

THE IMPLEMENTATION OF WASTE SEGREGATION SCHEME IN LA TRINIDAD, BENGUET



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ABSTRACT

This study assessed the implementation of the waste segregation scheme in La Trinidad. Assessment of the practices related to the implementation showed that most of the variables were rated highly a factor. The top five were as follows: residents segregate their waste religiously; residents dispose their garbage according to schedule; local government officials involve associations in the implementation; residents' associations support the scheme by including this in their program of activities and sanctions are given to those who do not follow the scheme. Majority of the respondents or 53% considered the scheme a success.

Resulting logistic regression model showed that respondents who considered that the practice of residents disposing their garbage according to schedule as highly a factor in the waste segregation scheme were 1.3 times more likely to consider the implementation a success; those who considered the practice of barangay officials meeting the residents and explaining to them the scheme as highly a factor in the waste segregation scheme were 5.8 times more likely to consider the implementation a success; residents from Ambiong were 4.5 times more likely to consider the implementation a success and those from Tawang were 1.3 times more likely to consider the implementation of the scheme a success.

Keywords: *waste segregation scheme, implementation, logistic regression analysis and residents' practices*

INTRODUCTION

Solid waste management has become a major concern of government institutions world-wide, including the Philippines. The issue on solid waste management has been and remains at the forefront of public attention. Economic activities as well as urbanization, growth and the swelling population in our country, contribute to the heaps of garbage building up from generation to generation. Studies have shown that improper waste disposals have caused sanitation and health problems. Furthermore, flooding is rampant because of the clogging of waterways. Health problems are caused by pollution of water resources. Because of these issues, there is social and community degradation. Solid waste build-up has reached critical proportion that immediate attention is necessary (National

Solid Waste Management Framework, 2004).

In Benguet, the increase in the volume of solid wastes in the public markets located in the province is alarming. Government officials fear that the province may not be prepared to deal with huge volumes of garbage.

In La Trinidad, Benguet, the disposal of vegetable trimmings at the Vegetable Trading Post is estimated at 60 tons a day. This is a big concern to the town, even though farmers from Bektey, La Trinidad, Benguet insist that they have been bringing back their trimmings to their farms. The trimmings come from more than 1,000 tons of vegetables traded here daily. Up to 93 tons of waste is hauled twice daily. The Municipal Engineering Office has reported that the Alno dump site has

exceeded its capacity and is in danger of collapsing into a trash slide (Catajan, 2014).

The 1998 Feasibility Study for the Integrated Waste Management and Development (FS-IWMD) in the BLIST (Baguio-La Trinidad-Itogon-Sablan-Tuba) area covered five sources of solid waste namely residential, commercial, institutional, market and agriculture. According to the study, a person produces, on the average, 0.183 metric tons of waste a year or 0.501 kg/capita/day. The volume of waste from residential sources is expected to rise with the rate of population increase. From the 57 metric tons/day in 2009, this will rise by around 74 metric tons/day in 2015. The areas that contribute the most to residential waste generation are the urban barangays of Pico, Balili and Poblacion.

Environment officials call for the implementation of the towns' Solid Waste Management programs. The Benguet Environment and Natural Resources Office, for instance, is calling for the management of wastes not only from commercial centers but also from hospitals, schools and residential areas. La Trinidad is appealing to the residents to comply with the government's waste management program by segregating their biodegradable wastes from non-biodegradable ones. Former municipal administrator of La Trinidad Charles Canuto said that barangay officials are tasked to oversee the garbage collection in their areas to ensure that waste materials are properly segregated. Waste segregation involves sorting out garbage or waste into separate containers so that recyclable items can be sold, wastes from the kitchen and the garden can be converted into compost and the remaining garbage (called "residual waste") are sent to landfills.

Garbage is collected daily by garbage trucks from residences, offices and business establishments. Garbage includes junk food wrappers, candy wrappers, sachets, tetra packs, sanitary napkins, styrofoam, disposable diapers, worn out rugs, broken ceramic plates, light bulbs, disposable batteries, destroyed toys, cellophane and sando bags. Often times, these wastes are not segregated.

At present, majority of the communities in our country are encountering problems regarding

solid wastes. This is the reason why most municipalities are implementing their own solid waste management program. La Trinidad adopts a Solid Waste Management framework that guides its action planning as identified and outlined in its Solid Waste Management Plan (SWMP) prepared in 2004. SWMP explains the principles and concepts that guide the LGU's efforts at solid waste management. In the official website of La Trinidad, Solid Waste Management is defined as an interactive, technical, environmental, social, political and economic system. To understand the interwoven activities, understanding the stages and factors that affect each stage is required: 1) waste generation; 2) collection; and 3) disposal. However, everything depends on the volume and type of waste generated. Hence, waste generation is seen as the most critical stage of waste management as it sets the stage for succeeding activities. Further, the efforts in collection depend on waste generation while the requirements for waste disposal depend on the volume that is collected.

Objectives

This study was conducted to assess the implementation of the waste segregation scheme of La Trinidad by identifying the practices that were considered as factors in the implementation of waste segregation. Logistic regression analysis was used to determine the variables which contributed significantly to whether the residents considered the implementation of the waste segregation scheme in the area a success or not. The researchers considered the study important to La Trinidad and its constituents since the results of the study could serve as a feedback on the municipality's Solid Waste Management Program.

METHODOLOGY

Respondents of the Study

Survey questionnaires were administered to respondents from the 16 barangays of La Trinidad from December 2011 to January 2012. The respondents were chosen using stratified random sampling.

The variables included in the study were the

following: the respondents' civil status, educational attainment, age, gross monthly income and sex, the ratings on practices related to the implementation of the waste segregation scheme and their assessment on whether they considered the implementation a success or not.

Table 1 presents the socio-economic profile of the respondents. Out of 360 respondents, 237 or 66% are single while 123 or 34% are married. For their educational attainment, out of the 360 respondents, 146 are college undergraduates. For their gross monthly income, 83% belong to PhP 9,000 and below income earners. 52% of the respondents are female while 48% are males. There were 20 respondents from every barangays except barangay Balili and Pico where the number of respondents is doubled considering that both have higher population than the rest.

Data Analysis

Logistic regression analysis was used in determining the level of success of variables contributing to the residents' assessments on the implementation of the waste segregation scheme in La Trinidad. The variables were the practices or activities related to the implementation of the program and the arithmetic mean or average ratings on the extent of how these were considered as factors were obtained. The implementation is rated highly a factor (HF) if the respondents follow the segregation programs and if LGU officials do their part in the implementation of the waste segregation scheme. The implementation, however, is rated moderately a factor (MF) if the respondents together with the LGU officials help each other in the implementation of the waste segregation scheme but some areas of the 16 segregation practices are disregarded or taken for granted. Frequency count and proportion (in per cent) on some demographic information of the respondents were also included as variables.

Assessment on the Implementation of the Waste Segregation Scheme

Table 2 shows the descriptive statistics of the independent variables. Most of the variables were rated highly a factor (HF), with the top five in the average ratings listed as follows: residents segregate their waste religiously; residents dispose their garbage according to schedule; local government officials involve associations in the implementation; residents' associations support the scheme by including this in their program of activities; and sanctions are given to those who do not follow the scheme. Only three out of the 16 factors were rated moderately a factor (MF), and these were publicity and media coverage on the scheme made; local government officials provide incentives to residents/barangay following the scheme; and house-to-house campaign on the scheme is conducted.

The findings implied that the residents varied in their views on the waste segregation practices being mandated by the local government. The difference may be attributed to the varied demographic characteristics of the respondents, in terms of civil status, educational attainment, age, gross monthly income, sex and barangay where the respondents reside.

Factors Affecting the Assessment on the Implementation of the Waste Segregation Scheme

Table 3 shows the result of logistic regression analysis, using forward stepwise procedure. The resulting logistic regression model implies that some of the residents considered the implementation of the waste segregation scheme a success while others do not. The majority, 192 of the 360 respondents or 53% considered the implementation of the waste segregation scheme successful.

The practices of residents disposing their garbage according to schedule and for Barangay officials meeting the residents and explaining the scheme to the residents have Wald statistics' sig-values of 0.044 and 0.011, respectively, which are significant at 5 percent level. This indicates that in the logistic regression model, these practices contribute significantly to whether the residents considered

Table 1. Socio-economic profile of respondents

Variables	Frequency	Proportion (%)
Civil status		
Single	237	66
Married	123	34
Educational Attainment		
Elementary Undergraduate	18	5
Elementary Graduate	18	5
High school Undergraduate	33	9
High school Graduate	46	13
College Undergraduate	146	41
College Graduate	99	28
Age		
17-24	221	51
25-32	79	22
33-40	32	9
41-48	15	4
49-56	8	2
57-64	5	1
Gross Monthly Income		
Below – 9,000	298	83
10,000 – 14,000	45	13
15,000 – 19,000	11	3
20,000 – above	6	2
Sex		
Female	187	52
male	173	48
Barangay		
Alapang	20	6
Alno	20	6
Ambiong	20	6
Bahong	20	6
Balili	40	11
Beckel	20	6
Betag	20	6
Bineng	20	6
Cruz	20	6
Lubas	20	6
Pico	40	11
Poblacion	20	6
Puguis	20	6
Shilan	20	6
Tawang	20	6
Wangal	20	6

Table 2. Waste segregation scheme implementation rating

Practices	Average Rating	Descriptive Rating
X1. Residents segregate their waste religiously	3.90	HF
X2. Residents dispose their garbage according to schedule	3.89	HF
X3. Local government officials involve associations in the implementation	3.85	HF
X4. Residents' associations support the scheme by including this in their program of activities	3.85	HF
X5. Sanctions are given to those who do not follow the scheme	3.80	HF
X6. Garbage collectors are encouraged to be friendly and courteous to the residents	3.74	HF
X7. Information dissemination is conducted by the local government of Bektey, La Trinidad, Benguet	3.71	HF
X8. Segregation materials are provided	3.69	HF
X9. Residents are encouraged to attend meetings/seminars about the scheme	3.65	HF
X10. Information dissemination is conducted by the national government	3.64	HF
X11. Barangay officials meet and explain the scheme to the residents	3.63	HF
X12. Flyers and posters are distributed to inform the residents about the scheme	3.62	HF
X13. Segregation materials are provided by the local government	3.53	HF
X14. Publicity and media coverage on the scheme are made	3.40	MF
X15. Local government officials provide incentives to residents/barangays following the scheme	3.40	MF
X16. Conduct of house-to-house campaign on the scheme	3.33	MF

* HF-highly a factor MF- moderately a factor

Table 3. Logistic regression analysis on the waste segregation scheme

Independent Variables of the Implementation	Dependent Variable: Success or Failure Yes = 192 (53%) No= 168 (47%)		
	Odds Ratio	Coefficients	Wald stat sig
Constant		0.680	0.025
Residents dispose their garbage according to schedule	1.3	0.234	0.044
Barangay officials meet and explain the scheme to the residents	5.8	0.262	0.011
Barangay Ambiong	4.5	1.752	0.026
Barangay Tawang	1.3	1.507	0.041

% correct predictions = 62% Nagelkerke R² = 15.5%

the implementation of the waste segregation scheme a success or not. Similarly, the barangays highly a factor in the waste segregation scheme 1.3 times more likely to consider the implementation of the scheme a success. Those who considered the practice of barangay officials meeting the residents and explaining to them the scheme as highly a factor in the waste segregation scheme were 5.8 times more likely to consider the implementation of the where the respondents reside, specifically, if they reside in Ambiong or Tawang. This also affected their assessment of the success or failure of the scheme.

Based on the odds ratio values, respondents who considered that the practice of residents disposing their garbage according to schedule as scheme a success. Residents from Ambiong were 4.5 times more likely to consider the implementation of the scheme a success; while those who were from Tawang were 1.3 times more likely to consider the implementation of the scheme a success.

The coefficients (Coef.) which resulted from the forward stepwise procedure in the logistic regression analysis would be useful for model formulation.

The model predicts correctly 62% of the responses, particularly, on the assessment of the success or failure of the scheme. The Nagelkerke R^2 indicates that the Barangay officials should meet and explain the scheme to the residents. The 15.5% variability in the responses on the assessment on the implementation of the waste segregation scheme could be explained by the four variables identified in the logistic regression model.

CONCLUSIONS AND RECOMMENDATIONS

Most of the 16 identified practices on waste management were considered as highly a factor in the implementation of the waste segregation scheme in La Trinidad. Only three of these were rated as moderately a factor. Among the variables fitted in the logistic regression model, only four emerged as contributing significantly to the assessment of the residents on the success or failure of the waste segregation scheme.

The results of the study lead to the recommendation that more effort and political will may be exerted by both barangay officials and residents in each and every barangay. This is to sustain and uphold the different practices on the waste segregation schemes, most especially the 13 practices identified as highly a factor in the assessment on the implementation of the waste segregation scheme in La Trinidad.

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