also exceptional in that it was the only city that had undergone a process of large-scale privatisation to international waste management companies. Prior to this, the system was serviced by semi-formal enterprises servicing temporary dumping sites, containers and door-to-door collection. These enterprises are owned by the Zabbaleen, the Coptic Christian group which is also primarily responsible for the recovery of recyclables and organics. The goal of the privatisation was to divide the city into four zones, each to be franchised to a different company or consortium. And although the selected contractor was supposed to be the sole operator for waste management services within each zone, in actuality these international companies still have to do business with the informal sector to provide services they had historically been doing.

The positive aspects of this international strategy are that neighbourhoods not formally provided services now were supposedly served, but the current assessment has shown this to be not the case. On the negative side, the current system still has Zabbaleen providing service but now with a series of “middlemen” with the potential of exploitation of the informal sector workers. And where the Zabbaleen had some recognition from the formal solid waste system as a service provider, now they are relegated to accessing materials from households through informal means.

Finally, it is clear that beyond formal decisions at the city-wide level, the informal sector workers are still exposed to health risks as they sort through waste and reside in housing where waste accumulates outside the formal sanitary landfill operations.

Reka Soos, Green Partners – Cluj, Romania & Rueben Lifuka, Riverine Development Associates, Lusaka, Zambia, “Integration Scenarios – Cluj and Lusaka”

Ms. Soos began with the fact that Romania had become a member of the EU at the beginning of 2007. With this comes a new set of requirements regarding modernisation, especially as it pertains to land-filling. Then she introduced the proposed integration (addition) scenario for this city, which included developing a strategy to integrate street pickers and dump pickers and associated processors who are a permanent population and do this for a livelihood and not include part time street pickers or nomad dump pickers. This would be accomplished by an agreement with a privatised sanitation company and the neighbourhood based Street Pickers Association and Dumpsite Pickers organisation. Such an addition approach would increase materials recovery from 13% to 30% of materials generated.

Mr. Lifuka indicated that a modernisation process had been initiated in 2001 that was moving the city towards privatisation of waste collection and transfer. A concurrent focus is on the development of a modern landfill, financed by Danish Development (DANIDA). The proposed integration (addition) scenario integrates street and dump site pickers, junk

shops, and recycling processors into formal sector modernisation plans. Integration here means formal recognition of informal sector partners. Those that would not be integrated would be child-pickers below 18 years of age and those, primarily students, who use waste picking as a part-time source of pocket money and/or additional income.

The approach would be to facilitate the formation of informal sector worker cooperatives which can be contracted for waste management services. In addition these cooperatives would be encourage to set up 'buy-back' centres with associated space to allow for sorting and processing. The projection of the diversion rate of materials to recycling with such an integration scenario would grow from the present 6% recovery rate to 26%.

The conclusions from both analyses is that total integration is not feasible but partial integration makes sense in that increases efficiency, reduces costs and allows cities to meet their goals for recovery of materials in a cost-efficient and environmentally and socially responsible way.

Lizette Cardenas, SWAPP – Quezon City, Philippines: “Environmental and Socio-Econ Impacts of Solid Waste Activities in Quezon City, Philippines”

The analysis of environmental impacts, with the primary focus on carbon equivalents, developed a cost projection based on market prices for carbon credits. For Quezon City, the subtraction scenario assumed that the formal sector would handle all the waste generated as a kind of operational monopoly. The addition, or integration scenario, are similar in many aspects of the baseline analysis with certain points in the process flow where the informal sector is more completely integrated into the formal sector activities, so that efficiency is optimised.

The results projected that the removal of the informal sector activities (the subtraction scenario) increases the overall environmental costs. Based on this analysis the informal sector offsets about half of the formal sector's environmental costs if the formal sector had to handle the informal sector's materials. This translates to a six-fold increase in GHG emissions and ten-fold increase in energy use if the informal sector was removed and the formal sector had to handle all the materials generated. There is no difference in recovery rate in the two future scenarios as the formal goals are held as a constant in modelling both of them.

Poornima Chikarmane, KKPKP – Pune, India: “Pune, India Impacts”

The environmental impact analysis focused first on avoided GHG emissions associated with the diversion of materials from disposal to recycling, avoiding extraction impacts on GHG loading and loss of sequestration mechanisms. The second source of environmental externalities expressed in GHG emissions comes from fuel and electricity used by the formal and informal sector process steps; the third is associated with methane emissions generated by the disposal of putrescible waste at dumps, landfills and the final disposal sites. In all cases the formal sector had greater negative GHG impacts. GHG emissions at the landfill alone were five times greater in the baseline scenario than what was projected for alternative scenarios.

Some findings related to socio-economic impacts included confirming that, as is the case in many cities, average earnings in the informal sector are higher than the minimum wage. Moreover, modernisation steps reducing the ability of the informal sector to capture materials have a disproportionate negative effect on women, since ten times as many women work in the informal sector as in the formal sector. Child labour in Pune is minimal, based on campaigns in the last five years, so there is little anticipated impact on child labour in either scenario.

Discussion:

(Note: The discussions reported in this section were begun after the preceding sessions but continued in Day 2 of the workshop when the research methodology was reintroduced, but in a bit more depth. The comments here reflect topics raised by workshop participants over both days concerning the research results.)

- ◆ A discussion was initiated with a series of questions. What is the best medium and message, in order to relay these findings to those who need to understand the importance of integrating the informal sector into future solid waste management plans?
- ◆ How can the study participants and the CWG work most effectively to advocate for changes in policies to facilitate integration?

Policies about solid waste are generally made by local authorities, officials, and decision-makers but national policy decisions influence how this is done and the direction it takes. So is it more effective to approach local authorities about the need of integration, or to take the message to regional and national authorities and donors – or all of them?

It was clear that the study has come at an important time, especially since 2007 will be the first year that more people live in urban than rural environments. So how make the projections of net costs relevant to those who consider such issues in developing policies and plans?

There are a number of other important messages here:

- ◆ One percent of a city's inhabitants can be involved in such informal sector activities and the GDP currently does capture this benefit to local and national economies.
- ◆ We are finding that, in many cases, these informal sector workers include a high proportion of women (with children) working in a very unhealthy environment.
- ◆ We see that these women, in spite of the unhealthy environment, can earn a better living than elsewhere, and stand to suffer if they are excluded.
- ◆ The initial findings of greenhouse gas net impacts is a great beginning doing such environmental analyses, especially since clean development mechanisms and carbon credits is currently of great interest by formal sector decision-makers.

The study's results showed that in some cities the cost for informal sector to the formal solid waste system of recycling collection done by the waste pickers is close to zero, while formal collection has clear costs of €15 and above. The comparison seems dramatic and does raise legitimate questions. The study's results seem to assign a disproportionate amount of 'benefit' to the informal sector activities when compared to the formal sector

activities; specifically, this has to do with how wages were accounted for in the formal sector but not in the informal sector.

Readers of the draft report legitimately ask whether it would not be more accurate to ascribe or impute a (fictional) wage cost to the informal sector to ‘level the playing field’. One proposal put forward was to use minimum wage as a “shadow price” for the labour of the informal sector, another was to turn to the socio-economic analysis of the report and utilize income figures used there.²

But it must be remembered, a street picker does not receive a wage, is not insured for sickness or inability to work, but also does not normally declare the income from selling materials to a tax authority. Often the informal sector is not even entitled to basic civil or political rights like police protection or places in school for children, because of their status as migrants.

There is, therefore, a fundamentally different relationship between income, labour, livelihoods and rights in the formal sector than the informal sector. When comparing the costs and benefits for these two sectors, and especially for parallel operations, it is necessary to arrive at approaches that allow the real situations to be represented in the analysis.

The approach of the environmental analysis made sense the second day of the workshop, where it was explained in more depth. But many voiced it was only a start as such analyses since GHG accounting falls short of accounting for the local impacts from water, air and soil pollution issues associated with recycling and waste management activities. It is these issues that have more immediacy for the city authorities.

Similarly, it was felt that the socio-economic aspects of the study were interesting but again only a beginning. The qualitative information gathered needs to be better organised and then more succinctly translated to economic impact so it could be used to enhance the overall analysis.

3.2.2 *January 23, 2007: Day 2*

Morning Session: Modernisation in the Cities

This initial session for the day opened with a discussion of the modernisation of the solid waste systems within the cities that participated in the WASTE – Skat study. The opening presentation helped framed the issue and focused on the impacts upon the informal sector solid waste system. This was followed by presentation from city-partners that described the process of modernisation occurring within their own areas.

Anne Scheinberg, WASTE – Gouda, Netherlands, “Solid Waste System Modernisation, Patterns and Impacts

Ms. Scheinberg introduced the historical perspective of solid waste management where solid waste decisions were driven by public health concerns; it was viewed as being a somewhat homogenous mass that was relatively static and unchanging and because solid

² The finalisation of the report takes up this issue further –ed.

waste management was a necessity but considered a low priority, it was not viewed as the place for capital or human resource investments. As a result, the primary objective of this pre-modernised system was to remove waste from living areas, where it went was neither interesting nor well-planned; all planning tended to revolve around technological alternatives.

With the growing understanding about the relationship between waste and ground-water pollution, combined with increasing population and development growth pressures limiting open space and water resources, traditional, pre-modern waste management practices are being supplanted with the need for 'modern' landfills. This drive for more capital intensive 'state-of-the-art' landfills increases the costs for siting, construction and operation. This in turn creates pressure to off-set these large annualized costs with acceptance of larger amounts of waste. Thus, smaller, multiple dumps sites that are not environmentally sound are supplanted by larger, regional landfills.

But with this modernisation and regionalisation of solid waste systems, the informal sector actors lose their point of access to the solid waste system both because collection now necessitates expensive motorised conveyances to regional landfill sites and because the private sector begins to compete for the recyclables. In essence, the municipal authorities have grasped that more materials recovered from the waste stream will reduce overall annual operating costs and that recyclables will generate revenue. This results in policies that shift the rights for collecting recyclables to the formal solid waste sector.

Oscar Espinoza, IPES – Lima, Peru, "Orientation to the Cities and Modernisation"

Lima is a city of 8 million people, currently with five modern landfills and 20 older dumpsites. The last ten years have seen the development of solid waste policy, laws and regulations which considered the informal sector to some extent; but also, the beginning of a tendency to privatise solid waste management. By 2006 68% of all solid waste is now disposed in landfills that are operated in an environmentally sound manner. Many of the districts in the larger metropolitan area have their own solid waste plans. There are now some associations of informal sector workers and this has allowed the municipalities to work with them in conjunction with formal sector solid waste management activities.

The modernisation process has allowed the informal sector to be integrated into formal sector solid waste management in that they continue to work as pickers but in better working conditions found at transfer stations and landfills. In addition, there are examples where they are being integrated into the collection systems of the formal sector. With this they get some support from the formal sector in providing tools and uniforms and assigning them specific areas within the districts where they have rights to collect without harrassment.

Lizette Cardenas, SWAPP - Quezon City, Philippines, "Modernisation of Quezon City"

With a population of 2.5 million people that generates 1,800 tons per day of solid waste, Quezon City has seen a number of institutional changes in the solid waste management system of the last few years. With enactment of laws and regulations mandating waste segregation at the source and setting a goal of 25% waste diversion by 2006, there were

provisions in the law that informal sector activities, such as junkshops, can be utilized as recovery centres for the barangays (neighbourhoods) within the City. But waste pickers are now excluded from the landfill site.

At the local municipal level there has been an initiative to create environmental cooperatives to assist in the local solid waste management and inclusion of the recycling sector on to solid waste management boards. This represents a push towards privatisation of waste collection and disposal, with related efforts at the neighbourhood level to develop formal recycling with some integration of the informal sector.

Solid waste collection efficiency has improved through privatisation, with an approximately 33% reduction of formal sector collection costs. There has also been seen an improvement in both the legitimisation of junkshops and an improvement in the working conditions at the junkshops, with a concurrent effort to retrain pickers that were excluded from the landfill sites.

Future objectives include dialoguing with, and assisting in organising, all types of pickers. Also, there is an opportunity of integrating them into planned material recovery facilities. Informal sector itinerant waste buyers would be organised so to supplement the neighbourhood-level collection of recyclables and provide occupational training opportunities for informal sector workers to shift to other professions.

Bharati Chaturvedi, Chintan – Delhi, India, “Cities and Modernisation: Delhi, India”

Delhi is a city that officially creates 8.000 tons of solid waste a year, by 2020 it is projected that this will grow to 23.000 annual tons. Since the late 1980s, a combination of landfills and refuse derived fuel (RDF) plants has been considered the best way to address this growing solid waste generation.

Delhi has at this time a level of privatisation of 50% of the waste collection services, which has allocated the rights to collect recyclables to these private contractors. This is combined with the fencing of points of waste aggregation and disposal, moving them from the commons to the status of private property. These measures have had a direct and overwhelmingly negative impact upon the livelihoods of the estimated 150,000 informal sector workers involved in the recovery of materials from the solid waste stream.

The findings from the research study can have an important impact on how Delhi continues to manage the solid waste. The projected 23.000 annual tons is generated in the context that landfill siting is becoming much more difficult due to loss of land due to competing population growth and economic development pressures. The study's findings about the real, practical effect of the activities of the informal sector in reducing the amount of waste destined for disposal will be important to those trying to conserve landfill space.

Also, the study's findings that the informal sector's income is often greater than the formal sector's minimum wage needs to be considered in context with the millennium development goals of poverty alleviation. Also due to the large numbers of women working in this sector, it is important to their children's health and survival to have their mothers earning livelihoods.

The challenges that arise in context of the study are how to expand the analysis of GHG loading and tap into the ability to claim carbon credits. Addressing the ever looming reality of the health impacts to informal sector workers capturing the ‘value’ in the waste stream and, part of integration, how best to modernise materials separation and collection to improve the efficiency of the informal sector? And finally, how to translate findings, such as demonstrated by this study to policies and regulations that take into account the importance of the informal sector’s activities in the management of solid waste.

Michael K. Kabungo, Lusaka Waste Management Unit – Lusaka, Zambia, “Overview of MSWM Modernisation: Case of Lusaka”

A strategic decision by the formal solid waste authorities was to involve the private sector in the management of the waste, but this involvement must not increase costs for the Lusaka City Council. This decision follows on the heels of historic management approaches where the city had focused only on providing solid waste services to the city centre and areas of economic or industrial development, and letting external agents – donor-funded NGOs, take care of service to the peri-urban and poorer areas.

With the development of a formal solid waste management strategic plan, the entire city is considered to be the service area, not just the city-centre. Thus, the city is divided into waste management districts. Each district will be serviced by a private entity contracted through the City Council. The city centre is serviced through franchised contracted services and the peri-urban areas are contracted through community based enterprises (CBEs).

The criteria used to assess service in each of the waste management districts include: that service is performed adequately within the district, that the service is equally instituted across all sectors, and that there is an accounting of payments for service.

With this current study, the waste management unit must reconsider the solid waste management strategic plan. With solid waste collection having been addressed, now it is important to consider how best to recover material from the waste stream and consider the role of the informal sector in this activity. This includes how best to incorporate the informal sector collectors in the landfill operation.

Discussion:

It seems we are identifying components of modernisation. One common thread is that when we discuss modernisation it often encompasses the concepts of privatisation, outsourcing and development of new laws and regulations. And there may be a disconnect between what we at this workshop consider to be modernisation as opposed to what mayors, ministers and decision-makers think of this concept. Nevertheless, it seems clear that the concept is not well defined.

It would seem that at the basis of the modernisation efforts by the formal sector is to ‘keep the city clean’ by improving services, increasing coverage and reducing direct public sector costs and responsibilities.

At the core of this modernisation effort is not just to keep the city 'looking' clean but to work on reducing health problems associated with improper disposal of waste. Thus, the first priority of modernisation is to improve collection. Concurrently modernisation also means moving to improve final disposal through establishment of modern landfills; landfills that may exclude informal sector workers.

Although we talk about integrating workers into formal sector solid waste management activities, it may be that informal sector workers would not want to be in a situation where they were forced to comply with strict and inflexible rules. It does seem that informal sector workers have had little opportunity to provide their own perspective of what integration should mean for the informal sector.

For some city-partners, it has become evident that this study did support and re-inforce policies that have already recognised, and even integrated, the informal sector into aspects of the management of solid waste in the cities. In other cases, city-partners working on the study and analysing the results are coming to the conclusion that current solid waste planning efforts need to expand their focus, so to incorporate the informal sector, where possible. And even for those that deny the benefit of informal sector activities, this study has been critical to initiating dialogue about this sector of society.

Afternoon Session: The Informal Sector and Integration

This afternoon session delves deeper into the workings of the informal sector across different cities. By understanding the challenges facing this informal sector solid waste sector, it is hoped it is hoped that more effective strategies will evolve

Ezzat Naeim Gendy, CID – Cairo Egypt, "The Informal Sector in SWM 'The Zabbaleen' in Cairo"

The Zabbaleen migrated to Cairo in the 1950s and created an informal system of family businesses that collected door-to-door, and processed, garbage on a daily basis. Historically the Zabbaleen have been highly effective in recycling materials with an estimate of 85% recovery of materials from the garbage they have collected.

Although quite successful in managing solid waste, the workers continually risk disease and infections. And since a large percentage of the workers are women and girls who spend 12 hours a day handling materials, this segment of the informal sector is particularly at risk. In addition, the communities of the Zabbaleen are on the fringes of the city where public services are poor or non-existent. And daily these informal sector workers face the fact that many within Cairo consider them a lower class person working in a dirty business.

With the status of an informal business comes the reality that most waste processing operations are on lands that are not owned, similarly much of the Zabbaleen housing is also technically illegal squatting on state-owned lands. In addition, because their businesses are informal and they can not register with the authorities, Zabbaleen entrepreneurs are not being informed of changes in the complex laws and regulations, so that they suffer at the hands of corrupt local authorities. More importantly, since they do not have registered companies, they can not apply for credit or loans from banks.

From an operational stand point, they are hampered in maintaining effective collection of waste due to the use of trucks not suited for garbage collection and which are continually breaking down due to their age. The equipment they use for processing is well below the standards considered safe and hygienic for workers, and most of the family businesses do not abide by standards for worker health and safety either during the collection or processing of the wastes.

From our perspective modernisation necessarily needs to consider the value these workers have contributed to diverting materials from disposal; this can start with facilitating the transfer of ownership of the land to the Zabbaleen who live and work to handle the City's waste material. Concurrently, the formal solid waste management system should contract directly with the Zabbaleen, and not go through international firms and middlemen, so that they can continue their collection and processing of materials.

Finally the business of the Zabbaleen should be formally recognised so that they are kept in the loop when regulations change or new information is released that would affect the businesses or their workers. The recognition (registering) of the businesses would facilitate them accessing credit so to upgrade collection and processing systems, which would not only improve efficiency but allow for more hygienic and safer working conditions.

However, the Zabbaleen also need to change the way they handle waste and work to improve the hygienic and environmental aspects of their operations. Concurrently, the Zabbaleen need to be better organised so as: to facilitate sub-contracting of services the international companies franchised by the city; to better understand and negotiate with end-user industries; and to directly contract with the city in those areas not serviced by the formal private companies.

Dr. Aleksandra Mitrovic, Drustvo Za Unapređivanje na Romskih Nacelije - Belgrade, Serbia: "A Paper Life: Belgrade's Roma in the Underworld of Waste Scavenging and Recycling"

Dr. Mitrovic reported on a 2002-2003 study of the Roma people that collect and process solid waste in the City of Belgrade. The objectives of the study included documenting Belgrade's scavenger community's living conditions and the poverty faced, with a special focus on child labour. In addition, the authors hoped to facilitate a better understanding of the materials handling process and related economics. Finally, it was important to ascertain the risks and health hazards and the desire for improved working conditions from those who handle solid waste materials on daily basis.

This information to address the stated objectives was gathered from nine of the 152 Roma settlements in Belgrade. Focus groups were convened with over 200 men, women and children. In addition city officials were interviewed.

The Roma communities exist in extreme poverty, many of the Roma are squatters and do not own the land on which they live. Because of the temporary nature of the Roma's residences, they lack many city services: they have no sanitary facilities, limited access to clean water sources and poor ability to send their children to schools, even when this is legally required. In essence, these Roma informal sector workers are discriminated against

and socially isolated. Even while working the Roma will be harassed by police, citizens and gangs that roam the streets.

The materials targeted for collection by the Roma include: paper products, metals, clothing, organics and antiques. Collection is predominantly manual, with the use of hand-carts, animal carts and a few trucks. Although, there are also Roma (dump pickers, in the language of the study) scavenging at the dumps, many of the informal sector workers collect materials directly from the large garbage bins placed around the city by the formal sector (and would fall into the study char.

Through this system it appears that a substantial portion of the city's waste is diverted from disposal through recovery, but the exact amount has not been estimated (and it would be good to use the study methodology to do that). And a labourer can expect to make, on average, the equivalent of 100 dollars per month. However, since all the family works in this occupation, the family income may be substantially higher. Thus, parents do not encourage children to go to school, but keep them working so that they can contribute to the household income.

Recommendations for improving the livelihoods of the informal sector were generated in the focus groups as part of the study. Their own recommendations included:

- ◆ formally recognise and acknowledge the Roma's activities in handling solid waste, which would result in permits to conduct collection activities without the fear of harassment
- ◆ facilitate of access to credit and loans so to upgrade collection equipment
- ◆ institutionalise access to permanent sites to allow for processing of waste
- ◆ improve the efficiency and reduce the health hazards associated with collection by having the city set out separate bins for different types of recyclables
- ◆ provide suitable access to schools for Roma children;
- ◆ work against discrimination in school. ensure that they are not

In interviewing city officials their perspective on how to proceed was to demolish some illegal Roma settlements and leave others and concurrently build new settlements with modern infrastructure, but no informal sector waste collection would be allowed in these new settlements. The city wants to move to privatised collection and control the recycling business so to off-set costs of waste collection and disposal.

Thus, the city would also want to establish new recycling centres to which collectors could sell their recyclables. Collectors at the city dump should be hired or contracted and given protective clothing, with the objective of reducing the amount of waste destined for final disposal.

The authors' conclusions focus on activities that alleviate, not deepen poverty, and with a focus to eliminate child labour in the informal sector and provide schooling for this estimated 6.500 children who are currently collecting materials from the solid waste stream.

A parallel effort would be to legalize the Roma's property rights, improve the overall working conditions of the informal sector and build capacity so the Roma can more effectively and safely continue their recovery of recyclables without interference or harassment.

Discussion:

The debate regarding the informal sector and the abject poverty they face is more than just a focus on solid waste. Some of the workers may be there out of choice but many are there for lack of an alternative, either due to migration in from rural areas, displacement due to regional conflicts, lack of skills and education or from outright discrimination. Thus, if the focus is poverty alleviation, opportunities other than just continued work within the informal sector solid waste system needs to be considered.

However, if modernisation necessarily includes new or expanded opportunities for the informal sector, then these should be pursued, but we must be cognisant of the fact that even if the opportunity is provided, the informal sector workers may not participate in the manner projected.

At the very least the informal sector and their activities need to be recognised by the formal sector and hopefully integrated into future solid waste system policies and planning. If integration provides opportunities and the informal sector does not take advantage of what is perceived by the formal sector as preferable, we need to find alternatives so to achieve economic and social equity so to address the millennium development goals regarding poverty alleviation

Also, when we consider the informal sector, we often discuss it as a monolithic structure. It is not, street collectors are different from dump pickers; both junkshop operators and traders may have aspects of formal sector businesses.

As such any integration scenario needs to recognise these differences so that specific policies and plans have clear objectives about what and who they are targeting. And, importantly, the preferences and ideas of the Roma themselves need to be invited, heard, and paid attention to. And it is clear that some of the potential for informal sector integration is beyond the control or responsibility of local formal sector solid waste system managers. Some of these issues need to be addressed on regional and national levels. More importantly, whatever strategies that are developed include the informal sector in conceptualisation, since they are the ones that know best how to improve efficiency and sustainability of their operations.

It seems apparent that the current research by the WASTE-Skat team has come along way to document the importance of the informal sector. The necessary follow-up analysis needs to address ways that the integration scenarios can be accomplished. So that when municipal officials ask “how” do they integrate the informal sector, the documentation is there to assist them in the process.

With this in mind we must also understand the constraints under which a formal sector solid waste manager operates. They are not in the business to address the poverty issue. They are responsible for removing waste and assuring that impacts from disease and pollution are minimised. Thus, any system that is proposed that integrates the informal sector, it has to be done in a manner so that there are assurances that the activities delegated to the informal sector are accomplished and in a way that meets expectations for city cleanliness, health and the environment.

In short the municipal official necessarily needs a structured and proven approach where there is a reasonable level of accountability. This probably requires that the informal sector be organised in a fashion so there are clear lines of communication and responsibility between the municipal officials and those within the informal sector responsible for materials collection, processing and recovery. This leads to the reality that in some regards the informal sector needs to be formalised to the extent that it has an organisation that can be recognised as the representative body for the myriad of informal sector workers.

3.2.3 January 24, 2007: Day 3

Morning Session 1: Kyoto Mechanisms and Waste Management

The session focuses on mechanisms that exist under the current Kyoto protocol, which might be possible sources of funds for future solid waste management activities and integration of the informal sector. This is important in light of the initial analysis done by the WASTE-Skat team is estimating net savings in GHG loading from their scenario analysis regarding the current and future role of the informal sector.

Reka Soos, Green Partners - Cluj-Napoca, Romania, "Kyoto Mechanisms Romania"

Ms. Soos provided examples of her organisation's activities in the development of Joint Implementation mechanisms (JI) under the Kyoto accord. Specifically, the focus of her activities were in regards to landfill gas extraction in Romania that created 1.6 million credits.

Romania became a ratified signatory of Kyoto in 2001. Since that time they have been JI projects associated with the cement industry, landfill gas extraction, biomass plants and energy efficiency implementation strategies.

The reason landfills are becoming the focus is in part the result of Romania joining the EU, which requires that all solid waste disposal facilities meet a minimum EU standard for siting and operation. For Romania this means that most of the current landfills need to be closed, but most local authorities lack the funds to meet this requirement.

This move to 'modernising' the landfills creates a real challenge over the short term, but this also means that the local dumps will continue to receive hazardous and medical wastes without the design to safeguard the local environments. But it also means that transportation of materials to the now illegal disposal site will remain relatively short and there will not be high tariffs (disposal fees) applied as one would see at a state-of-the-art regional landfill.

There is a willingness for additional JI efforts but there are challenges, such as the fact the buyers of credits want minimal risk exposure so there is no up-front investment in projects that will create the credits. In addition, many do not understand the potential of JI as it applies to the solid waste stream.

When approaching landfill gas extraction (LFG) it is necessary to show 'additionality'. In other words, it must be shown that the avoidance of GHG loadings are above and beyond what should happen under current laws and regulations passed in Romania. Secondly,

although it is required that a JI does consider other aspects, such as social and alleviation of poverty, these do not directly impact the carbon credits that may be accrued.

If a JI was part of an integration scenario associated with the modernisation of a Romanian city's solid waste management strategy, than it would be necessary to clearly account for and monetise GHG emission reductions from integrating the informal sector's activity into formal solid waste implementation. But this would also need to be framed in such a way that it is clear that these emission savings would not be realised without such an integration effort, to meet the additionality criteria.

A related challenge is to develop a clear methodology that would be transparent enough to understand how one would account for the GHG gas emission avoidance (certified emission reduction) as it was happening since GHG credits are only recognised after implementation of the JI. Finally, one needs to be aware of the up-front project development costs not only related to the proposed JI strategy but also for actual implementation. Thus, there must be funds available, either through the public sector or from credit sources to allow the project to move forward.

Christian Zurbrugge, Sandec/Eawag – Dübendorf, Switzerland, “Opportunities for Composting With CDM – Small Scale Project”

A Clean Development Mechanism (CDM) under Kyoto was designed to make it easier and cheaper for industrialized nations (Annex B countries) to meet GHG emission reductions targets by allowing Annex B countries to implement emission reduction projects in developing countries and receive certified emission reductions (CERs) to use against their own national GHG reduction targets. As the result of instituting a CDM, money flows to those non-Annex B countries to support sustainable development efforts.

CDMs fall under large and small scale as well as afforestation/deforestation. Historical CDMs have predominantly been renewable energy projects (47%) followed by waste handling and disposal (24%). The remainders have been associated with reduction of fugitive emissions, improvement in manufacturing, alternative chemical use, and/or afforestation/reforestation efforts.

Small scale projects are rated by how much emission reduction is expected. Small scale composting projects fall under Type III, small scale CDMs where emission reduction amounts are less than kilo tonnes CO₂ equivalent annually. For such projects, the project design documents are somewhat simplified; however, one must still be able to show 'additionality' (GHG emissions above what is to be expected as 'business-as-usual' from a baseline condition and have a transparent mechanism for accounting – see previous presentation).

For composting the approach would be to ascertain GHG loadings from composting and proper soil incorporation as opposed to having the material decompose anaerobically in a landfill with resulting methane production. Thus, the project developer would need to show each year that such biological treatment of waste through composting and land application has successfully been completed.

Since the cost of creating a CDM for a single small scale mechanism requires a disproportionate amount of up-front costs, under the Type III CDMs, one can ‘bundle’ multiple, decentralized projects under one CDM proposal, thus allowing for a more rapid return in the money expended developing such a CDM approach.

If one were to consider composting as a component of an integrated approach to solid waste management then they need to be wary of the high transaction costs, the time-consuming administrative process, and the need to continually monitor and justify the additionality of the emissions reductions.

Discussion:

The question is raised what can CWG do to advance the possibilities of CDMs that may be part of a modernisation theme but provides funds for the informal sector. It seems evident that neither the informal sector itself, nor the NGOs that advocate for the informal sector, are or will be in a position to propose a CDM, especially since any flow of funds occurs after the establishment of a project, with no funds for project development.

The scale of LFG projects seems a viable alternative but it is up to local municipalities and the national government to move this agenda forward. Thus, it may be that CWG focuses on the small CDMs that lend themselves to decentralisation and ‘bundled’ proposals. The question becomes how to forward the agenda. Does CWG advocate for specific CDM approach that helps the informal sector so the approach is accepted by the official ‘methodology panel’, which, in turn, allows all future requests focusing on similar CDM approach to be streamlined and results in lower proposal development costs?

Then there is the issue that Kyoto goes only to 2012. There is a greater risk now for initiating a CDM, where payment for carbon credits may or may not be realized after 2012. Many are optimistic that Kyoto will be extended, but it is not assured.

Morning Session 2: Focus on the Future

The second session of this morning was to determine how best to approach local and national authorities so to inform and advocate for policies that would improve the livelihood and well-being of the informal sector workers. More specifically, it is important to consider how to frame integration scenarios that will both meet solid waste management objectives and millennium development goals.

Bharati Chaturvedi, Chintan – Delhi, India, “From Beast to Beauty: Pushing for Policy Shifts for the Informal Sector”

In order for one to positively intervene and advocate for the informal sector we must understand the drivers behind those that set policy at the national, regional and local level. At the outset, the authorities are looking for solid waste management alternatives that can handle the large volumes of materials generated and do it efficiently. Although poverty alleviation is a concern of the State, it is not necessarily the focus of those responsible for waste management, thus we need to look for and use those ‘hooks’ that the government

ascertain as indicators of progress (and sustainability) and approach them in such a way that benefits the informal sector workers.

When we are presented with an opportunity to communicate with these decision makers about integrating the informal sector, the strategy should be built upon concrete solutions that can be first applied in limited fashion so to minimise the risk perceived by the formal sector. These implementation approaches should start with relatively simple approaches, but also should be chosen because of potentially being 'high-profile'. Thus, start with a small scale 'pilot' approach, where the process can be well documented and which would necessarily include an economic analysis. Concurrently, the local authorities should be kept well informed and whenever possible, should be given credit for successes. In this way success will spawn expansion of a sound approach.

Other strategies that can enhance the implementation of integrated solutions that benefit the informal sector would be to have documentation of successful implementation strategies from other areas. Also, creating and maintaining peer networks that provide an avenue for continual exchange of ideas, technological approaches and successes. And then there is a need to deliver this type of information to those who set policy and oversee implementation. Finally, pro-active campaigns are needed to continually educate all stakeholders and policy-makers that waste is not a nuisance but an opportunity for a more sustainable society.

Such messages need to be simple, broadcasted widely and told often. The CWG should tap into already existing organisations, students and student groups and even informal sector waste recyclers themselves, so that the information expands beyond the traditional lines of communication about waste management.

Sonia Dias, Federal University of Minas Gerais – Belo Horizonte, Brazil, "Social Support Activities in Brazil –An Overview of 15 Years of Social Mobilisation for Social Inclusion in SWM and Its Impacts on Public Policy"

The question for all at this workshop is to determine what future we want for the informal sector and solid waste management, itself. Do we want to support unhealthy conditions of collection and processing or do we look to a combination of labour and technology to improve the livelihoods of the workers.

'Social Mobilisation' is critical to the successful transition or integration of the informal sector. Such a social movement is built upon a ethical foundation that targets the social and environmental degradation associated with past solid waste management practices.

This approach was quite effective in Brazil, and began with a campaign to remove children from working in the informal solid waste sector, which began with a variety of demonstration projects where waste management organised waste pickers and established partnerships with the picker/s associations. This was coupled with a UNICEF pilot to remove children from working in the open dumps. These projects lead to a formalised "Waste & Citizenship Programme" and then to a national level "Waste & Citizenship Forum".

The components of this social mobilisation campaign necessarily required simple and effective communication, organisation of stakeholders, building stakeholder capacity and tapping into cultural events and celebrations to reach out to the general public. For the first time, the informal sector was being recognised and studied by formal sector institutions.

As a result, both at the local and national levels the organised waste pickers were given a voice and this was followed by funding from the federal government to support the effort to stop child labour of within the informal sector solid waste system. One started to see pressure applied by from the national level to local authorities to address this issue.

Concurrent efforts occurred that allowed the waste pickers a voice in national policy strategies. Appropriate technology research was done to improve the efficiency and safety of the pickers' occupation. A loan fund was created by the Brazilian Bank for Economic and Social development for pickers' cooperatives to access credit for improvement in equipment, purchase of processing and storage space and accessing professional technical assistance. At the state level a financial incentive was provided to local officials that showed support for pickers' associations to develop alternative means of income with the closing of open dumps.

These efforts supporting the informal sector were given a lot of publicity, with even the President being seen as supporting the informal sector by launching the Social Fund. The results of these efforts can be reflected in the fact that now 44% of existing recycling programs are engaged in some sort of partnership with pickers.

Lessons learned from the effort in Brazil that may apply to other places include:

1. the importance organising the informal sector so that they become empowered and speak for themselves;
2. the creation of a national mobilisation campaign in ethical terms about the informal sector and the benefits they provide
3. the use of all possible opportunities to interface with government, civil organisations and the private sector to understand the common ground on where one should put their efforts.

Finally, whatever approach is taken to bettering the informal sector's situation needs to also be economically sound so that the services they can provide to and with the formal sector are shown to be a better alternative and also that they reduce overall costs. But the economic realities need to go hand-in-hand with a social strategy that addresses long-held cultural biases that have socially excluded this segment of society.

Rueben Lifuka, Riverine Development Associates – Lusaka, Zambia, "Focus on Future Privatisation"

From the study it does appear that 'modernisation' in solid waste management shows a push towards privatisation. The drivers for privatisation are varied, ranging from the desire to reduce city-wide health and environmental impacts to external political pressures and availability of funds. And social considerations, such as poverty reduction, are not usually part of the decision-making.

It seems that there are some successes and some disasters in attempting to privatise solid waste and recycling activities. Many feel that monopolistic single-provider privatisation is preferred, but we have heard of examples where this has not worked and the system reverts back to dependence on informal sector workers to provide specific services. And we need to consider whether the motivation behind the push towards privatisation is to privatise the waste collection systems or is it really a move to privatise the waste?

Moving forward, the integration of the informal sector in cities will definitely require a new approach to privatisation. Complete integration of the informal sector is not feasible. This is not to say that cities should change from a privatisation track, but how privatisation proceeds should look for all the opportunities to integrate the informal sector. Such integration needs to be shown to be economically viable and politically acceptable.

The challenge in changing the concept 'modernisation' is reaching those who not only are responsible for waste management but those who are focusing upon poverty alleviation. These issues need to be linked and reflected in policy tools as laws, tax incentives, and related initiatives. And a necessary condition to develop viable approaches to integrate the informal sector is to include the informal sector in the formal sector's efforts in regards to assess, research, design and implement solid waste, organics management, and recycling systems.

Thus, we might rephrase the integration of the informal sector into modernisation efforts as SMART modernisation.

Discussion:

There were discussions from the participants around what makes a cooperative work. In Brazil, the formal sector actually contracts with cooperatives as service provider. But in order for a sustainable relationship there needs to be some set of benchmarks or indicators established that judge performance, because without this the formal sector may not want to participate; there are cooperatives with whom it has been difficult to work because these indicators are not in place or readily available.

The sustainability of this type of integration depends on a commitment at all levels, but driven – or at the very least supported and endorsed – by a commitment at the highest political and commercial levels. Using emotive messages and playing to ethical concerns was effective in engendering political support in Brazil. If it is not child issues, then maybe you raise public outcry through abject poverty or human health concerns and link this directly to the informal sector solid waste workers. It is not clear that is transferable to other situations. One lesson learned here is that a sustainable approach to integrating the informal sector can not be addressed just at the municipal level.

It does seem that organisation of the informal sector may be a necessary condition to moving towards sustainable integration. As part of this organisation the informal sector is asked to be willing to work with the formal sector and focus on where new arrangements can be instituted, but this may require outside stakeholders, such as NGOs, public sector concerns or even private companies to help facilitate the building of organisational and managerial capacity within the informal sector.

However, one needs to be wary of how 'formalised' one can expect the informal sector to be come. We do see that those that are literate seem to become the ones involved in

developing a organisational structure, but it may disenfranchise other pickers and lose out on valuable contributions that these individuals could make to an integrated strategy. And one should look beyond legal contractual relationships as the means for integration. A simple financial relationship, allowing for access points for materials delivery may be a workable alternative, similar to what we heard from Mr. Veres from Cluj. Also, there are other structures besides legal ones in which to frame an integrated scenario. In Africa (as WASTE has done with its partners in Mali), one might look at the existing tribal structures of traditional authority as a basis for integration.

But it does seem clear from what heard about Brazil and the lessons learned in other areas is that the informal sector need to build their own capacity and actively participate in decisions that will impact them and their families. Without this participation, coupled with truly understanding what is driving the formal sector's decisions about modernisation, decisions will be made that by-pass the informal sector solid waste worker, as we have seen with the Zabbaleen in Cairo. It must be remembered that policy formation is not a very systematic process but rather a dynamic process that balances competing – often directly conflicting – interests. Thus, it can be influenced by advocacy and public education campaigns.

Afternoon Session: Focus on Development Cooperation and Intervention

This session pursues the inquiry of what can the results of the WASTE-Skat study provide donors and development organisations? A corollary question is how best to use the results of this analysis for subsequent efforts to enhance the status of the informal sector solid waste worker? Finally how can these findings move the millennium development goals (MDG) forward?

Dr. Günther Wehenpohl, GTZ – Eschborn, Germany, “German Development cooperation In Solid Waste Management”

Solid waste management activities are key to meeting the MDGs because of the linkage to health improvement by better management of wastes, poverty alleviation through the potential of job creation and environmental sustainability by maximising materials recovery and minimising disposal.

The German Development Cooperation consists of two aspects, the KFW Development Bank that assists through financing projects and projected related advisory services and GTZ (German Technical Cooperation) through which support is given for capacity development and training.

KFW's financing goals are to improve the economic and social situation of people in developing countries through the reduction of poverty, protection of natural resources and to the maintenance of peace in the region. The specific areas of activities include development of social and economic infrastructure, creation and improvement of financing systems and the protection of natural resources. By 2005, KFW had committed 263 million Euros towards 24 waste management projects in 12 project countries.

The budget for GTZ projects is approximately one billion Euros per year supporting 10,000 employees worldwide that work on 2,700 on-going projects in 130 partner countries. By 2005 GTZ had 26 ongoing waste management projects that provided both political advice and focused on institution building.

The GTZ principles that apply to all of their projects include that a GTZ project is never a substitution for a country's legislative, technical or financial structures,; rather the projects utilize and build upon what is already in place. Also any bilateral cooperation needs to include a planning, implementation and assessment components, so that successes can be built upon. And all such cooperation projects apply or adapt practical and proven approaches to the challenges that arise.

In regards to GTZ waste projects, GTZ promotes separation, recycling, proper disposal and then landfill gas recovery. In such projects that look to an integrated solution, this means addressing the technical aspects of collection transfer recover and disposal, combined with the non-technical aspects as political acceptability, economic viability and increased awareness regarding the beneficial role of the informal sector. This is all within the context of ensuring solutions that both build stakeholder capacity and minimise environmental impacts.

In summary, it is clear that any solid waste management activity needs to follow the recycling hierarchy. Attempts to integrate the informal sector solid waste workers and International Cooperation aid can promote, accelerate and contribute to sound environmental solid waste management solutions. This can be done in a number of different ways from institution creation and stakeholder capacity building to technical advice, financial support and education.

Dr. Mansoor Ali, The Schumacher Centre – Warwickshire, England, “The UK Department of International Development”

Under the theme of ‘urbanisation’ the British Department of International Development (DFID) has had a number of applied research projects focusing on solid waste management. The flow of funds from DFID goes to specific country offices that begin with funding small projects that then are built upon to institute large scale projects.

The funding of DFID projects has increased 250% between 2000 and 2006 with a focus on water and sanitation issues. The type of projects funded are the larger programs either managed by a consortium or a research centre. These projects are framed by the overall mission of economic growth and good governance. It is felt that economic growth creates additional resources and that good governance ensures equitable distribution of these resources.

A recent policy commitment by DFID is focusing on governance that works for the poor. This effort is focusing on national policy to enhance transparency, especially as they address the challenges in regards to climate change. In regards to solid waste management the possibilities are that governance and economic growth can be approached from this perspective utilising already existing resource centres with whom DFID work and/or working directly through DFID offices.

Discussion:

It seems that one can go to a development agency to both address solid waste management and poverty alleviation, where others may only focus upon one or the other aspect but not both. For example, Oxfam focusing in the causes behind poverty and because they have high visibility, it may be a good place to move the informal sector agenda forward.

But there also seems to be a move in the international development community away from small projects. This was seen with DFID and even the Dutch government through DGIS. It is a reality due to limited resources, and what were formerly staff funds are now being allocated to multilateral organisations and directly to partner countries.

It is important to understand what the international development agency sees as priorities, and realize that these priorities are established as the result of politics, not through a systematic needs assessment. In what we heard today waste management is not a priority for many development agencies.

With this said, once such priorities are understood, then one can frame potential projects in manner that match such prioritisation. And even if waste management is not a direct priority, other issues as health, education, etc. can be the linkage in which to leverage such aid. Most importantly, at this juncture if you can relate your activities to the MDGs and publicize it as such, you have a better chance of attracting the attention of national government policymakers who are making decisions of how to expend aid through their partnerships with international development agencies.

If the result of this meeting is to further the plight of the informal sector due to modernisation, then in order to grab the attention of potential donors and development agencies, one should use the media because this has an enormous impact on the politicians that drive priorities. Using the popular press, not the juried journals, is the most effective way to move an agenda forward.

3.3 Conclusions

Although many new and interesting thoughts, ideas and strategies were put forward during the workshop there are some central themes that seemed to be revisited throughout the three days. This section touches upon some of these conclusions.

3.3.1 Research Results

It is clear that the research project overseen by the WASTE-Skat team in partnership with the city researchers was a monumental undertaking considering the timeline for completion. The results are an important landmark on how to approach the valuation of the activities of the informal sector solid waste sector. It is clear that the process flow diagramming combined with a materials mass balance allowed the city partners to grasp the structure and flow of materials from generation through recovery and disposal. It also emphasised the many places that the formal and informal sector waste management activities already intersect.

The development of an addition and subtraction scenario analysis provided an opportunity for the researchers to interact with local authorities and internalise them in the process of strategically thinking how the informal sector might be integrated into future solid waste

management activities. This being said, the process seemed as important as the results. The capacity built in the six cities will allow further refinement and expansion of this analytical approach. In fact, in many of the cities, there are already initiatives underway, outside the current research effort, to utilize the modelling approach so to expand the analysis to specific items in the waste stream or expanding the analysis to new communities.

However, it is also clear that the approach still has its challenges in that it is somewhat cumbersome and there are still some unresolved issues regarding treatment of costs for the formal versus the informal sector activities. In addition, the environmental and socio-economic analyses were a good beginning but before they can have significant impact on influencing decision-makers, there needs to be refinement and improvement.

The question was asked in how best to use the results of the study to expand the understanding of the economic benefits the informal sector provide society. It is clear that in its current form, the research report is too dense and long to be used as an education/advocacy vehicle. Thus, there needs to be developed much more concise statements of the results that target different audiences, from local solid waste authorities to national policy managers, as well as international development and aid agencies.

3.3.2 The Status of the Informal Sector

There seems to be some commonality in how the informal sector is generally viewed across many cities and that is they are marginalized and often socially ostracised. This may take the form of corrupt officials and harassment on the street from police and citizens to outright denial that this sector provides a service to the city and society.

On the other hand there are examples where the informal sector's activities have been recognised as beneficial and partnerships have been developed that allow the informal sector to assist the formal sector in the management of solid waste. This recognition ranges from informal financial arrangements with municipalities and private sector entities to institutional changes as changes in laws and creation of loan funds that allow for the informal sector to improve their situation.

It is also apparent that the informal sector is not a monolithic mass. Street collectors are different from dump scavengers and junkshop operators and traders may have aspects of formal sector businesses. Thus, strategies to improve the informal sector's situation need to be varied and targeted.

3.3.3 Modernisation and Integration

Components of modernisation have been touched upon but it is not a clearly defined concept. It does appear that when the formal sector considers modernisation it often encompasses the concepts of 'privatisation', outsourcing and development of new laws and regulations.

For the formal sector, the first priority of modernisation is to improve collection. Concurrently modernisation also means moving to improve final disposal through establishment of modern landfills, landfills that may exclude informal sector workers.

Sustainable modernisation will necessarily include some degree of integrating the informal sector activities into formal sector planning and implementation. For this to happen, at the very least, the informal sector and their activities must first be recognised as having value by the formal sector.

With this in mind, we must also understand the constraints under which a formal sector solid waste manager operates. They are not in the business to address the poverty issue. They are responsible for removing waste and assuring that impacts from disease and pollution are minimised. Thus, any system that is proposed that integrates the informal sector, it has to be done in a manner so that there are assurances that the activities delegated to these workers are accomplished.

There needs to be further study into what and why the informal sector does what it does so that any integration approaches conceived by the formal sector will result in the desired participation and improvement of the informal sector. But it should also be realized that any formal sector integration plan necessarily requires the input of the informal sector themselves into the development of the strategy.

It does seem where there have been great strides in recognising and integrating the informal sector solid waste workers that an effort was made to organise these workers. The cooperatives and organisations that formed provided a point of contact between the formal and informal sector activities. In some cases the existence of informal sector worker organisation allowed contractual partnerships to develop and in all cases it raised the visibility of this sector. And there are examples where the empowerment and associated public voice of such organisations resulted in institutional changes that improved the livelihoods of all informal sector workers.

3.3.4 Outside Aid

It does seem clear that waste management is not a priority of many of the international development agencies. Currently, the millennium development goals (MDG) are a priority for both international development agencies and their partner countries. Thus, one should consider framing any proposals within this context. So even if waste management is not a direct priority, other issues as health, poverty alleviation and protection of natural resources can be the linkage in which to leverage such aid.

Also in certain contexts there may be a way to develop an integration approach that allows for the development of a clean development mechanism (CDM) under the Kyoto accord. But there are a number of challenges of instituting a CDM that necessarily includes the informal sector. A major concern is that Kyoto goes only to 2012. Thus, there is a greater risk now for initiating a CDM, where payment for carbon credits may or may not be realized after 2012. Many are optimistic that Kyoto will be extended, but it is not assured.

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