

INCLUSION OF WASTE PICKERS INTO NATIONAL AND LOCAL GOVERNMENT PLANS

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Abstract

NPO Asiye eTafuleni (AeT) was commissioned by eThekweni Municipality's Imagine Durban Project to implement a pilot project to test ways of improving the livelihoods of existing waste pickers operating in Durban, South Africa. By referring to this case study, this paper will expound upon the critical opportunities accrued by the inclusion of waste pickers into national and local government plans. The pilot project focussed on cardboard recycling which is one of the major recycling activities in the inner city.

A major objective of the research was to understand the existing recycling chains in the inner city, including a survey of the socio-economic backgrounds and situational analyses of waste pickers. The process commenced with desktop research and one-on-one interviews with a range of stakeholders in the sector identified through the prior institutional experience of the founders of AeT and snowballing method. Thereafter, two specific groups were identified as case study participants, and AeT engaged in action-research through practical work experience and observation studies with the waste pickers in their working environments. This was aimed at informing design interventions developed alongside waste pickers. This consequently led to testing custom-made trolleys and a range of other strategies in response to the identified needs of the waste pickers.

The government's green economy strategy is intended to support decent jobs which could be achieved through the inclusion of all forms of recycling. This project has contributed to a better understanding of the role of informality and the integrated urban management needs within the recycling sector. The key elements for advancing this approach would be a clear national policy and implementation strategy, the integration of waste pickers in specific local government programmes, specifically in the provision of enabling urban infrastructure and equipment to enhance their contributions, and lastly multifaceted partnerships between government, private sector and waste pickers.

Keywords: waste pickers, informality, waste management, action-research, green economy, recycling

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Introduction

The paper will begin by setting the context in terms of the urban challenges posed by informality, the role of waste picking in climate change mitigation and as a green economy strategy, the size and characteristics of waste pickers globally and locally, and the prior research findings of the developmental needs of the sector. The next section will elaborate on the theoretical framework that underpins AeT's responses in development research and implementation within the realm of informality. The following section will relate the research methodologies used, particularly the action-research method which primarily drives AeT's research approach and implementation strategies. Thereafter, the project findings will be presented, including the challenges faced by the specific waste picking sector, the project responses and results of the interventions that have been tested by the participants including the general project learnings. The paper will then conclude with a summary of the project findings and its implications on the role of various stakeholders, particularly within government.

The Urban Challenge of Informality

The context of informality and its developmental needs is widely considered an emotive and challenging field. Rapid urbanization combined with growing informality is a global phenomenon, as public spaces have become new places of work for informal livelihoods². Consequently, this urban influx has raised new challenges for not only urban authorities, but also for informal workers³. Research has revealed that state responses to informal workers form a continuum; ranging from sustained or sporadic event-driven violent evictions, lower level on-going harassment by enforcement officials, and finally to minimal examples of inclusive approaches⁴. Therefore, cities and towns worldwide are challenged with the issue of developing a consistent approach to the informal economy.

Skinner (2008) and Chen *et al.* (2001) add that, informal workers largely remain excluded from mainstream processes such as government planning, allocation of budgets for infrastructure, economic development and social support. This is partly attributable to informal workers operating from the public domain which is often contested, with little or no 'claim' to the space that they occupy. Therefore currently, informal workers are largely disempowered with a lack of voice, visibility and validity. Emerging research is emphasizing a definitive challenge in shifting perceptions towards creative and alternative urban

² UN Habitat. 2004. "Urban Land for All", United Nations Human Settlements Programme, <http://www.unhabitat.org/pmss/listItemDetails.aspx?publicationID=1706>.

³ Chen, M., Jhabvala, R. and Lund, F. 2001. "Supporting Workers in the Informal Economy: A Policy Framework", Paper Prepared for ILO Task Force on the Informal Economy, 1-61.

⁴ Skinner, C. 2008. "Street Trade in Africa: A Review", Working Paper No 51 (April), ISBN 978-1-86840-662-3.

configurations practiced by spatial planners and urban managers, particularly to accommodate the diverse realities of all citizens⁵.

The informal economy of Durban, as elsewhere in South Africa experienced rapid growth particularly since the end of Apartheid. This is largely associated with the high unemployment rates which have forced people into informal activities with lower barriers to entry and limited capital requirements in order to meet their basic needs. Waste picking has been one such activity, and its particular significance will be discussed in the next section.

The Role of Waste Picking in Climate Change Mitigation and a Pillar in the Green Economy Strategy

As South Africa commits to addressing the realities of depleting natural resources, one of the most critical environmental and economic strategies will be waste management. The National Waste Management Strategy has given local governments a clear mandate to divert as many recyclables out of landfills, and recycling is seen as a key industry in the much-discussed green economy.

In South Africa, recycling is said to be a relatively young industry which experienced a major expansion after 2000⁶. The two types of waste consistently most recycled in the period between 1990 and 2004 are cans and paper (including cardboard) as shown in Figure 1 below. This type of recycling is based on a demand-market system, and has been operated by both the formal and informal sectors. Furthermore, recycling paper and cardboard is an important element of the domestic paper-making industry, being less expensive than processing virgin tree fibre⁷. Each tonne of paper recycled saves seventeen trees with three square meters of landfill space being spared. However, only 52% of paper and cardboard is being recycled that can be recycled annually.

⁵ Dobson, R. and Skinner, C. 2009. Working in Warwick: Including Street Traders in Urban Plans. Durban: University of KwaZulu-Natal, School of Development Studies.

⁶ Ralfe, K. 2007. The Waste Pickers of Durban: A Case study of Three Buyback Centres. Submitted for the requirements of the degree of Master of Town and Regional Planning, School of Architecture Planning and Housing, University of KwaZulu-Natal.

⁷ Maia, J.; Giordano, T.; Kelder, N.; Bardien, G.; Bodibe, M.; Du Plooy, P.; Jafta, X.; Jarvis, D.; Kruger-Cloete, E.; Kuhn, G.; Lepelle, R.; Makaulule, L.; Mosoma, K.; Neoh, S.; Netshitomboni, N.; Ngozo, T.; Swanepoel, J. 2011. "Green Jobs: An Estimate of the Direct Employment Potential of a Greening South African Economy", Industrial Development Corporation, Development Bank of Southern Africa, Trade and Industrial Policy Strategies.

Waste	Percentage of waste recycled					
	1990	1992	1994	1996	1998	2004
Paper	29.0	28.4	38.0	38.0	38.0	52.0
Cans	21.0	26.3	29.9	51.0	67.0	85.0
Plastics	11.0	14.8	17.0	17.0	12.0	14.0
Glass	14.0	22.4	19.4	17.6	20.8	22.0

Figure 1: Recycling Statistics for South Africa (Ralfe, 2007 cites DEAT 2005: 15)

Therefore recycling is an industry that has been growing worldwide at a rapid pace, due to diminishing environmental resources⁸. Adding that in developing country contexts, a lively informal sector has emerged around this industry. Waste picking, as a low-technology activity with minimal carbon emissions, plays a critical role towards environmental, social and economic sustainability. In the first instance, the environment benefits when waste pickers divert a significant quantity of materials from the waste stream⁹. Furthermore, recycling decreases the virgin materials needed for production, thus contributing to the conservation of natural resources and energy while reducing air and water pollution. In addition, recovery of recyclable materials contributes to the reduction of greenhouse gases (GHG) and to the mitigation of climate change.

Other benefits include improvements in public health and sanitation where waste pickers remove waste from urban areas not served by municipal waste collection¹⁰. Furthermore, municipal expenses can be reduced through the informal subsidization of solid waste management systems. In many cities, waste pickers supply the only form of waste collection. A 2010 UN Habitat report says that waste pickers perform between 50-100% of all on-going waste collection in most cities in developing countries and at no cost to the city budget¹¹. Last but not least, waste picking serves as a prime example of a green job with low-levels of entry to the most marginalised individuals in society, particularly women, without needing particular education levels, skills or start-up capital. In South Africa, it was estimated that between 36 960 and 131 130 persons were employed directly within the recycling industry in 2007, and economic projections until 2015 indicate that 190 000 job opportunities could be sustained, some 90% of which would be in unskilled employment – largely in the collecting segment¹².

⁸ *Ibid.*

⁹ Women in the Informal Economy: Globalising & Organising (WIEGO). “Waste Pickers”, <http://wiego.org/informal-economy/occupational-groups/waste-pickers>.

¹⁰ *Ibid.*

¹¹ *Ibid.*

¹² Maia *et al.* 2011. See⁷ for full reference.

The Size and Characteristics of Waste pickers

Based on case-studies, the industry is be multi-layered in which materials pass through several hands before finally reaching the formal sector recycling companies¹³. Unsurprisingly, at the bottom of the recycling hierarchy are waste pickers. The characteristics of this group are that they may collect household waste from the kerbsides, commercial and industrial waste from refuse areas, or litter from streets. Some live and work on municipal landfill sites, as many as 20,000 people in Kolkata, India and 15,000 in Mexico City, Mexico¹⁴. Other waste pickers work as sorters in recycling warehouses or as processors in recycling plants owned by membership-based organizations.

Although there is little reliable statistical information on the size of the waste picking sector at global and national levels, some estimates say that there are over 15 million waste pickers worldwide¹⁵. Brazil is reportedly the only nation that systematically captures and reports official statistical data on waste pickers. This is largely because waste pickers are mobile and their population can fluctuate by season. Further to this, waste pickers often face low social status due to the nature of their work from difficult working and living conditions, and which is prejudiced as undignified. On this, research reveals that relationships with the local municipal authorities and generators of waste (businesses and citizens) are largely indifferent, with limited contact. For instance, qualitative research shows that waste pickers in Durban feel that they are not recognized, and that they consider themselves somehow “frowned upon by local authorities”¹⁶. Waste pickers from India and Latin American countries have been organizing themselves in established cooperative structures and unions and have been successfully lobbying for the recognition of waste pickers as significant drivers of recycling and within policies. However, in South Africa which was affirmed through research and the pilot project, waste pickers predominantly operate in a highly individualistic manner, further marginalizing them in terms of voice, visibility and validity of their work.

Locally, waste picking is said to be an activity within the informal sector which is more easily entered into unlike the more common activity of street trading in Durban¹⁷. This is because virtually no start-up capital, equipment or space is required, and due to the flexibility of working hours as waste picking can commence at any time, which are then taken to one of the buyback centres managed by Durban Solid Waste, the numerous scrap dealers, or collected from specific points of collection by “middle-agents” in order to exchange the

¹³ Ralfe, K. 2007. See⁶ for full reference.

¹⁴ Women in the Informal Economy: Globalising & Organising (WIEGO). “Waste Pickers”, <http://wiego.org/informal-economy/occupational-groups/waste-pickers>.

¹⁵ *Ibid.*

¹⁶ *Ibid.*

¹⁷ Ralfe, K. 2007. See⁶ for full reference.

material for money. There is a large community of waste pickers, approximately 500, operating from Durban Central and the inner city surrounds in particular, and who collect a range of recyclable goods such as metal, cardboard, paper and plastic. However, the largest waste supply is in the form of paper and cardboard largely generated by the central business district (CBD) and mixed commercial and residential zones which have enabled the waste picking sector to thrive. Asiye eTafuleni's (AeT) research has revealed that an average of 150 tonnes of paper and cardboard is collected per day by waste pickers from the Durban Central area. Although this supply has been somewhat restricted with the recent introduction of formal recycling collection systems in residential areas, most commercial businesses in the CBD in particular, rely on the services of waste pickers to remove their recyclable waste.

Prior Research: Development Needs of the Waste Picking Sector

Prior research on waste pickers in Durban's CBD revealed that those that owned trolleys were mostly men and earned more despite working fewer days¹⁸. The trolleys also enabled the men to collect more lucrative items such as scrap metal. Other collectors, mostly women, sell to "middle-agents" that pick up the material from them. Furthermore, the women were more likely to transport the recyclable materials on their heads. However, cardboard recycling is one of the easier waste recyclable sectors for women in particular to enter, because of its relative ease of handling, transport and its high market value in Durban.

Inspired by waste picker unions and interest groups' elsewhere in the world, at South Africa's first national waste picker meeting in July 2009, a number of needs for this sector were identified¹⁹. Firstly, protective clothing to address the associated health risks of waste picking. Secondly, strategies to ensure that the exploitative practices of "middle-men" are permanently eliminated. Thirdly, collective organization was identified as key to achieve the above objectives, including the need to convince other waste-pickers of the benefits of organizing. This is because organising waste workers has multiple benefits, such as; lobbying for the improvement of working conditions and social protection schemes, improving relations with neighborhoods and local businesses and subsequently gaining better access to waste at source which could enhance working hours, to name some. However, it was added that organisational models vary depending on the particular groups' interests; for example, groups interested in negotiating collective rights form unions, and those interested in delivering services form cooperatives or companies. These precedents

¹⁸ McLean, M. 2000. "A Personal Profile of Some of the Informal Collectors in Central Durban – A Case Study", *Society in Transition*, 31(1), 1-9. Cited in Ralfe, 2007.

¹⁹ Samson, M. 2009. *Refusing to be Cast Aside: Waste Pickers Organising around the World, Women in Informal Employment: Globalising and Organising (WIEGO)*, Cambridge.

informed some of the development innovation that were co-developed and tested by AeT and the waste picker participants of the pilot project.

Theoretical Framework: The Inclusive Cities Theory of Change

This section will elaborate the theoretical framework which has underpinned AeT's approach and responses to the pilot project. In spite of the significant benefits waste pickers have on the environment, society and the economy, they continue to suffer poor working conditions without recognition. In addition, the majority of waste pickers worldwide do not have access to government social protection schemes. However, membership-based organizations of waste pickers and other progressive entities, particularly in India and Latin American countries, are helping cities recognize the vital role waste pickers play, and encouraging authorities to design more progressive policies. Cities like Belo Horizonte in Brazil, Lima in Peru and Pune in India are developing policies that integrate waste pickers into selective waste collection systems²⁰. As several case-study examples reveal the emerging synergy between formal and informal recycling sectors, and with local government.

AeT as a partner in the international network, the 'Inclusive Cities'²¹ project, with the collective vision of advocating and assimilating inclusive urban development, is driven by the ethos of interventionism that leads to increased voice, visibility and validity for informal workers. This is to ensure that city planning is fair in its inclusion of informal livelihoods, city governance processes are representative of the voices and needs of informal workers, city services are accessible and that the city environment is sustainable to the benefit of informal workers equally as to all citizens; as illustrated below in Figure 2.

The unique energy which AeT brings to this framework and the informal economy is to address the deficit of creative and alternative approaches to urban design and planning responses. This is founded on the progressive Warwick Junction Urban Renewal Project which is one of the most significant city government examples of infrastructure provision for informal workers: in terms of scale, level of capital investment and length of time which this was sustained²². AeT's long-term experience has confirmed that the provision of appropriate and enabling infrastructure decisively alters the development trajectory to the benefit of informal workers utilizing public space. Secondly, enhanced benefits are derived from committed efforts to seek maximum inclusivity both in developmental processes and implementation. This has contributed to establishing an innovative developmental approach supporting the resilience of informal workers. Consequently, informal workers are

²⁰ Women in the Informal Economy: Globalising & Organising (WIEGO). "Waste Pickers", <http://wiego.org/informal-economy/occupational-groups/waste-pickers>.

²¹ www.inclusivecities.org

²² Dobson, R. & Skinner, C. 2009. See⁵ for full reference.

increasingly mainstreamed as active contributors within urban economies, with increased voice, visibility and validity.

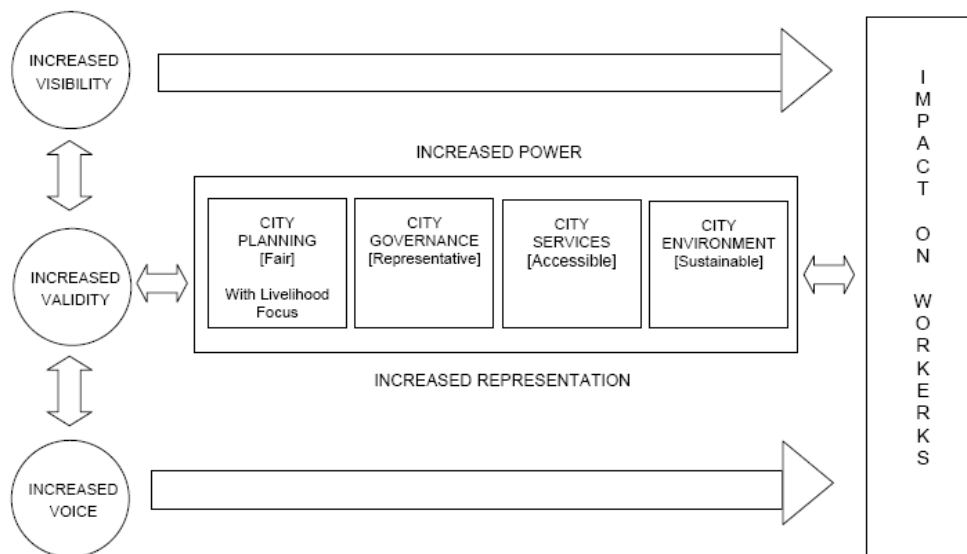


Figure 2: The Inclusive Cities Theory of Change

Research Methodology: Stimulating Inclusive Development through Action-Research

This section will elaborate the research methodologies used for the pilot project. As in other sectors of the informal economy, there are vacuums in terms of addressing the policy, legislation and developmental needs of waste pickers. AeT was commissioned by the eThekweni Municipality’s Imagine Durban Project to implement an inner city cardboard recycling project to test ways of improving the livelihoods of existing cardboard recyclers, or waste pickers, operating in Durban. As depicted in Figure 3 of the Project Plan below, the pilot project process commenced with desktop and fieldwork research including one-on-one interviews with a range of stakeholders including; waste pickers, “middle-agents”, waste sector specialists, and relevant representatives from buy-back centres, recycling companies, local government departments and formal businesses; established through snowballing and the prior institutional experience of the founders of AeT. The field work used an action-research method involving practical work experience, observation studies and mapping exercises with the waste pickers to determine their working dynamics.

This was followed by the identification of specific groups of waste pickers operating from fixed locations within the inner city, as shown by phase 2 in Figure 3 below. The selection was informed by the need to acquire comprehensive feedback on both individual and focus-group basis, and the curiosity of testing the ability of a geographically based group’s willingness to organise. Thereafter, AeT once again engaged in action-research in the subsequent implementation phases of the project, which were the design research and

development of proposed interventions, the testing and evaluation thereof, and the refining of the preferred interventions. This was undergirded by acquiring constant feedback from the waste pickers which informed the interventions at every phase. Some of the major interventions involved the testing of custom-made trolleys and several other strategies in response to the identified needs of the waste pickers. The outcomes and findings will be elaborated later in the paper.

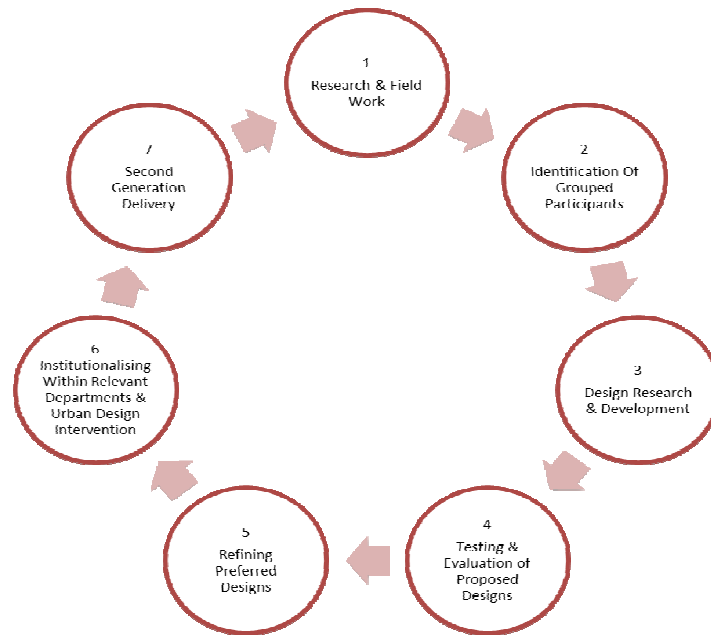


Figure 3: Project Plan of the Inner-city Cardboard Recycling Project

In the subsequent phase, the project has been lobbied to relevant local government departments, particularly, in gaining support for up scaling of the project in order to test an urban design intervention as depicted in phase 6 of the Project Plan. The purpose of this has been to mainstream the inclusion of waste pickers into policies and local government service delivery mandates, and ultimately stimulate up scaling of similar initiatives within second generation delivery.

Action-research is therefore a critical methodology for AeT, firstly because it recognises and values the expertise of informal workers which is necessary in light of the prior and continuing marginalisation faced by them. Moreover, this assists in building a grounded understanding of their working dynamics and a working relationship with the community. Secondly, by working ‘alongside’ informal workers as co-developers, it enables implementing explicit community preferences in innovation that is contextually responsive, whilst sustaining capacitated and empowered participation of informal workers. It is this practice that motivates AeT to advocate that thoroughly consultative and participatory processes can set a trajectory for meaningful socio-economic development for informal workers.

Project Findings

This section will elaborate the project findings in terms of the developmental challenges surrounding the cardboard/paper waste picking sector, the project's responses and results in addressing some of these challenges and the learnings therein.

Challenges Related to the Cardboard Waste Picking Sector

It was found that at a local government level, there is an absence of a common vision for the waste picking sector which need to be cognizant of the implications as the recycling industry changes. Further challenges stem from discords resulting from supply-side recycling processes being introduced as a result of the National Waste Management Strategy waste diversion mandate. Specifically detrimental have been the collection procedures, including curbside collection, that were designed without a role for the waste picking sector. Therefore, waste pickers who compete for materials in areas where formalized collection systems have recently been introduced are considered deviant, leading to a further negative perception of waste pickers. Other urban management challenges include the impact of location and space constraints for the sorting and collection of recyclables, including the lack of storage facilities for recycled waste; which in some cases is leading to street cluttering and consequent conflict with other users of the urban spaces that they occupy.

At the livelihood level, the challenges reported to AeT by the survey of 50 inner city waste pickers include; firstly, the burden of heavy cardboard loads and long walking distances coupled with the inability to afford appropriate trolleys. Secondly, the theft of cardboard at collection points is a particular concern for women, aggravated by the lack of secure storage. On the latter point, research has shown that most waste pickers indicated that they had had recyclables stolen in the past by another collector²³. Third, alleged exploitation from 'middle-men' paying less than the standard market rate. Fourth, the waste pickers voiced that there is a lack of support and recognition from local government, formal businesses and citizenry for the service provided by them. Fifth, the majority reported that they experienced inconsistent supplies of cardboard and paper recyclables because of the challenge of connecting with consistent suppliers of waste instead of having to scavenge urban spaces, and because certain days yielded more recyclables than others. Lastly, although not widely reported, some identified the adverse impacts to health due to exposure to dirt, pollution and the elements.

Project Responses: Integrated multi-disciplinary approach

The objectives of the project were to test ways of improving the working conditions of a group of existing waste pickers, primarily depending on their expressed needs. After having

²³ McClean 2000 cited in Ralfe, 2007. See¹⁸ for full reference.

identified two distinct groups of waste pickers operating from the inner city, through action-research AeT learned the working dynamics and rather organically, the group feedback sessions became structured as monthly meetings. These expanded over time from being about sharing project feedback to resolving urban management challenges including mediation of conflicts with other stakeholders and as a platform to raise other psycho-social challenges i.e. retrieval of lost identification cards, opening bank accounts, counselling for substance abuse issues as faced by a majority of the men etc.

After group structuring and several strategy sessions, the initial interventions tested were trolley designs. However, the research revealed that the working contexts of the two groups were unique; one group travelled long-distances to collect recyclables and the other collected within narrow and congested routes. Therefore each group required appropriate contextual responses which led to the testing of a range of trolley designs. Other considerations for the trolley designs related to ensuring that the designs were ergonomically advantageous for women and later prototypes were simplified for ease of storage.



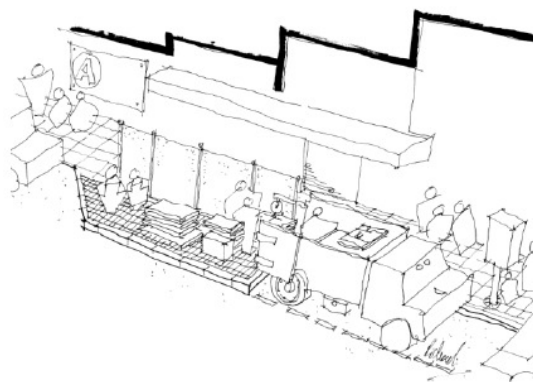
Figure 4: Various trolley proto-types tested for the project to address the challenge of conveyance of waste recyclables

Although, the trolleys addressed the ergonomic concerns of head-loading and poorly designed self-provided trolleys, it did not address the occupation health and safety issues related to work-wear equipment and the negative public perceptions therein. Therefore, custom-designed aprons with identification cards, gloves, and masks were tested. This was integrated within a marketing strategy called the “Friends of the Recyclers” campaign in the form of introductory letters and invitations to old and new generators of waste which served to create awareness of the waste pickers that were associated with the Project.

Thereafter, the Bright Site Project, an initiative of UNISA’s Social Work Department, joined as project partners to provide social work services in addressing the psycho-social needs identified by the waste pickers. These included assistance in retrieving identification documents, opening personal bank accounts, the set-up of a community savings club and in the provision of counselling to address substance-abuse issues and conflict management - both at the work and personal level. Concurrently, AeT has insisted that presentations to external interested parties, at the relevant exhibitions, seminars, workshops and media interviews, include a site exposure or direct involvement by the project participants. This was aimed at creating greater awareness of the valuable role that waste pickers play at multiple levels to society.

During the evolving process of the implementation of the project plan, it was realised that the project had reached a ‘glass ceiling’ or developmental threshold unless the project received support or more ideally, the project became institutionalised within relevant local government departments in order to be up scaled as depicted in stage 6 of the Project Plan in Figure 3 (page 9). This was particularly significant in gaining recognition of the vacuums in policy and the testing of spatial accommodation for waste pickers within the city. As a result of presentations of the project to relevant city departments, the interactions led to the formation of a reference group committee comprising representatives from the Economic Development Unit, the Imagine Durban Project under the City’s Corporate Policy Unit, City Architects, Durban Solid Waste and inner-eThekweni Renewal and Urban Management Programme (iTRUMP) that are coordinating various up scaling options of the Project. In order to stimulate thinking about spatial accommodation, several options were conceptualised by AeT and later City Architects. Figure 5 below is one of the examples, but showing a kerbside context that does not require high levels of capital investment.

Typical collection point
 Showing urban management challenges arising from a confluence of pedestrian, vehicle and recycling activities (corner of Pine and Field Street)



The proposed urban design intervention
 Showing the extension of pavement space to incorporate a cardboard sorting and collection point

Figure 5: Comparative image showing a typical collection point on the left and a proposed urban design intervention to address the challenges

Project Outcomes and Results

Primarily based on direct feedback from the waste picker participants, the results of the project will be elaborated here. First, increased incomes were reported as a result of the access to the custom-designed trolleys, aprons, identification and marketing systems, which enabled them greater access to materials. This was indicative in their reported monthly incomes, for instance in the lower income bracket, their average earnings of R960 per month increased to R2400 per month, and the higher income bracket earners reported that their pre-project earnings increased from R1440 to R3660 per month on average. Furthermore, other cost savings included savings of R360 per month in trolley hire fees and R100 per month of trolley storage fees which was arranged for free due to enhanced relationships with surrounding businesses. In addition, other cost savings have been accrued by the reductions of confiscations of self-provided trolleys and/or recyclables by urban authorities due to their enhanced and legitimised presence.

Secondly, the project instilled a new awareness of occupational health and safety needs, in terms of work wear and through the ergonomic advantages of trolley.

Thirdly, the project increased the capacity of the groups of waste pickers such that they are increasingly enjoying the benefits of organising. For instance, information sharing led to stronger negotiation power and more uniform prices through negotiations with the 'middle-agent'. The waste pickers negotiated to be paid more by the "middle-agent", from 50 cents to 65 cents per kilogram as a result of the "middle-agent" recognising that they are such high generators of recyclables. In addition, the one waste picker group changed the buyer to one that offers a better price and service in terms of punctuality and accuracy of measuring the material. It has thus become evident that there is an awareness of the range of middle-agents, the market price and additional recyclables of economic value beyond paper and cardboard as they have expanded into glass and plastic recycling.

Fourth, the project has led to improved urban management in terms of cleaning, security and conflict resolution with security officials, surrounding businesses and within the recyclers themselves. For instance, a workplace code of conduct was developed by the one waste picker group which details code of workplace behaviour, accountability mechanisms and mediation procedures. This has been reflected by the greater cooperation and cohesion within fellow recyclers and with formal entities and urban authorities. Most importantly, this has contributed to better understanding of role and integrated urban management needs of the waste picking sector, through the establishment of the reference group committee comprising relevant departments that are exploring up scaling and sustaining the project. This has included the recognition and commitment by relevant departments to address the policy vacuum and testing of spatial accommodation for the meaningful inclusion of waste pickers into the city's urban fabric.

Fifth, the project has stimulated greater public awareness about the valuable contributions of waste pickers. There has been an improved perception of the waste pickers by the general public, as more and more generators of waste are calling the recyclers to collect their waste material, and some are even coming to the waste pickers to drop off their waste. Furthermore, there has been improved self-perception of the recyclers showing greater confidence, dignity and ownership through progressive engagement with the project as they have volunteered to partake in a number of public presentations and engaged visitors through work experience sessions.

Project Learnings

In the first instance, the project has highlighted the critical role of enabling equipment, urban infrastructure and spatial accommodation to enhance the contributions of waste pickers. This has been in response to the challenges expressed by waste pickers and identified generally, related to conveying recyclables, sorting the recyclables within the urban realm and insecurities emanating from the potential theft of their recyclables or confiscations by urban authorities.

Secondly, the project has highlighted the value of inclusivity within development research and implementation processes which has multiple benefits, in that it raises a consciousness that the project brief should emanate from the working lives of the project participants. With regards to the action-research methodology, it has enabled the end-users to participate as co-developers of contextually responsive interventions, and therefore provides more tangible outcomes than ordinary research. Furthermore, the presentations to external interested parties have improved the public perception of waste picking and have raised the dignity and self-worth of the waste pickers.

Thirdly, the project has highlighted the benefits of organizing and capacity building of waste pickers where a number of positive spin-offs can be affirmed. For instance, in the empowerment seen in the negotiation of better prices for recyclables sold to 'middle-agents', their ability to provide decisive and immediate feedback regarding development processes and resolve workplace related conflicts constructively. Over the period of time that AeT has collaborated with the two groups of waste pickers, they have remained inclined to work as a geographic based working committee rather than a union or cooperative.

Fourth, the value of pilot projects in pioneering and testing development innovation was highlighted. However this was achieved through AeT specific expertise in implementing a focused pilot project with a specific brief twinned with the more long-term and established

approaches of local government. This approach can potentially provide the opportunity to test ideas that do not necessarily exist in the local government domain and exposes all parties to innovation and ideas. Moreover, implementing a local government based project gave the project greater credibility on a number of levels. On the ground, it assisted in gaining cooperation with urban authorities and surrounding formal businesses. In addition, the project gained inter-departmental cooperation through the establishment of the reference group committee comprising relevant departments that are now collaborating to explore the expansion of the project. This is critical from a sustainability and replicability point of view because the project has a good chance of being embedded into local government policy, structures and practices, making it a replicable platform in other municipalities also facing the challenge of increasing their recycling rates. However, this cannot be disassociated with the favourable political climate as the local, national and global context has been very supportive for this type of intervention due to the emphasis of recycling as a means of climate change mitigation. This includes the emphasis of the green economy strategy which encompasses informal recycling as a source of jobs. This again implies that up scaling of this initiative and replicability of similar initiatives elsewhere is possible.

In terms of challenges, it was realised that local government departments are fundamental to achieving policy changes and spatial accommodation. Although this was enhanced by the establishment of a reference group committee that meets on a regular basis in order to maintain progress of the project, a clear challenge however has been to activate this level of coordination as an outside entity. This is because of the lack of intimate knowledge of departmental workloads, prioritizations etc. However, AeT has had an advantage because of the co-founders' extensive prior knowledge of local government processes. Furthermore, it is critical to have local government champions, that are eager, committed and have the mandate to act. The interventions therefore need to have senior and universal institutional embedding which can then support the initiatives that the implementers have progressed.

Fifth, the project has highlighted the value of an integrated and cooperative approach through multi-disciplinary partnerships with specific and complementary skills, i.e. an NPO with specific design and social facilitation expertise, social work and relevant local departmental line-functions (City Architects, Durban Solid Waste, Economic Development, etc.). From a project perspective, it has meant being able to respond to the waste pickers needs in a holistic way, i.e. in terms of urban infrastructure, occupational health and safety, socio-emotional wellness, and economic aspects such as understanding the value chain and marketability.

Finally, AeT strives to implement work that is transformative and restorative of the damage of the past considering the South African context. Informal workers have borne the brunt of

past injustice which is still largely untransformed, due to excessive enforcement and regulatory approaches to managing the sector. Hence, this project has provided AeT the opportunity to do what local governments and relevant practitioners have not yet been able to achieve. This is the promotion and dissemination of strategies for the inclusion of urban informal workers into development processes, and the attribute they can bring to the transformation of South African cities and towns.

Conclusion

With the growing awareness of the need to ensure environmental sustainability, creative solutions are required to achieve a zero waste goal. At the same time the government push to create jobs will require innovative methods of working towards a viable recycling industry that strives to provide decent jobs. The project has served to affirm the critical opportunities that the inclusion of waste pickers in local and national urban plans can have in advancing environmental, social and economic sustainability benefits, and as part of the green economy strategy. Furthermore, this project has contributed to a better understanding of approaches to the integrated urban management challenges in the recycling sector that could increase incomes and dignity of the informal recycling sector. The key elements of this approach would be:

1. A clear national vision and implementation strategy for fully realising the economic development potential of the recycling industry. This can be done by the inclusion of waste picking within the growing global emphasis of waste management as a pillar in the green economy strategy.
2. Integration of waste pickers into national and local government urban policies, plans and programmes to reduce waste, increase recycling and enhancing the income generating opportunities.
3. Multifaceted partnership between relevant stakeholders such as government, organisations, private sector and waste pickers in order to provide integrated and holistic responses, particularly in addressing the vacuums in policy and spatial needs of waste pickers within urban spaces, and to achieve efficient urban management.
4. Specific strategies and programmes for organizing and identifying roles of waste pickers that enable greater legitimacy, dignity and greater access to materials.

Should these challenges be addressed, it would ensure that informal livelihoods can continue under better conditions through increasing the stream of recyclable material available for this vulnerable group within the recycling chain and consequently enhancing their opportunities. This project is demonstrating that cities of the future that aim to have high recycling rates need to be inclusive of the spatial needs of waste pickers within urban plans. Ultimately, this would contribute in progressing cities towards realising urban sustainability.