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Socio-Demographic Profile of Scavenging Households in Umapad Dumpsite, Mandaue City Cebu, Philippines

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Abstract. Scavengers being informal settlers are often not provided by the government with basic services. Furthermore, they are often exposed to occupational safety and health hazard and yet they to continue to rely on wastepicking as their major source of income. Upon the implementation of the Ecological Solid Waste Management Act (RA 9003) by the city government of Mandaue, this significantly lowered the income of the scavengers by 62.34%. This indicates a conflict of interest between the scavengers and the implementing body. Hence, a comprehensive environmental and socio-economic policy should be planned to identify the needs of the scavengers and address the interest of both parties.

Keywords: Scavengers, Umapad dump site, Mandaue City, R.A 9003

1.0 Introduction

Scavenging is a primary work driven by the informal sector excluded in the legal and institutional mechanism of solid waste management (Furedy, 1990). These sectors are becoming more integrated into social, cultural and economic systems of most developing countries like the Philippines (Ancog *et al.,* 2012). Scavenging provides substantial income especially to those who are situated near dump sites (Su, 2007). In addition, scavenging also contribute to environmental management through waste identification, exploitation and recovery (Agarwal *et al.,* 2003) by which waste products can again become a usable resource by means of recycling (Gonzales, 2003). This in essence, made scavenging a valuable practice for it does not only provide livelihood to the waste pickers but also assist in waste recovery (Langenhoven and Dyssel, 2007). However, scavenging as an occupation poses environmental hazards and health risk to the scavengers and to the community at large (Hunt, 1996).

In response to the mandate of the Republic Act (RA) 9003 or also known as Ecological Solid Waste Management (ESWM) Act of 2000 in the Philippines, the City of Mandaue set guidelines for solid waste avoidance and volume reduction through source reduction and waste minimization measures that includes composting, recycling, and re-use recovery. In addition, RA 9003 stated that the local government units should ensure the proper segregation, collection, transport, storage, treatment and disposal of solid waste management through the formulation and adoption of environmental practices (Department of Environment and Natural Resources, 2000). Although the city strictly implemented segregation and proper collection of waste, it failed to properly address the transport, storage and disposal of waste hence the Umapad dump site still existed. It is expected in the Philippines that not all programs stipulated in the law will be implemented due to financial constraints and sometimes lack of political will (Ancog *et al.,* 2012). The program to reduce and segregate waste at source led to the conflict of interest

between government and scavengers. Waste segregation offers an advantageous step for Solid Waste Management Program but is detrimental to these informal sectors due to reduced volume of waste that reached the dump site. This conflict of interest is typical for those who make the decisions on such formal recycling projects are usually not well informed about the existing informal practices of waste recovery and recycling in their city, and the possible implications of new interventions (Furedy, 1990).

Solid waste management has always epitomized the limitations of technical-managerial solutions to problems that are rooted in complex socio-cultural, economic and political factors (Furedy, 1990). Hence, there is a need to explore the demographics, economic, health, sanitation and environmental awareness profile of the waste pickers of Umapad dump site. This information can greatly contribute in the fair and proper management of the waste stream and the allocation of social services by the government and other concerned institutions to this marginalized sector.

2.0 Methodology

2.1 The Study Area

Umapad dump site (10° 20' 48.00" N, 123° 58' 13.00") is situated in *Barangay* Umapad, Mandaue City Cebu, and the mid-eastern part of Cebu Central Philippines. It the major dump site of the City of Mandaue which is 5 hectares in area. It is an open dumpsite characterized as a land disposal site where solid wastes are indiscriminately disposed, uncovered, surrounded by vermin, no facility for leachate collection and treatment, and often the heaps of waste are susceptible to burning.

According to the City Profile of 2009, the total volume of garbage disposed here reached 195 tons per day. It also placed the total volume of waste being composted to 80 tons and being recycled and reused to 70 tons. Garbage trucks deliver varied

types of waste from residential, medical and industrial establishments of Mandaue City (Department of Garbage Services, City of Mandaue).

2.2 Sampling

Prior to data gathering, the researcher conducted a social preparation of the site selected for the study. Initial contacts were made from local government officials of the City of Mandaue to introduce the research and obtain informed consent in conducting the survey. An ocular visit to the study sites was also done to sensitize the researchers to the realities in the community that needed to be addressed (Baker, 1999; Neuman, 1997).

The survey was conducted last January 2012 and survey research methodology was used in collecting the desired data. A set of questionnaire containing identical questions was the basis for a structural face to face interview among the selected households in the study area (Baker, 1999; Neuman, 1997). Questions formulated were to answer the socio-demographic information of individuals whose primary occupation is scavenging.

2.3 Procedure for a Structural Face to Face Interview

Based on the sampling design, possible participants namely the scavenging households of the area were identified. Once the prospective respondent was identified, the basic information of the researcher/interviewer was relayed to the participating households. The necessary information regarding the research particularly the objectives of the interview, the procedure of the conduct of the interview, and the time required for the interview (i.e. more or less 20 minutes) were also provided. The interviewer made a short orientation regarding the rights of the participating households. Informed consent of the participating households were secured (Baker, 1999; Batangan and Batangan, 2007; Neuman, 1997).

Participants were assured that there are no right or wrong answers and that all responses were held in strictest confidence. Once an agreement was established, a set of identical questions relevant to the socio-demogarphic information among participating households were asked accordingly (Baker, 1999). Answers to the questions being asked were recorded in the data sheet.The researcher/interviewer summarized the results of the interview and asked the participants to comment on the results. This was also the most opportune time for the interviewer to clarify vague responses and issues which may have arise in the research process. The interviewer reviewed the responses for completeness, clarity, appropriateness and on the legibility of the record prior to leaving (Baker, 1999; Batangan and Batangan, 2007). If problems arose on the abovementioned areas, the interviewer clarified the responses provided by the participant. Other responses may also be coded as NA: not applicable NR: no response. Response to the questions below 75% was treated invalid (Baker, 1999; Neuman, 1997).

2.4 Data Analysis

The quantitative framework of data analysis was employed in the study, specifically the use of descriptive statistics. The data were analyzed qualitatively using tabulation. The objective of the analysis is to describe numeric data from the different aspects covered by the survey. The type of measures that were used are frequency, central tendency (i.e. mean, median and mode) and variation (i.e. ranges and percentages). All data were presented as arithmetic mean (Baker, 1999). Synthesis of qualitative data compiled through surveying was used to create a general profile of waste pickers. The working environment, work-related health problems and various other details surrounding this line of work was discussed followed by various character sketches of waste pickers according to age group (Batangan and Batangan, 2007; Neuman, 1997).

3.0 Results

3.1 Access to Basic Services

At the time of sampling, there were approximately 300-400 households who primarily relied on Umapad dump site to earn a living. Exact number of households cannot be determined due to informal settlements of different families. In 2006, around 200 scavenging households were demolished because these scavenging households built their houses on top of the garbage pile. Families affected by the demolition were relocated to *Sitio* Benedicto which also lies along the old dump site and is a private owned property. Residential houses are primarily made up of light materials such as recycled woods and plywoods. Other materials that are present in their houses are old, rusty and recycled GI sheets and old tarpaulins which are collected from the dump sites. They also gather housewares from the dump site such as plastic wares, toys, clothings, slippers and any usable goods.

Household obtain electricity from illegal wire tapping from main electrical lines. Households of *Sitio* Benedicto are provided with water source from the Metropolitan Cebu Water District (MCWD). However, some of them have an option to use either from MCWD, water from the deep well which lies in the middle of the residential houses situated along the dumpsites or commercial water. The deep well is made up of piled tires as barriers to the hole and a rope and small plastic container as water carrier tool. Commercial water refers to processed (filtered) water they purchase from refilling stations at the price of P10-25 per gallon. Among the 51 households, 23 houses (45.31 %) use water from MCWD. There were 15 households (29.11%) who use both MCWD and commercial water. This group reported that they use water from MCWD only for doing laundry, bathing and cooking while commercial water for drinking. Thirteen households (25.58%) use both MCWD and deep well water and they reported that they use water from MCWD for drinking and deep well water for doing laundries, cooking and bathing (Table 3.1).

Among the 51 households of *Sitio* Benedicto, only 6 households (11.76%) have toilets. The remaining 45 households (88.23%) do not have any and reported during the interview that they will just put their waste in empty plastic bags and throw it to the dump site. Others reported that they will just go to the nearby area with sparse vegetation to defecate (Table 3.1).

Most of the households have direct access to common medicines in aiding illness. Their visit to the *barangay* health centers or hospitals were also noted. *Sitio* Benedicto benefited from the health care program organized by a Non Government Organization (NGO) in the place. It is because of this program that 50.98% of the surveyed households have a weekly visit to the local health centers. There are 35.29% who visited health centers monthly and 5.9% who did only when deemed necessary. The remaining 7.84% were never visited health centers as they reported that they have never been sick and some reported that they are not aware of the health services (Table 3.1).

Table 3.1. Households Access to Basic Services

Acesss to Basic Services	% of Households (n=51)
Water Supply	
Metro Cebu Water District and Commercial Water	45.31
Pure Metro Cebu Water District	29.11
Metro Cebu Water District and Deep Well Water	25.58
Toilet	
Households with toilet	11.76
Households without toilet	88.23
Frequency of Visit to a Health Center	
Weekly	50.98
Monthly	35.29
Only when necessary	5.9
Never	7.84

3.2 Demographic and Educational Profile

A total of 51 households from Sitio Benedicto responded the survey. Each household has an average members of 7 with a maximum of 15 members and a minimum of 1. All members of each households accounts for 326 individuals in total. Of 326 individuals, 47 of them are married and each family has an average number of 5 children with maximum of 13 children and a minimum of 1. The percentage between male and female in 326 individuals surveyed were almost equal with a percentage value of 50.3 and 49.7 respectively. Twelve out of 51 are extended families where some members lived together with their close relatives (e.g. niece and nephews) or even friends. All member of the households participate in the scavenging with the oldest of 65 years old and a youngest of 4 years old. The population structure of the scavenging household at the Sitio Benedicto is considerably a young population based on age distribution. Out of 326 individuals, age group of 0-5 has the highest percentage of the population followed by ages ages 16-20. Individuals of ages 31-35 has the least percentage of the population at 3.98% respectively. For the gender ratio, the distribution of male and female in all age group has a relative difference of 0.1.02% (Table 3.2.1).

Table 3.2.1 Age and gender distribution n of the scavenging households in Umapad, Mandaue City, Cebu.

Age Interval	% of the Total Population (n=326)	Gender (%) (n=326)	
		Male	Female
0-5	18.7	8.89	9.81
6-10	12.57	5.21	7.36
11-15	12.57	7.05	5.52
16-20	14.72	5.52	9.20
21-25	13.19	7.97	5.21
26-30	8.9	4.60	4.29
31-35	3.98	2.76	1.22
36-40	5.32	2.76	2.56
41-45	3.98	1.84	2.14
46-50	2.76	1.84	0.92
51-55	1.8	0.92	0.92
56-60	1.2	0.92	0.30
61-65	0.31	0.31	0

Educational attainment profile includes all members of the household except for members who were not in schooling age. Among all 326 individuals in 51 households, 284 is of schooling age which is 4 years and above. Schooling ages is based on the Philippine Educational System. Educational level are categorized into nursery (4-6), elementary (7-12), secondary (12-16) and college (17 and above).

At the time of sampling, there were 284 schooling individuals of which 1.76% of them went or are currently admitted to nursery school, 62.67% for elementary and 22.18% and 0.7% for secondary and college respectively. In the sample population, there were 13.02% who never attended school and opted to do scavenging (Table. 3.2.2).

To create a concrete educational profile, the distributions of continuing and non continuing students were also determined. Ideally, 19 children should be at the nursery level but only 57.89% are currently admitted to school. Of the 247 individuals who have attended school, 169 were admitted to elementary level but only 30.76% of them are continuing while the remaining 69.24 have stopped. There were also 57 individual who have attended secondary school but only 64.91% are continuing and the remaining 35.09% have stopped. There were two individuals who reached college but failed to earn a degree (Table 3.2.2). Many of the respondents start education late or stopped in the middle of the school year and had to repeat, hence their age often do not match the level they are enrolled in. In this case, the maximum educational attainment of the majority of the sampled population is elementary which in the Philippine Educational System, basic writing, reading, basic science and mathematics are taught and no comprehensive and technical skills (Maligalig and Albert, 2008).

Table 3.2.2 Continuing versus non continuing students from all ages

Educational Level	Total No. (who had attended school)	Continuing (%)	Non continuing (%)
Nursery	19	57.89	42.11
Elementary	169	30.76	69.24
Secondary	72	64.91	35.09
College	2	0	100
Total	**247**		

3.3 Occupational Safety and Health Hazard

During the day, scavengers of all ages who are capable of scavenging will go to the main dump site to collect recyclable waste wearing their improvised working gears suchs as sacks, gloves, long iron bars with hooks, water and food. However, only a few are equipped with these. Some of them will go to work without any gloves, wearing only shorts with no shirts and footwear. Scavengers reported that they

come in contact with different waste such as medical waste, fecal matter, needles, scrap metals, air particulates and chemical fumes from burning waste. They also reported that they continue working during rain. Other dangers would be the uneven settlement of garbage pile which would make walking and balancing difficult. The scavengers are also exposed to vectors such as rats, mice, flies, mosquitos, cockroaches, worms which makes them disease carriers as well. These compounding conditions in the dump site expose scavengers to serious safety and health risk.

Representatives of households were interviewed on the different types of diseases that they have encountered while doing their daily routine in the dump site. They claim to have acquired respiratory, gastro and skin infections as shown in Table 3.3.1. Among all the diseases, coughs and cold is the most frequent diseases experienced by the household members. Cuts are often caused by sharp objects during scavenging.

Table 3.3.1 Cases of illness reported by the 51 households

Type of Infection	**No. of Reported Cases**
Respiratory Infection	
Cough and colds	51
Fever	51
Sinusitis	5
Asthma	2
Tuberculosis	1
Diarrhea	51
Gastro Infection	
Vomiting	6
Parasitic Worms	5
Food Poisoning	7
Oral Infection	51
Ulcer	5
Skin Infection	

Scabies	11
Cuts	43
Bacterial Wounds	49
Rushes	5
Skin Fungal Infection	25
Allergies	19
Other Illness	
Hepatitis	2
Cancer	0
Back pain	51

A total of 56.96% of the 51 households were aware of the possible hazards that they may encounter while working in the dump site. They reported possible risk such as hit by trucks, covered by the pile of garbage when it will collapse and in contact with sharp objects. The remaining 43.13% remains unresponsive to the possible hazards and claimed that they have adapted to this type of environment.

One indicator of hazard is the pungent odor. Among the 51 households, 62.74% of them claim that the pungent odor is a problem for them. However, the remaining 37.25% is unresponsive of the persistent odor and claim that the smell is normal for them.

Table 3.3.2. Safety and Health Risk Awareness

Safety and Health Risk Awareness	% of Household (n=51)
Hazard Awareness	
Unresponsive	43.13
Responsive	56.96
Pungent Odor	
Unresponsive	62.75
Responsive	37.25

3.4 Impact of the Implementation of the RA 9003

A total of 51 households reported that their maximum daily income decreased after the implementation of the R.A 9003 in The City of Mandaue which was strictly enforced in 2011 to present. The average of their maximum daily income is tabulated (Table 6). Scavenging households had an average income of P387.82 before the implementation of R.A 9003. This is higher compared to the daily minimum wage rates set by the National Wage and Productivity Commission within the Province of Cebu (Department of Labor and Employment, 2012). However, after the implementation of the ESWM Act of 2000, there was a rate decrease of 62.34% in their income regardless of the length of time they will work in the dump site (Table 6). The average income per day drops to 146.08 and was reported to be insufficient to sustain their family needs. Average working hours of the 51 households range from 8 to 10 hours daily with some doing overtime and evening works. Due to the decreased income after the implementation of R.A 9003, some of the households reported to find an alternative occupation aside from scavenging. Alternative occupations are presented in Figure 3.2.

However, many of the 51 (39.21 %) households do not have an alternative occupation explaining that they have low educational attainment and could not find a job elsewhere. Three of the 51 surveyed households (5.88%) take the form of buy and sell business. Vending street food was chosen as an alternative income for one household represented by a mother and some of her children. Another family put up a small bakeshop in the middle of the residential houses. Driver and janitorial work account for 7.84 and 9.85% respectively. For males, carpentry as an alternative occupation has 15.7 % and for females, doing laundries for others has 17.84% (Fig. 3.2).

All of the households including their members were aware of the waste segregation policy by the government of Mandaue City primarily because this has drastically

reduced their income. The concept of segregation as a step for environmental management program was unacceptable for the scavenging households. They vehemently complained and disapprove of the policy as expressed during the interview. In fact, 48 out of 51 would not agree to close or relocate the dump site because they will no longer have an occupation because they are dependent to the area as a source of income. The remaining 3 (5.89%) reported that they will follow wherever the dumpsites will be relocated or look for another dump site and abandon their houses in *Sitio* Benedicto.

Table 3.4 Impact of the Implementation of the RA 9003

Effect on Income	
Income Before Implementation of RA 9003	**Php** 387.82
Income After Implementation of RA 9003	**Php** 146.08
Income Decrease	62.34%
Daily Minimum Wage Rate	327.00
Alternative Occupation of Scavenging Households (n=51)	
No alternative occupation	39.21%
Buy and Sell	5.88%
Janitorial Services	9.8%
Carpentry	15.68%
Laundry Services	17.64%
Driver	7.84%
Waiter	3.92%
Households' Response to Implementation of RA 9003 (n=51)	
Yes	7.85%
No	92.15%

4.0 Discussion

Scavenging is a risky occupation by individuals who are engaged in this work with abysmal working conditions solely as a means to survive. In order to sustain the household's daily needs, people near dump sites opt to do scavenging to meet their

daily needs and commodities. They could not afford to pay for their basic needs thus they must rely on these informal survival strategies. Venturing into waste reuse and recycling is intimately linked to patterns of self-help in many growing cities without social welfare systems like the Philippines (Furedy, 1990).

The condition of the scavenging households of Umapad is not unique. In a study by Nguyen (2000), he described waste pickers living under extremely unhygienic conditions and subjected to different environmental hazards. He claimed that wastepickers lack basic necessities (e.g. clean drinking water, toilets and decent housing) that may lead to poor waste sanitation and increase the rate of the spread of diseases (Nguyen et al., 2000). Further, scavengers also receive extremely low economic returns (Nguyen et al., 2000) in comparison to the hazards they are exposed to because most often they are engaged only in the sorting process. Only a small percentage of the scavengers are involved in the reprocessing and recycling because these requires larger investments. Some low income groups may have the opportunity to earn more but they have to deal and struggle with larger entities like junk shop owners (Gonzales, 2003). Scavengers just like the ones from Umapad dump site remain economically dependent on the dumpsite because their perceived benefits are far greater than the risks (Su, 2007). Further, their options are few since they have poor physical and human resources, low educational attainment, lack acess to facilities and basic services for self improvement. In effect, they have no employment opportunities and inadequate opportunities for participation in local government decision-making (Nguyen et al., 2000).

Scavenger's primary concern is to gain revenue but they also contribute to waste management as well through recyling. Yet their contributions remain unacknowledged and they continue to languish to various occupational health hazards arising out of abysmal working conditions. Scavenging in other countries is illegal, however, its view in the developing countries is contrary from the existing perspectives (Nguyen et al., 2000). Scavenging is ubiquitous in the Philippines and

is in fact legal according to the ESWM Act of 2000 as long as as it is controlled in a closed dumpsite. In fact, some scavenging cooperatives have been succesfully established in Metro Manila dumpsite not to stop them but to institutionalize scavenging and to assist scavengers in the trade and make sure that they will be well compensated (Medina, 2000).

If the ESWM Act of 2000 has to be strictly followed, the Local Government Unit should take an action for closure and eventual phase out of Umapad dump site because the policy mandates that open dumps should not be the final disposal site. At present, implemantation of ESWM Act of 2000 has reduced the wastes reaching the dump site and if the dump site has to be closed this will be an achievement for the city in terms of executing the law. However, the scavenging population will be displaced and economically at loss. Thus, the implementation of the policy should be carried out sustainably and an assurance should be taken into account that no interest can be sacrificed.

The waste pickers need for employment and decent lifestyle has to be properly integrated with the existing system of waste management and recovery of materials for recycling. The imposition of the policy presently brings a decreased in income by the scavengers thus their interest are sacrificed. Their should be a macro oriented program that will help the current status of the scavengers. It is essential to improve their living and working conditions. The waste pickers could be organized to set up cooperatives with the help of NGOs. The waste pickers could collect waste directly from households instead of foraging in garbage dumps. They could also be organized to start micro enterprises related to recycling. This will reduce the occupational health hazards providing them with better working conditions and also better income returns. In the process their contribution towards waste management will be recognized in the society (Nguyen et al., 2000). Institutionalizing waste picking in this manner would necessitate a change in urban waste management practices.

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