



## A STUDY OF THE LEVEL OF AWARENESS AND PRACTICES OF SOLID WASTE MANAGEMENT IN CHINHOYI, URBAN, ZIMBABWE

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**Abstract:** *This paper reports on a baseline study on the level of awareness and practices of solid waste management in Chinhoyi urban. The study was motivated by the high levels of solid waste in the Chinhoyi urban community. The study collected data through questionnaires and interviews from a random sample of 315 residents. Findings show that the majority of people in the Chinhoyi urban community did not take solid waste disposal as their responsibility but that of the municipality. Hence they were not doing much to help the situation. Some communities had a negative attitude towards the whole concept while a few were very supportive and willing to engage in activities that promote behaviour change on solid waste disposal.*

**Keywords:** *Solid waste management, Community engagement.*

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## **1.0 INTRODUCTION**

Waste management initiatives offer tremendous opportunities for communities to reduce environmental contamination caused by solid waste. In the United Kingdom several intervention programmes have been implemented including household waste prevention alluded to by Gorge, Sharp, Strange, Wilson and Blacked (2010). For successful development of any solid waste project, community participation in collection and design of facilities is essential for sustainability (World Bank, 2010). The World Bank notes that in developing countries, 20-50% of budgets are directed towards solid waste management while 30-60% of the waste is not collected. This is an indication that the channelled financial resources are not being effectively utilised. Intervention programmes that are not grounded on the reality of a situation have often collapsed the world over (Saungweme, 2012 and World Bank, 2012). Therefore, establishing a baseline against which solid waste management strategies would be implemented is an important first step in making progress towards community participation in solid waste management.

To come up with a sustainable technology social model requires a baseline survey on solid waste collection patterns, available resources for collection, how much residents know in terms of best practices for solid waste disposal, rules and regulations governing waste disposal and council bylaws on waste disposal. A baseline survey carried out in 2010 by Living Earth Ideas into Action in Kampala, Uganda, revealed that limited resources of local authorities and inconsistent collection of waste resulted in dumping. This state of affairs, where limited resources are the order of the day, raises the need for involvement of residents in solid waste management to alleviate the existing prevalence of solid waste in dumping residential areas. Consequently, perceptions of residents and refuse collection workers towards community based solid waste systems were established before coming up with a strategy to improve refuse disposal. In Zimbabwe, Saungweme (2012) found out that most residence of Mbare, in Harare, were not aware of regulatory policies on waste management.

This study was motivated by the observation that solid waste all over the city centre and residential areas was the order of the day in Chinhoyi urban. In an attempt to improve solid waste management in Chinhoyi, it was therefore considered important to establish the



practice and knowledge levels of residents so that appropriate measures could be taken to promote participation of all community members.

## **2.0 RESEARCH OBJECTIVES**

The study sought to:-

- Find out how Chinhoyi urban residents dispose of waste.
- Establish community members' level of awareness with regards to health risks associated with dumping practices.
- Explore strategies residents used to alleviate the dangers of poor solid waste disposal.

## **3.0 LITERATURE REVIEW**

Training and Research Support Centre (TRSC) (2010) in a study of three municipalities in Zimbabwe concluded that municipalities in Zimbabwe were failing to cope with waste collection demands mainly from the high density suburbs. The study revealed that awareness levels on other methods of managing waste namely recycling and reusing were very low as households deposited leftover food in the waste bins. However, the report by TRSC observed that people were eager and willing to take part in solid waste management initiatives. The study, however, does not show how the communities used the knowledge they had on waste to improve its management.

The Standard (June 24 2012) reports that waste management, in Harare, had reached crisis levels with solid waste being dumped in rivers, roads, wetlands, woodlands and literary everywhere in the city. This, the paper claims, poses a serious health risk and is also causing unprecedented toxification of the soils. The paper proposes that a serious look be taken at the possibility of commercial recycling of the solid waste. The paper does not show how much the people of Harare know about recycling and whether they appreciate it as a waste management strategy.

In its report, Practical Action Southern Africa (2006) called for community participation in sustainable waste management advocating for this to be done through community education so that the people are made aware of their responsibilities in social waste management. The report also highlighted that there was little or no innovativeness by local authorities in managing waste and that there was very little or no public awareness on regulations that govern waste management.



Saungweme (2012) found out that most residence of Mbare in Harare were not aware of regulatory policies on waste management. This, he argued, aggravated the situation in that people were just disposing the waste wherever they felt was convenient to them. He also established that there was no coordination between residence and the municipality. The people played no role in waste management and the municipality saw the residents as customers/clients who were just receiving a service they had paid for. He also called for education of the community so that waste management starts at the source (household) where the three Rs (reuse, recycle and reduce) can be practised.

The World Bank (2012) observed that “improving social waste management, especially in rapidly growing cities of low income countries, is becoming a more and more urgent issue”. The report further argues that Solid Waste Management (SWM) is the most important service a city should provide adding that municipality that fail to manage waste end up failing to provide related services like education health and roads. World Bank recommends that public education should be conducted to inform people of other options in waste management. It also advocates for an integrated solid waste management plan which should involve all stakeholders including the poorest of the community so that waste management may be improved. The underlying feature is that there is urgent need for community participation in solid waste management to make meaningful progress in societies.

#### **4.0 METHODS**

The study adopted the exploratory survey research. The survey intended to produce rich valid data to inform the project right at the beginning so as to promote participation of all stakeholders. It was, therefore, largely guided by interpretive philosophy (although it was triangulated) as regards aspects of quantitative sampling and data gathering techniques in order to improve quality, validity and reliability of findings (Hussey and Hussey, 1997; Anderson, 1993 and Cosby, 2003). The population of the study was made up of Chinhoyi urban residents. The sample of 315 participants was selected using both convenience and stratified sampling techniques. Data were collected using questionnaires, focus group discussions (FGDs), observation and document analysis. Triangulation was adopted to enhance validity and confidence of findings (Tashakkori and Teddlie, 2003). Guion, Diehl and McDonald (2012) and Flick (2007) underscore that using more than one method opens up



several perspectives for promoting quality in qualitative research compared to a single method. Data collected were analysed using reflective analysis (Dooley, 2003; Yin, 1994; Hussey and Hussey, 1997) and SPSS version 17.0.

## 5.0 RESULTS AND DISCUSSION

### 5.1 Demographic information of respondents

The results were discussed with respect to research questions and based on 316 valid responses from 90 males and 226 females. The majority of the respondents were aged between 21 and 40 years (53.5%) and 41 and older (28.3%) with 2.8% representing respondents between 10 and 20 years, 14.2% were between 21 and 30 years. Almost half of the respondents, (51.9%) of the respondents had secondary school level (O level), 9.1% had 'Advanced level (A level) and 21.2% had tertiary education, 11.5 with university education. The remaining 17.6% had gone through primary education. From the educational background of the participants it is implicit that all the respondents were literate.

### 5.2 Solid waste disposal practices

The majority of the respondents (57.2%) in the 10-20 year age group used rubbish pits to dispose solid waste in their households, while 42.8% used the recommended bins. Rubbish pits were the most commonly used method of disposing solid waste among all age groups (43.1%) and disposing anywhere had 12.3% while 15.5% used the compost. The study findings were consistent with Huvengwa (2012) who noted these methods were being used to meet challenges of solid waste management in urban centres.

**Table 1: Places where respondents dispose of waste**

Age range/years	Municipal Bin %(n)	Rubbish Pit % (n)	Compost % (n)	Anywhere % (n)
10-20	42.8(3)	57.2 (4)	0 (0)	0 (0)
21-30	32.6(14)	41.9 (18)	14.0 (6)	11.5(5)
31-40	25.6 (42)	43.9 (72)	17.1 (28)	13.4 (22)
41+	27.1 (23)	41.2 (35)	17.6 (15)	14.1 (12)
<b>Total</b>	<b>25.9 (82)</b>	<b>40.8 (129)</b>	<b>15.5 (49)</b>	<b>12.3 (39)</b>

Fifty eight (58.5%) of the respondents in Chinhoyi indicated that they separated waste although they used rubbish pits (40.8%) to dispose of their waste and only 25.9% disposed



their waste in municipal bins. Only 16.5% used waste as manure. Over seventy percent (79.6%) felt that residents threw litter anywhere other than rubbish bins. Residents did not have a consensus on whether they dumped waste into undesignated areas or not. The study revealed that 53.5% were dumping waste on undesignated areas. The majority (78.3%) were not sure whether the Municipality was collecting bins as scheduled. The result shows the majority of residents were dumping waste on illegal places hence illegal dumping was rampant.

The majority (67.6%) indicated that paper and plastic were the major waste products found in Chinhoyi urban, as compared to leftover food (12.6%) or plant waste (8.5%) and sewage (7.7%). Empty containers (1.3%) and old clothes (1.2%) were not considered as waste by Chinhoyi urban population just like air pollution (0.4%) was not considered as waste.

### 5.3 Level of awareness regarding Solid waste management

**Table 3 Awareness of acceptable waste management practices**

	Agree	Not sure	Disagree
Bins are provided at strategic positions	15.6%	13.5%	70.9%
It is illegal to dump waste on undesignated area	73.6%	9.5%	16.9%
It does not matter where one throws waste	11.9%	4.2%	83.9%

Seventy point nine percent (70.9%) of respondents were aware of provisions of bins at strategic points, 73.6% were aware that it were illegal to dump litter on undesignated areas and 83.9% felt that it did not matter where one throws waste. Residents, therefore, were aware of proper solid waste management practices. Almost all (96.5%) reported that they dumped solid waste during the night, to avoid being arrested by the Environmental Management Authority. This study's findings were consistent with Musademba, Musiyandaka, Muzinda, Nhemachena and Jambwa (2011) who found that the municipality was failing to fulfil its obligation of collect bins as scheduled

The study established a high level of awareness as respondents indentified typhoid (78%), cholera (100%) and diarrhoea (97%) as diseases emanating from dumps. Increase in flies, mosquitoes and their effects were also reported as risks by more than 60% of the respondents with 57% justifying their reason for dumping waste away from their own houses. One key finding was respondents' reference to the cholera outbreak that occurred



in 2008-9, which according to Federation of Red Cross and Red Crescent (2010) claimed 3 500 lives in Zimbabwe. Although the respondents showed high levels of awareness, they blamed the municipality for failing to collect refuse; a situation that forced the residents to create dump sites, a situation which they argued was being done against their conscience. A quarter (25%) of the respondents was also aware that burning waste contributes towards climate change.

#### **5.4 Household strategies for alleviating dangers of waste disposal.**

When asked about strategies households had in place to alleviate the dangers of poor waste disposal, 97% of the respondents indicated that they emptied their bins along road sides away from their homes with the hope that municipality would collect the waste. Almost a third of the respondents indicated that they disposed of their waste outside football pitches again away from their homes; places which they believed municipality would visit regularly and clean up for before football matches. More than half of the respondents, (66%), indicated that they burnt flammable waste, paper and plastics, to reduce waste that fitted into their bins thereby reducing the number of trips they would make to the dumping sites. Residents who owned small yards, (43%), informed the study that they dug rubbish pits to dispose of solid waste in them. Of the residents, 34% said that they did not separate waste before they dumped the waste into these pits. They posited that when a pit filled up, they dug another one beside that filled pit.

The study observed that Chinhoyi residents organized themselves into small clusters of households forming community working groups focusing on issues of healthy living which included proper waste management. Two such groups, the Community Working Group on Health (CWGH) and the Zimbabwe People's Federation of the Homeless (ZPFH) took a leading role in organizing clean up campaigns. The majority (96%) of respondents also suggested that there be concerted effort to involve everyone in the solid waste management.

## **6.0 CONCLUSIONS AND RECOMMENDATIONS**

This study established that Chinhoyi residents were aware of the dangers of improper waste management. They were aware of the need to have proper waste management but were not aware of the four Rs of solid waste management namely Recycle, Reuse, Reduce and Rethinking. One of the national strategic objectives of the government of Zimbabwe on



waste management ensures that all stakeholders participate in managing waste. Its aim is to develop a strong National Waste management strategy for effective development of an effective waste management strategy covering the collection, transportation and final disposal of waste in all residential areas.

The study advocates for a joint effort in managing solid waste in which the municipality works with all stakeholders and residents. The study also recommended that more community health groups be formed. The study also called for local authorities to involve communities in waste management. Residents should be educated on proper waste management including reducing, recycling, re-using, rethinking and be made aware of the health benefits of good waste management activities. The study encourages residents to make money from solid waste through recycling. There is need to work with the community to come up with a suitable model of managing waste in Chinhoyi.

## **REFERENCES**

1. Castillo, J.J. (2009). Stratified Sampling Method. Retrieved from Experiment Resources: <http://www.experiment-resources.com/stratified-sampling.html> on 15.03.13
2. Conveniencesampling.net (2013). Understanding the Basics of Convenience Sampling. Accessed from <http://www.conveniencesampling.net/Convenience-Sampling-Advantages.html> on 15.03.13
3. Creswell, J. W., (2009). Research Design: Qualitative, Quantitative and Mixed Approaches. Thousand Oaks, CA: Sage
4. Federation of Red Cross and Red Crescent (2010). Zimbabwe Cholera Emergency Appeal, Accessed from <http://www.reliefweb.int/node/345114> on 2 July 2013.
5. Flick, U., (2007). Methodological Triangulation in Qualitative Research. Thousand Oaks, CA: Sage
6. Huvengwa, I. (2012) Solid waste management: an urban challenge, a case of Masvingo. Diss. Bindura University of Science Education.
7. Living Earth Ideas into Action (2010) Baseline survey for Urban 'Waste to Wealth' project; retrieved from [livingearth.org.uk](http://livingearth.org.uk) on 12/02/12
8. Musadamba D, Musiyandaka D, Muzinda A, Nhemachena B and Jambwa D. (2011) Municipality Solid Waste (MSW) Management Challenges of Chinhoyi Town In



- Zimbabwe Of Waste Reduction and Recycling. Journal of Sustainable Development in Africa. 13 (2), pp168-180
9. Practical Action (2009). Improving the urban environment in Africa: Community – based waste management in Zimbabwe. Practical Action; Harare.
  10. Practical Action Southern Africa (2006) The Regulatory Framework in waste management workshop sheet. Jameson Hotel: Harare.
  11. Rothgeb J. M., (2013) Pilot Test. Retrieved from Sage Research Methods Accessed from <http://srmo.sagepub.com/view/encyclopedia-of-survey-research-methods/n377.xml> on 15.03.13
  12. Saungweme, M. (2012) An Integrated waste management approaches as an alternative social waste management strategy for Mbare Township, Zimbabwe. University of Free State: Bloemfontein.
  13. Tashakkori, A., and Teddlie, C., (2003). Handbook of Mixed Methods in Social and Behavioral Research. Thousand Oaks, CA: Sage
  14. The Standard (2012) Outdoor Recycling form of waste management, Harare.
  15. The World Bank (2012) Cities face sharply rising cost for garbage treatment. World Bank.
  16. Training and Research Support Centre (2010) Assessment of social Waste Management in three Local Forum on Housing. Harare Authorities in Zimbabwe Civic.