



Assessment on the Solid Waste Management and Sanitation Programs in the Municipality of Balilihan

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Received 20 February 2015 Accepted 13 May 2015 (*Corresponding Author)

Abstract The study was conducted to assess the sanitation and solid waste management (SWM) programs and its practices implemented by the Municipality of Balilihan, Bohol during the Academic Year 2013-2014. This study used the descriptive-survey method with the aid of a researcher's made questionnaire which was administered to 1,152 respondents representing 31 barangays of Balilihan. Based on the result, it was found out that most of the respondents oftentimes practice the proper SWM and the programs are oftentimes observed. In terms of Sanitation, majority of the respondents always practice the proper way and the programs are always observed. The conclusions revealed that SWM programs and SWM practices have a consistent result of oftentimes observed and oftentimes practiced. These simply explained that the programs and measures were known to some respondents and some did not give attention to support the programs. Sanitation programs and practices were also consistent of always observed and always practiced. The result shows that the residents nowadays learned to care for sanitation unlike in the past where sanitation was given less attention. It is recommended that the Local Government Unit of Balilihan should collaborate with other stakeholders for public campaigns on proper sanitation and SWM practices. Also, strict monitoring and evaluation should be developed to provide clear strategic direction to Local Integrated Solid Waste Management and procurement of additional vehicles to enhance the efficiency in the garbage collection. Another, that activities such as Barangay Participatory Evaluation and Assessment, House-to-House Campaign, convene the residents for an Orientation Seminar on solid waste segregation, Posting of streamers, posters, house tags and bill boards should be undertaken to raise awareness on solid waste management and encourage the public to recycle recyclable items.

Keywords solid waste, solid waste management, sanitation, sanitation management

INTRODUCTION

One of the problems confronting the country today is the solid waste disposal. The disposal of waste materials has become a race between education and catastrophe. Through man's activities, his own environment has been disturbed and so, degraded resulting to the disruption of the ecological balance (Cunningham and Cunningham, 2008). It implies that future waste will pose greater health and environmental risks. Meanwhile, in the present condition in Balilihan, it is evident that in the past ten years, municipality's population, infrastructure facilities and business activities have been increasing. These socio-economic changes, however, have resulted in rising solid waste generation and it is aggravated by improper SWM practices of waste sources. At present not only the poblacion barangays are being served by the municipal waste collection services, but the entire 31 barangays are included.

Recognizing the need to take steps in addressing this solid waste problem and pursuing the thrust to make Balilihan as an eco-tourism site, the Local Government of Balilihan has developed the Ten-Year Integrated Solid Waste Management Plan (ISWM) for 2009-2018 (Municipality of Balilihan, 2009). The town is implementing strategies to improve local solid waste management. This plan was not made only to satisfy the mandate of the Ecological Solid Waste Management Act of 2000 or RA 9003, but also to guide the LGU to achieve its Vision, Mission, and Goals for an effective ISWM Program that would aid in the LGUs general long term objective for a responsible development in the municipality.

As for that basis, to show that BISU Balilihan Campus as an educational institution supports the program of the local community, the faculty were motivated to conduct a study that determine how far the local government unit of Balilihan have implemented their Solid Waste Management and Sanitation Programs and to further assess the practices of the Balilinhon on solid waste management and sanitation and in one way helped enrich the consciousness of the people and become responsible in their actions. Besides, this will serve as a guide in improving the well-being of the town and could further upgrade the living standards through a clean and healthy environment (Austral, 2008; Bordador, 2005; Navarro, 2010).

OBJECTIVE

The study was conducted to assess the status of implementation of the sanitation and solid waste management programs of the Municipality of Balilihan, Bohol and to assess further the practices of the Balilinhon on solid waste management and sanitation during the Academic Year 2013-2014.

METHODOLOGY

Research Design

The study used descriptive survey method with the aid of a questionnaire. Its main purpose is to assess the implementation of the SWM and Sanitation Programs set by the Local Government of the Municipality of Balilihan. This study was also designed to assess the practices of solid waste management and sanitation in every household.

Sampling Procedure

The local of the study was the municipality of Balilihan. It was composed of 31 barangays with a total household of 3840. 30% of the total household population which is 1152 was the sample size. The respondents were chosen through random sampling in which, 30% of the population of every purok in every barangay was randomly selected.

Methods of Data Collection

The researchers asked permission from the office of the Municipal Mayor to conduct this study. Barangay Captains of the different barangays were also informed before the questionnaires were distributed.

The prepared questionnaires were validated through pilot testing to neighboring town. The final copy of the questionnaire was translated into Mother tongue language for the respondents to fully understand each statement.

The validated copy of the questionnaire was distributed personally to the respondents. Retrieval was done immediately after answering. It was tabulated and interpreted when all the data were gathered.

Hundred percent of the respondents answered all items in the questionnaire. Since the researchers personally distributed the questionnaire to the respondents, they will be able to emphasize the importance of their responses.

Analytical Procedures

To determine whether the programs are properly implemented by the Local Government of Balilihan, the average weighted mean was used.

$$\text{Formula: WM} = \frac{\sum fw}{\sum f} \quad (1)$$

where WM = weighted mean, f = frequency, w = weight

The means were interpreted and given the scale values for Programs and Practices.

Weighted Mean	Description
3.25 – 4.00	Always Practiced/ Always Observed (Habitual-Above the median)
2.50 – 3.24	Oftentimes Practiced/Oftentimes Observed (A little above the median)
1.75 – 2.49	Seldom Practiced/Seldom Observed (A little below median)
1.00 – 1.74	Never Practiced/Never Observed

RESULTS AND DISCUSSION

Table 1 Assessment on solid waste management programs

Waste Management Programs	WM	Description
1. Full waste segregation of wastes into biodegradable, recyclable, residual and special wastes;	3.23	Oftentimes Observed
2. No segregation, no collection policy;	3.15	Oftentimes Observed
3. Information dissemination campaign through general assemblies, stickers are posted in public areas and leaflets for the use of biodegradable environmental friendly materials.	3.20	Oftentimes Observed
4. Livelihood programs for recyclable materials	3.14	Oftentimes Observed
5. Prohibition of burning and dumping of waste in an open area or vacant public lots.	3.16	Oftentimes Observed
6. Give incentives at the Barangay level for greater implementation on Solid Waste Management and Environmental clean-up.	3.07	Oftentimes Observed
7. Requiring local farmers to practice organic fertilizer.	3.11	Oftentimes Observed
8. Promote the following waste practices: waste reduction, recycling and composting.	3.18	Oftentimes Observed
9. Prohibition of dumping of waste in an open area or vacant public lots.	3.19	Oftentimes Observed
Average Weighted Mean	3.15	Oftentimes Observed

Table 1 shows the Solid Waste Management Programs in the household sector. This shows that most of the programs are “oftentimes observed” with an average weighted mean of 3.15 in spite of its strict implementation.

The government is one of the agencies that take a very critical rule in conserving the environment since they have the full authority to control the massive negative effect against the destructive environmental practices.

Likewise, the government is doing a massive campaign on the use of biodegradable environmental friendly materials. However, the result indicates the need to further empower the campaign to elevate their responses as shown in item no. 3 with an WM of 3.20. On the other hand, one way of motivating residents to promote proper implementation on Solid Waste Management is to give incentives to those who are good followers to the imposed policy. However, the respondents revealed that there is a need to initiate “gimmick” to encourage the residents to participate in such program. This item has a WM Of 3.07.

Furthermore, the responses of the remaining items fall into “oftentimes practiced”. These are item number 4 and 7 which is an indication that there are still SWM programs which are not fully recognized by the people within the area.

On the other hand, hundred percent of the respondents answered all items in the questionnaire. Since the researchers personally distributed the questionnaire to the respondents, they will be able to emphasize the importance of their responses.

Table 2 Actual solid waste management practices

Solid Waste Management Practices	WM	Description
A. Disposal of Waste		
1. Biodegradable Waste		
a. No burning	3.03	Oftentimes Practiced
b. Used as fertilizer	3.07	Oftentimes Practiced
c. Placed in the compost pit	3.58	Always Practiced
d. Practice segregation	3.03	Oftentimes Practiced
e. Leave it to decompose elsewhere	2.30	Seldom Practiced
Average Weighted Mean	3.14	Oftentimes Practiced
2. Non-biodegradable such as plastic, cellophane, bottles, styrofoam		
a. No burning	3.03	Oftentimes Practiced
b. Placed in the garbage can for non-biodegradable waste.	3.12	Oftentimes Practiced
c. Send to the garbage collector	3.05	Oftentimes Practiced
d. Self recycling to those that can be utilized	3.3	Always Practiced
e. Market sellable waste	3.75	Always Practiced
Average Weighted Mean	3.25	Oftentimes Practiced
3. Breakable		
a. Put/throw to garbage container intended for delicate and fragile.	3.03	Oftentimes Practiced
b. Market sellable wastes	3.28	Always Practiced
c. Recycle and utilize	3.25	Always Practiced
d. Sent to the garbage collector.	2.99	Oftentimes Practiced
Average Weighted Mean	3.13	Oftentimes Practiced
B. Other Practices		
1. Comply waste collection schedule.	2.94	Oftentimes Practiced
2. Refrain from using disposable plastic materials.	2.45	Seldom Practiced
3. Participate community clean-up activities	3.85	Always Practiced

Table 2 indicates the SWM Practices of the respondents. It shows that item “Placed it in the compost pit got the highest mean response of 3.58 with the qualitative response of “Always Practiced”. The result implies that the respondents often practiced to decompose their biodegradable waste and placing it in the compost pit. Item on “Leave it to decompose elsewhere got the lowest weighted mean of 2.3. The respondents are cognizant of the possible health and environmental problems if their wastes are scattered anywhere.

In terms of non-biodegradable wastes, it shows that item “Market sellable wastes and self recycling to those that can be utilized” got the mean of 3.75 and 3.3 respectively with a descriptive rating of “Always Practiced. The respondents observe thrift and even make money out of their wastes. While on the other hand, items, “Placed it in the garbage can for non-biodegradable waste, no burning, and sending it to the garbage collector were rated as Oftentimes practiced by the respondents. This means that there are still respondents who are not fully aware of the negative outcome of their activities.

Table 2 also indicates the SWM practices in terms of fragile/breakable and hazardous wastes. The practices that always perform by the respondents are the marketing of sellable waste and

recycling and utilizing wastes. Other important practices are leaved behind. It means that majority of the people are not so careful of the probable accidents or other problems which their acts may cause.

On the other hand, other practices aside from waste disposal waste are shown on the table. As manifested, participating community clean-up activities were always practiced by the respondents. This is a manifestation that the people are cautious in maintaining the cleanliness of their surroundings. However complying collection schedule and refraining from using disposable plastic materials were oftentimes practiced.

Table 3 Assessment on sanitation programs

Sanitation Programs	WM	Description
1. Municipal ordinance requiring all household to use water sealed toilet.	3.91	Always Observed
2. Regular checking of water supply by sanitary inspector.	3.62	Always Observed
3. Municipal ordinance requiring all household to create safety septic tank.	3.86	Always Observed
4. Conducting symposium, lectures, forum or campaign about sanitation.	3.21	Always Observed
5. Regular monitoring of commercial water refilling station and private water sources by sanitary inspector.	3.61	Always Observed
6. Ordinance prohibiting the dumping of solid waste, toxic materials and garbage in canals and drainage.	3.73	Always Observed
Average Weighted Mean	3.66	Always Observed

Table 3 shows the various sanitation programs formulated by LGU Balilihan. Based on the results, the implementation of the programs and measures was always observed by its constituents. It garners an average weighted mean of 3.66. Based on the results, item 1 which is “Municipal ordinance requiring all household to use water sealed toilet” got the highest rating of 3.91 which means always observed. Authorities strictly implemented, evaluated and monitor the program. They also provide free water sealed toilet for the less fortunate just to ensure full implementation of the program.

In addition, the item 3 which is “requiring all households to create safety septic tank” and item 6 “The ordinance prohibiting the dumping of waste in canals and drainage” got second in the rank. Based on the result, majority of the respondents are already disposing their wastes in a septic tank. However, there are still few, especially those who are situated far from their neighbors, who just throw their wastes in their yard or drainage. They believed that as long as they cannot bring any problem to other people, it is just fine to throw their garbage anywhere.

The Municipality of Balilihan has abundant water supply. Based on the result, the residents of Balilihan always observed that these sources of water (water refilling stations, private water sources and other water supply) were regularly checked by the public sanitary inspector. In fact, there were only rare cases of health problems among the residents which is caused by contaminated water supply.

Table 4 presents the Sanitation Practices related to toilet facilities; water supply; sewage, refuse container, laboratory, canals and drainage system in the household area. Based on the result, the respondents were always using clean water sealed toilet with the average weighted mean of 3.96, functional septic tank with 3.93, adequate supply of water for toilet maintenance with 3.93. The respondents are educated already of these proper sanitation practices.

In terms of water supply, majority of the respondents answered “always practiced” that bottled drinking water from a supplier is handled, stored and protected from contamination with the highest average weighted mean of 3.73. This means that the respondents were very cautious of the water they drink. It’s a good sign that they are protecting their health against illnesses and diseases.

It also revealed in the table that the respondents always dispose sewage discharge in a proper receptacle, make use of functional lavatory, provide tight fitting lids to refuse container, and make sure that drainage are in good working condition with an average weighted mean of 3.92, 3.90, 3.86 and 3.74 respectively. The respondents have responded positively the programs of the municipality.

Table 4 Actual sanitation practices

Sanitation Practices	WM	Description
Toilet		
1. Use of clean water sealed toilet.	3.96	Always Practiced
2. Make use of adequate supply of water for maintenance.	3.93	Always Practiced
3. Utilize functional septic tank.	3.93	Always Practiced
Average Weighted Mean	3.94	Always Practiced
Water Supply		
1. Make use of drinking water from a source (pipe) that passed the requirements of sanitary inspection.	3.39	Always Practiced
2. Bottled drinking water from a supplier is handled, stored and protected from contamination.	3.72	Always Practiced
3. Regular checking of water stored in the container against contamination and insects.	3.68	Always Practiced
Average Weighted Mean	3.60	Always Practiced
Refuse Container, Lavatory, Canals and Drainage		
1. All sewage discharge are disposed in a proper receptacle.	3.92	Always Practiced
2. All refuse containers are provided with tight – fitting lids or cover and maintained to be vermin (pests, rats, mice, cockroach, etc.) proof.	3.86	Always Practiced
3. Make use of functional lavatory.	3.90	Always Practiced
4. Make sure that canals and drainage are in good working condition that allow the flow of water and free from vermin (pests, rats, mice, cockroach, etc.)	3.74	Always Practiced
Average Weighted Mean	3.85	Always Practiced

CONCLUSION

1. Solid Waste Management Programs were not fully enforced in the Municipality of Balilihan as supported by the Solid Waste Management Practices in the household.
2. Lack public awareness and information campaign of the significant impact of the proper solid waste management.
3. Decomposed waste is not properly used for fertilizer by the farmer.
4. There are still residents who dispose biodegradable waste within their compound.
5. Irregular schedule of garbage collection result to dumping of garbage in the roadside.

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