

Household waste management practices among selected barangays of municipality of Cantilan, Surigao Del Sur

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Abstract: The study aims to contribute better understanding of household waste management by examining the waste management practices and its perception, behavior and attitude toward household waste management. Finding revealed that Handling or managing household waste is every household members concern. Mothers spent more effort to manage the waste generated at home, assisted by the daughters. Respondents do not engage themselves in household waste management because of lack of time and no use since garbage collector dumped all waste into the same garbage truck. Regardless of whether the respondents are single or married, regardless of whether the number of their household members is small or large and regardless of whether their monthly household income is high or low, the extent to which these different cluster of respondents managed their household waste are relatively the same. One of the major global challenges now that the earth is facing the environment challenges that could be resolved if each individual and organization slightly changed their habit and practices.

Key words: Household waste management practices; Waste management; Environmental care; Global changes

1. Introduction

Rapid urbanization along with population increase both by natural increase and immigration has caused the Municipality of Cantilan now to suffer different inadequacy of infrastructural facilities. Among them, is one of the greatest problems of the Municipality of Cantilan, the Solid Waste Management? With the increase of population and rapid rate of urbanization and economic growth it resulted to a rapid increase of solid waste being generated. This in turn presents greater difficulties for waste disposal.

Waste is more easily recognized than defined. Something can become waste when it is no longer useful to the owner or it is used and fails to fulfill its purpose (Gourlay, 1992). Solid waste according to Beck (1991) is any useless, unwanted, or discarded material that is not liquid or gas. A great mixture of substances including fine dust, cinder, metal, glass, paper and cardboard, textiles, putrescible vegetable materials and plastic characterize solid waste (Manicini et al., 2007).

The new law establishes a National Ecology Center that will provide consultation, information, training and networking services for the improvement of solid waste management. One of its specific functions is to promote the development of a recycling market through the establishment of a national recycling network to increase recycling opportunities to the public. The Center will be headed by the Director of the Environment

Management Bureau (EMB), a line agency under the Department of Environment and Natural Resources (DENR). Multi-purpose environment cooperatives or associations will be established at the barangay level in every LGU for purposes of promoting and supporting the local solid waste management projects and programs.

This study aims to contribute better understanding of household waste management by examining the waste management practices and its perception, behavior and attitudes toward solid waste management.

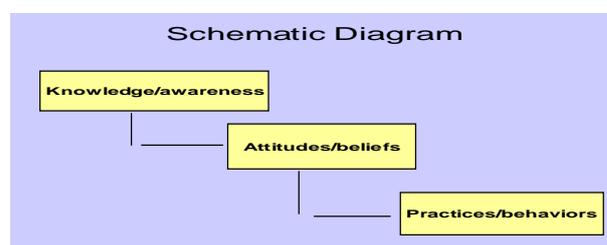


Fig. 1: Schematic diagram of the study

2. Statement of the problem

This study aims to determine the current practices of household solid waste management among respondents of selected barangays in the Municipality of Cantilan, Surigao Del Sur and its impact upon the solid waste management program as implemented by the LGU of the Municipality of Cantilan, Surigao Del Sur.

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Specifically, the study sought to answer the following problems:

1. What is the socio-demographic profile of the respondents in terms of:

- 1.1. Sex and marital status,
- 1.2. Number of Household Members in each Family;
- 1.3. Monthly household Income;

2. What is the extent of household waste management practices as practiced by the household under each of the following?

- 2.1. Survey on the person responsible of handling the waste generated by the household and its process of disposing the waste,
- 2.2. Classification of the household waste,
- 2.3. The extent of household waste management practices on the classified household waste?

3. What are the perception, attitude and behavior of the respondent towards the waste management practices?

4. Is there a significant difference on the extent of household waste management practices according to the socio-demographic profile of the respondents?

5. Based on the findings, what policy and program intervention can be formulated to further enhance insights and directions for LGU of Cantilan to its waste management program?

3. Hypothesis

The following null hypothesis was tested at 0.05 level of significance:

H₀: There is no significant difference on the extent of household waste management practices according to the socio-demographic profile of the respondents.

4. Methodology

The study used descriptive survey method to measure the extent of practices of the respondents in handling and disposing their waste generated in their household. This was done through answering the validated self-made questionnaire supplemented by informal interview. The study determined the interrelationship of the independent variables which is the socio-demographic profile of the respondents to the dependent variable which is the extent of household waste management practices as practiced by the household.

The locales of study were the six barangays of the Municipality of Cantilan Surigao del Sur, namely: Barangay Magosilom, Barangay Linintian, Barangay Parang, Barangay Pag-antayan, Barangay San Pedro, and Barangay Calagdaan. These barangays were chosen by the Researcher considering the following reasons: (1) that they are the top six highest numbers of households and (2) that they belong to an urbanized area in the Municipality.

The Respondents of this study were the bonafide residents of the Municipality of Cantilan; Surigao del Sur. Slovin's formula was employed to determine the sample size and the number of respondents of the study. Out of the 3,985 household belonging to the

top six highest household of Cantilan, a sample of 396 respondents was included on the study. To attain evenness on the number of respondents among the six barangays, the Researcher divided the sample size to six barangays. After sample size was determined, the researcher applies the random sampling.

5. Result and discussion

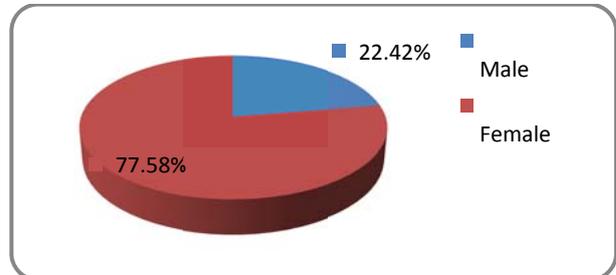


Fig. 2: Profile of the respondents as to sex

As shown in Fig. 2, implies that female respondents are concerned with household waste management. This can be based on the researchers experienced during the data gathering, wherein some of the male respondents often refuses to be interviewed they would tell the researcher to wait for their wife or mother since the latter is the one in-charge in cleaning or managing their household waste.

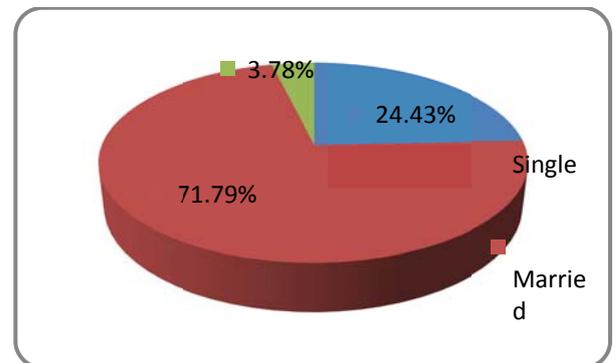


Fig. 3: Profile of the respondents as to civil status

Fig. 3 attributed to the fact that married individuals are more matured and socially stable hence, they are more anxious on the topic of household waste management whereas, single persons are not much anxious and more likely not inclined in dealing with household waste.

Data presented in Fig. 4 revealed typical Filipino Family has the average size composed of 1 to 5 members while others are extended families having 6 to 20 members in a household (http://en.wikipedia.org/wiki/Extended_family). The fact above can be supported that after marriage some couples choose to be separated from their parents to establish their own family. On the other hand, it is also observed that there are households wherein these are multiple families under one roof. This can be supported with the traditional practices of the Filipinos wherein the typical Filipino family is

known for their close family ties. Their relationship with each other is so close that they almost do not want to be apart from each other. That is why it is common seeing one household with extended families and generates more waste.

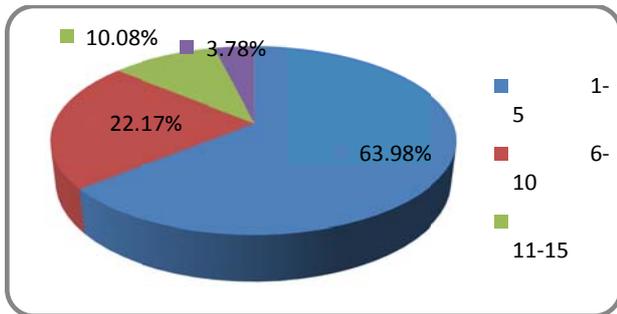


Fig. 4: Profile of the respondents number of household members in each household

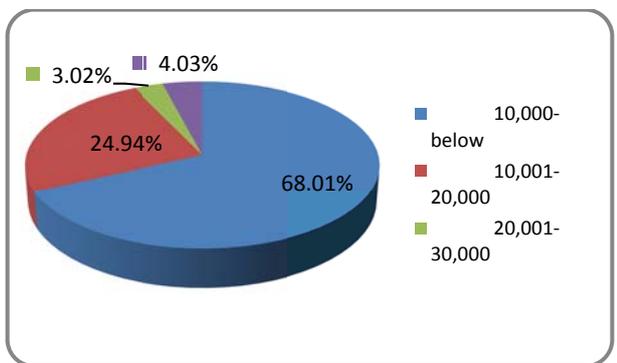


Fig. 5: Profile of the respondents as to monthly income in every household

The average monthly income of the respondents (Fig. 5) was also considered as an important variable that could influence the household practices on waste management. The data implied that most of the residents in the area belong to the low income families which can be attributed to the fact that most of the occupation of the respondents of the area belong to the low salary category.

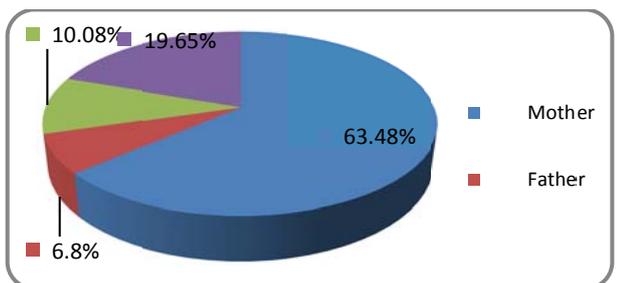


Fig. 6: Person responsible in handling waste generated by the household

As shown in Fig. 6, the result really implies that the great responsibility of handling the waste generated in every household is actually the role of the mothers who spent or give more effort to manage the waste generated at home. The role of the mother in household waste management in developing countries has been found to be substantial and therefore her employment status can influence the probability that a household will adopt

waste segregation and composting practices (http://www.globenet.org/preceup/pages/ang/cha pitre/capitali/transver/ethiopia_e.htm).

It was also found out during the interview with the respondents that the responsibility of household waste collection and separation also varies. Some said that it is the really the mother's duty assisted by the daughters (if she has), who handles the household cleaning and separating of the waste. The male members of the family do not participate in these activities, except that they sometimes involve themselves when the waste is bulky and some physical help is required to transport it to dumping places. In case of the well to do families, it is the servants or housekeepers who collect and dispose off the household wastes.

In determining the extent on household waste being separated to different waste materials, the Researcher asked the respondents if they engaged themselves in separating the different waste materials as to the classified household waste namely: compostable, recyclable, residual and special waste.

Table 1: Classification of household waste mostly separated

Classification of Household Waste	Total	Percent	Rank
A. Compostable waste			
Food waste	224	100	1.5
Fish/Fowl, Animal entail	224	100	1.5
Garden Waste	81	36.16	3
Animal Waste	14	6.25	4
B. Recyclable waste			
Tin Cans	176	78.57	1
Newspaper	109	48.66	2
Glass	49	21.88	3
Scrap Metal	42	18.75	4
Aluminum	37	16.52	5
C. Residual waste			
Candy Wrapper	195	87.05	1
Sanitary Napkin	194	86.61	2
Carton contain a plastic lining	191	85.27	3
Disposable Diaper	111	49.55	4
Worn out rags	75	33.48	5
Ceramics	31	13.84	6
D. Special waste			
Batteries	121	54.02	1
Paints	46	20.54	2
Spray Canister	22	9.82	3
Tires	14	6.25	4
Oil	13	5.80	5
Thinner	9	4.02	6

Table 1 depicts the classified household waste with respect to the respondents who responded that they engaged themselves in separating their generated household waste according to the four basic classification of waste namely: compostable, recyclable, residual and special waste. Table show that most of the respondent knows how to classify waste and this implies that if they know to classify this waste followed that they also know what to do with this waste.

Table 2 shows the descriptive categories on the extent of practices of the respondents on their waste

generated in the household. This table provides more details on what practices they often applied on the classified household wastes that was mentioned a while ago.

Table 2: Descriptive category on the extent of household waste management practices on the classified household waste

Practice of Disposing Household Waste	TOTAL Weighted Mean	Descriptive Category
A. Compostable Waste		
Open Burning	3.12	Occasionally Practiced
Used as Organic Fertilizer	3.02	Occasionally Practiced
Used or given as slop or swill (pasaw)	4.42	Always Practiced
Burying	3.08	Occasionally Practiced
Collected by the Garbage Collector	3.01	Occasionally Practiced
B. Recyclable Waste		
Open Burning	3.05	Occasionally Practiced
Reuse them	4.41	Always Practiced
Sell them	4.12	Many Times Practiced
Give them	2.98	Occasionally Practiced
Burying	2.64	Occasionally Practiced
Collected by the Garbage Collector	2.95	Occasionally Practiced
C. Residual Waste		
Open Burning	3.77	Many Times Practiced
Reuse them	2.45	Occasionally Practiced
Throw them anywhere	2.26	Rarely Practiced
Burying	3.63	Many Times Practiced
Collected by the Garbage Collector	4.22	Many Times Practiced
D. Special Waste		
Open Burning	3.39	Many Times Practiced
Reuse them	2.98	Occasionally Practiced
Sell them	3.12	Occasionally Practiced
Give them	2.96	Occasionally Practiced
Burying	2.83	Occasionally Practiced
Collected by the garbage Collector	3.92	Many Times Practiced

This data coincides with the previous result with respect to the classified compostable waste. It can be deduced that as always practiced majority of the respondents separated food waste, fish fowl and animal entails to be used or given away as slop or swill. In term of garden waste and animal waste respondents engaged occasionally on practices such as open burning, used as organic fertilizers, burying and collected by the garbage collector.

As with the recyclable waste, among the practices mentioned, it is always practiced by the respondents that these recyclable wastes were re-used. This can be supported by the fact that recyclable wastes are household waste that can be converted into suitable and beneficial use. Other respondents articulated that as many times practiced they sell their recyclable waste. Other practices such as open burning, burying, give them out and collected by the garbage collector are practiced occasionally.

As with the residual waste, it is revealed that it is many times practiced by the respondents that the said waste were subjected to open burning, burying and collected by the garbage collector. Practices such

as reusing them are occasionally practiced while throwing them anywhere is rarely practiced.

As with the last classified household waste , the special waste, it is many time practiced by the respondents that their special waste were subjected to open burning and given away or collected by the garbage collector whereas, practices such as reuse, sell give and burying them are occasionally practiced.

To summarize the above results, it can be deduced that respondents have diverse ways or practices in disposing their household waste. With this result, it only implies that respondents are eager to dispose and get rid of their waste in any way they can resort to. In fact, the Researcher is grateful since most of the respondents are on the right track of managing their household waste. It is now the duty of the government officials to implement different plans or strategies to this different classified household waste on what kind of disposing practices they would implements because it is known that the residents of the Municipality of Cantilan are eager to participate.

In order to give value on their willingness to participate to the different plans and programs of the government, the Researcher added additional variables to determine the household's perception, attitude and behavior in the household waste management. This variable nearly means the extent to which respondents are aware of, care about and view household waste management in their areas. This would help much in providing inputs into the formulation of the local waste management plans and programs particularly on household solid waste management activities.

As mentioned from the previous discussion that respondents were asked if they engaged in separating their generated household waste, majority claimed that they engaged themselves in segregating their household waste while few claimed that they do not engaged themselves in segregating their household waste. When asked with reasons for practicing and not practicing the reasons are spelled out on Tables 3 and 4 respectively.

As shown in Table 3 the respondents' reason of practicing household waste management are determined by several factors, which is related to environmental motivation, social pressure and economic incentives. Most households considered cleanliness and the environment as primary concerns for engaging in waste management activities. The rank shows that most of the respondent cleans their house to keep free from cockroaches and others pest.

As shown in the Table 4, respondents have different reasons of why they did not engage themselves in household waste management. Among the households that do not practice household waste management, because of lack of time or inconvenient, no use since the garbage collector dumped all the waste into the same garbage truck.

Table 3: Respondents reason of practicing household solid waste management

Reason of Practicing Household Solid Waste Management	Total	Percentage (%)	Rank
	197	87.95	1
	173	77.23	2
House kept clean and free of cockroaches and other pest	104	46.43	3
Good for the environment	50	22.32	4
Garbage collection not reliable	30	13.39	5
Provide food for our animal	27	12.05	6.5
Mandate by municipality	27	12.05	6.5
Recyclable sold or given away	27	12.05	6.5
Earn money from sale of fertilizer	27	12.05	6.5
Composting of food / kitchen waste	19	8.48	8
Enhance garden soil	19	8.48	8
A strong community advocate	18	8.03	9
	9	4.01	10

Table 4: Respondents reason of not practicing household solid waste management

Reason of Not Practicing Household Solid Waste Management	Total	(%)	Rank
No time /Inconvenient	142	82.08	1
No segregated collection	123	71.09	2
Difficulty in finding storage place	89	51.44	3
Tiresome/annoying/irritating	86	49.71	4
No space at home	61	35.26	5
Not interested/Not important	59	34.10	6
No knowledge of segregation	52	30.05	7
No knowledge of composting	48	27.74	8
No garden	32	18.49	9
Kitchen waste given away/kitchen waste being collected	18	10.40	10

Table 5: DIFFERENCES on the extent of household waste management practices according to the socio-demographic profile

Socio-demographic Profile	Category	N	Mean Extent of Household Management	T-Test and Analysis of Variance		Decision Ho	Conclusion
				Computed Value	Critical value at 5%		
AGE	13-19	16	2.99	10.376	2.01	Rejected	Significant
	20-26	15	2.56				
	27-33	34	2.68				
	34-40	32	2.70				
	41-47	41	2.84				
	48-54	37	2.74				
	55-61	30	2.95				
	More than 61	19	2.33				
SEX	Male	76	2.65	7.909	3.84	Rejected	Significant
	Female	14	2.79				
		8					
MARITAL STATUS	Single	65	2.81	2.805	3.00	Not Rejected	Not Significant
	Married	15	2.72				
	Widow/er	4	2.65				
		5					
NO.OF HOUSEHOLD MEMBER IN THE FAMILY	1-5	16	2.72	2.098	2.37	Not Rejected	Not Significant
	6-10	4	2.65				
	11-15	32	2.69				
	16-20	23	2.87				
		5					
MONTHLY HOUSEHOLD INCOME	10,000- below	17	2.33	2.156	2.37	Not Rejected	Not Significant
	10,001- 20,000	7	2.65				
	20,001- 30,000	30	2.79				
	30,001- 40,000	7	2.81				
		10					

Table 5 shows Handling or managing household waste is every household members concern. Female are more concerned with household waste management. Single person are not much anxious and more likely not interested in waste management compared to married person. Filipino family is known for their close family ties. Their relationship with each other is so close that they almost do not want to be apart from each other. That is why it is common to them having extended families. Mothers spent more effort to manage the waste generated at home, assisted by the daughters. The male member participates when the waste is bulky and some physical help is required to support it to dumping

places. For well to do families, it is their servants or housekeepers who collect and dispose off the household wastes. The classified household waste with respect to the respondents who responded, they engage themselves in separating their generated household waste according to the four basic classification of waste. Respondents are eager to dispose and get rid of their waste in any way they can resort to. The government officials should implement the different plans and strategies because the residents of Cantilan are eager to participate in programs pertaining to waste disposal and waste management. Regardless of whether the respondents are single or married, regardless of

whether the number of their household members is small or large and regardless of whether their monthly household income is high or low, the extent to which these different cluster of respondents managed their household waste are relatively the same.

6. Conclusion

Waste segregation at the household level is not widely practiced and waste recycling is minimal. Past effort to promote waste segregation at source were failed despite the issuance of Municipal ordinance providing sanctions and penalties for non-compliance. Some reasons that have been cited for non-compliance include: indifference of local residents to participate in community waste management related activities, local government collection services, residents attitudes that the government has the sole responsibility over garbage management and lack of information and education campaigns. Dissemination of result was conducted in every barangay and re orientation of waste management policies, recycling was done. Strengthen MRF orientation should be properly presented by the Local Government Unit for understanding on what is the purpose of MRF.

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