

## Survey Carried Out in Cosmo City, South Africa, about Recycling Practices and Local Community Perceptions on Waste Management Practices

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### Abstract

The study took place at Cosmo City, which integrates the low, middle, and high income communities to live together and share common social resources. About 404 households were selected to participate in this study, based on their income levels structured questionnaire was used for data collection. The specific objectives were to establish the relationship between perceptions of recycling by households and recycling of waste by waste pickers. The findings indicated that most households in favour of incorporation of waste pickers into the waste management system were those who indicated that they were not recycling waste at all. Majority of households who indicated that they were not recycling waste did not support provision of basic salary for waste pickers. Most of the households who indicated that they were not recycling waste indicated that they believe waste pickers activity creates jobs. Regulation of waste pickers was supported mainly by households who indicated that they were not recycling waste. Since most households were not recycling waste, it is not amazing that their opinion influenced the decisions in all four categories. Since recycling of waste by waste pickers creates jobs, it can help alleviate poverty and with support and proper regulation by municipalities can help in achieving sustainable development goals 2030.

**Keywords:** Waste management; Solid waste; Waste separation at source; Disposal, Storage, Landfill, Household waste and recycling; Sustainable development

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### Introduction

Recycling is accepted by developing and developed countries as one of the best solution in waste management [1]. Households have a major role to play in reducing the amount of waste sent to landfills [2]. Households influence the quality and amount of recyclable material recovery. A sustainable waste management plan that involves recycling conservation of resources depends on household's involvement [3]. Municipalities as custodians of waste management plan play a bigger role in ensuring that households are involved in recycling programme. According to Dahlén et al. household waste refers to the bagged, mixed household waste usually collected in traditional waste bins or bags close to properties [4]. Recycling is referred to in the Gauteng State of Environment Report is defined as resource recovery of wastes of one process as raw materials for a second. Recycling forms an

integral facet of integrated waste management for the protection of human health, the environment, and the achievement of the Polokwane declaration. The economic viability of recycling wastes is dependent upon the waste composition and its ability to be separated, or segregated, into a marketable commodity [5].

Amount of waste generated by developing countries is increasing as a result of urbanisation and economic growth [6]. Recycling by households in some developing countries is voluntary and argued that it's not a cost to households. Time used by households and energy are quite often neglected in cost-benefit analyses. Bruvoll et al. in a study in Norway found that households waste recycling involves energy and time for households. Households estimated that 41 h/year per households were spent on recycling and sorting waste. Motivation for recycling and sorting waste is based on different reasons like environmental protection, economic

development, global warming and job creation. Households, who perceive waste recycling and sorting as a requirement, consider it to be costly and will prefer paying somebody to do the job. Households, who associate waste recycling with a moral and social obligation, derive a net social gain from it. Majority of households were found to prefer a company to take the responsibility of sorting and recycling rather than sorting and recycling waste from source [7]. In London Borough of Havering surveys of perceptions of households on waste recycling found that households could be encouraged to recycle by improving infrastructure and promotion of recycling schemes. Infrastructure and support for waste pickers can improve the recycling behaviour and attitudes of households [8].

Policy makers of Buenos Aires implemented policies for governing and regulating the activities of waste pickers with success. The move was influenced by the disturbing and dirty presence of waste pickers in the streets. The originally marginalised and stigmatised waste pickers were regulated and disciplined into legal and well behaved workers [9]. In Iloilo city, Philippines waste pickers were incorporated into the municipal solid waste management by the formation of waste workers association called USWAG Calahunan Livelihood Association. The association was then later registered as a formal business enterprise (co-operative). The members of the cooperative are bound by certain rules and work with a team that jointly recovers wasted materials. As a cooperative, Waste Workers Association receive support and training to explore other opportunities with waste recycling such as alternative fuels, household use, production of compost and making handicrafts out of used packages. The activities of waste pickers reduce the generation of leachate and greenhouse gases emissions from landfill and extends its life

[10,11]. Waste pickers play an important critical role in the waste management system and requires urgent attention, support and policies that govern their activities [12,13].

## Materials and Methods

The survey was conducted in Cosmo City, South Africa. The aim of the study was to compare the perceptions of recycling by households and perceptions of waste pickers by households and describe the social interaction of waste pickers and households and their influence on perceptions of waste recycling by households. Cosmo City was established as a pilot programme for mixed race (black, white, Indians and coloureds) of mixed income groups (low income, middle income, and high income) to live together and share the same resources (schools, churches, shopping centres, and medical facilities). Cosmo City has a total estimated 12,300 households. The response rate was 81% with a total of 404 respondents. Most waste pickers in Cosmo City are residents from the low-income sites of Cosmo City, Lesotho, Zimbabwe, and Mozambique. An earlier article in *Advances in Applied Science Research* described the perceptions of waste pickers vs. willingness of households to separate waste from source. This paper looks at the perceptions of recycling by household's vs. perceptions of waste pickers by households (Figure 1).

## Results and Discussion

The findings indicated that most households (82%) are in favour of the incorporation of waste pickers into the waste management system, most households (62%) in favour of incorporation of waste pickers into the waste management system were those who indicated that they we not recycling waste at all (Table 1).



Figure 1 Mixed housing types in Cosmo city.

**Table 1** Perceptions of recycling by households vs. waste pickers.

			Perceptions of recycling by households				
			Households				
			Willing to recycle waste	Recycling waste	Not recycling waste	No Comment	Total
Perceptions of waste pickers by Households	Incorporation of waste pickers into the waste management system	Agree	74 (18%)	80 (20%)	252 (62%)	0 (0%)	332 (82%)
		Disagree	3 (1%)	4 (1%)	15 (4%)	0 (0%)	19 (5%)
		No Comment	5 (1%)	11 (3%)	42 (10%)	0 (0%)	53 (13%)
		Total	82 (20%)	95 (24%)	309 (76%)	0 (0%)	404 (100%)
	Basic salary for waste pickers	Agree	38 (9%)	43 (11%)	103 (25%)	0 (0%)	146 (36%)
		Disagree	26 (6%)	26 (6%)	139 (34%)	0 (0%)	165 (41%)
		No Comment	18 (4%)	26 (6%)	67 (17%)	0 (0%)	93 (23%)
		Total	82 (20%)	95 (24%)	309 (76%)	0 (0%)	404 (100%)
	Job creation	Agree	75 (19%)	84 (21%)	262 (65%)	0 (0%)	346 (86%)
		Disagree	4 (1%)	3 (1%)	14 (3%)	0 (0%)	17 (4%)
		No Comment	3 (1%)	8 (2%)	33 (8%)	0 (0%)	41 (10%)
		Total	82 (20%)	95 (24%)	309 (76%)	0 (0%)	404 (100%)
	Regulation of waste pickers	Agree	70 (17%)	79 (20%)	246 (61%)	0 (0%)	325 (80%)
		Disagree	5 (1%)	3 (1%)	16 (4%)	0 (0%)	19 (5%)
		No Comment	7 (2%)	13 (3%)	47 (12%)	0 (0%)	60 (15%)
		Total	82 (20%)	95 (24%)	309 (76%)	0 (0%)	404 (100%)

Provision of basic salary for waste pickers was not supported by majority 41%. The households that did not support provision of basic salary for waste pickers were households (34%) that indicated that they were not recycling waste. Most households (86%) believed that waste pickers activity create jobs, most of these households (65%) of them were those who indicated that they were not recycling waste. Regulation of waste pickers was supported by 80% of households, most of the households (61%), who indicated support for regulation of waste pickers were not recycling waste.

## Conclusion

Since most households were not recycling waste, it is not amazing that their opinion influenced the decisions in all four categories. One main important point that can be derived from these results is although most people do not recycle waste for various reasons, they seem to show support for recycling by supporting waste pickers in recycling. The most common trend was the support of

waste pickers by household who were not recycling waste. Most households who are recycling waste supported the incorporation of waste pickers into the waste management system, provision of basic salary for waste pickers, job creation and regulation of waste pickers. The difference in perceptions between households recycling waste and those who are not recycling waste was only when provision of basic salary was mentioned. Households who are recycling waste know exactly the amount of time and energy one must devote to recycling and the expected revenue from such an activity. Their perceptions are based on experience and carry a lot of weight in this case. On the other hand, households who are not recycling waste might not have an idea about the amount of energy, time, risks, health impacts, and revenue one can get from recycling. Perceptions of households about waste pickers are consistent under all categories. Sustainable development goals, which seek to reduce poverty, ensure zero hunger, ensure decent work, economic growth, and control/minimise climate change by year 2030 can be achieved by supporting and promoting the waste pickers initiative.

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