Community Participation in Solid Waste Management Program of Selected Community Associations in Zamboanga City, Philippines

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Abstract *– The study aimed to assess the community participation in the implementation of the solid waste management program of ten (10) community associations in Zamboanga City relative to the five (5) E's components, namely: education, engineering, entrepreneurship, enforcement and environmental organization as prescribed under the Ecological Solid Waste Management Act of 2000. Level of awareness and practices of the community were identified to include best practices, challenges and constraints. To meet the research objectives, the study employed the triangulation method consisting of 1) Survey to determine the level of awareness and practices of the respondents regarding the solid waste management in their community; along with 2) Focus Group Discussion; 3) Key Informant Interview and 4) Direct Observation to determine the community participation, constraints and challenges. The results showed that majority of the communities are aware of the solid waste management program in terms of the five E's components, although improvements of 3 aspects such as engineering, entrepreneurship and enforcement are recommended. The level of community participation depends on the leadership of the community officials. However, comprehensive solid waste management program for community association needs firm policies and political will of the leaders.*

Keywords *– assessment, community participation, solid waste management*

INTRODUCTION

Zamboanga City is located at the southernmost tip of the Zamboanga Peninsula. It is considered as one of the largest cities in the Philippines in terms of land area and population. Being highly urbanized, it is included among those cities having problems on solid waste management. Waste generation in Zamboanga City is increasing as its population increases. Based on recent census conducted in 2007, the population of the city is 774,407 with an average annual growth rate of 3.54 percent. This figure would also mean more waste generation in the future. [1]

Urbanization directly contributes to waste generation, and unscientific waste handling causes health hazards and urban environment degradation which have severely impacted the poor who do not have a fair access to public health and sanitary services in the city. The poor are subjected to extremely unhygienic conditions in their settlements and periodic outbreaks of water and air borne epidemics. [2]

Solid waste generation is an inevitable consequence of economic production and consumption activities which are related to the levels of income and urbanization [3]. This means that the higher the level of income, the higher the waste generation rates. Similarly, the more economically prosperous a country is, the more waste is generated per capita[4]. In other words, solid waste is a tell-tale sign of how citizens' lifestyles change as a result of economic development. In addition, the distribution of waste generation in the different regions of a country is indicative of its degree of urbanization. In cities, for instance, where the standard of living is higher, there is usually a higher waste output compared to rural areas. This is reflective of the case of the Philippines where its urban centers generate almost a quarter of the country's total waste generation. This is supported by data gathered in 2000 that rural population in the Philippines produced an average of 0.3 kg/person/day, while the urban population produced an average of 0.5 kg/person/day [5].

Improper waste management can cause tragic consequences to humans and the environment. Therefore, solid waste management needs to be given

proper attention and the local government units should continually review and map out short and long-term solutions to effectively deal with them. Environmental experts believed that there will be no simple, single solution to the municipal or city solid waste problem as long as there are physical and socio-economic differences among communities [6]. However, it has been stressed that women are key players in household garbage management; therefore, they can play a foremost role in promoting waste segregation [7].

Community participation is a process through which stakeholders' influence and share control over priority setting, policy making, resource allocation and access to public goods and services [8].

In sum, it has been emphasized that in many cases, self-help and use of community participation is the only way of solving waste collection problems in low in-income areas. However, enhancing community awareness and willingness to participate are key aspects in any planning and implementation project [9]

As shown in many case studies in developing countries, the success of the services provided in waste management is attributed to community participation [10]. For instance, raising public awareness about solid waste management is important but it is not enough to promote the people's participation in solid waste management [11].

There are several examples of good solid waste management practices using social preparation and networking in the Philippines. These include 1) The Bustos Solid Waste Management Program where extensive information and education campaign on proper waste disposal and management prepare the community for different waste management activities; 2) The Dalaw Kalinisan Program, an outreach type of information and education campaign on solid waste management which seeks to bring information to different generators through visits, fora, seminars and trainings; 3) Manila Ecological Waste Management Project patterned from Sta. Maria, Bulacan experience, which is designed and implemented by a partnership of organized hawkers and vendors in cooperation with the government and the private sector; 4) Guimaras Waste Management Project which integrates all solid waste management initiatives on the island by involving the communities and business sector; and 5) Metro Dumaguete Solid Waste Management Program which aims to work towards an inter-LGU solid waste management program. In addition, there are good solid waste management practices done through composting, recycling and operations of materials recovery facility. [6]

The Philippine Constitution stipulates that "the State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature" (Sec. 16, Art. II). Moreover, it further guarantees that the "State shall protect and promote the right to health of the people and in still health consciousness among them" (Sec. 15, Art. II). These provisions gave birth to the enactment of Republic Act (RA) No. 9003, otherwise known as Ecological Solid Waste Management Act of 2000 and approved by the President of the Republic of the Philippines on January 26, 2001. [12] [13]

In addition, Section 10 of Republic Act No. 9003 provides that pursuant to the relevant provisions of RA 7160, otherwise known as the Local Government Code of the Philippines, the local government units shall be primarily responsible for the implementation and enforcement of the provisions of the Act in their respective jurisdictions.[14]

However, there is a need to change individual and community behaviour at the ground level where the program on solid waste is being implemented. [15]

In terms of local ordinances, the City Government of Zamboanga through the City Council has enacted several ordinances concerning health, sanitation and the environment. However, there are few provisions on these ordinances such as ORDINANCE NO. 500 – (The Sanitary Code of Zamboanga), ORDINANCE NO. 107 – (The "Environmental Ordinance" of the City of Zamboanga) and ORDINANCE NO. 2002-092 – (Regulating and prescribing fees for the sale of compost fertilizers produced by the Materials Recovery Facilities) that have specifically carried the mandates as prescribed under Republic Act No. 9003 and DENR Administrative Order No. 2001-34.

Today, the City of Zamboanga has a total of 42 resettlement sites located in the Barangays of Ayala, Cabatangan, Lunzuran, Mampang, Pasonanca, Putik, Recodo, San Jose Gusu, San Roque, Sinunuc, Sta Catalina, Talon-Talon, Tugbungan, Tulungatung, Tumaga and Zambowood. There are a total of 6,238 households and approximately 21,114 individuals. Some of these resettlement sites were established as early as 1991. The residents living in the resettlement sites are urban poor communities and are organized into community associations. Being resettlement sites, the people living in the communities come from different places of origin, educational qualification and are considered to be marginalized families.

In view of the present condition, the City Government of Zamboanga through the Housing and Land Management Division of the City in coordination with the Office of the City Environment and Natural Resources (OCENR) started the competition on solid waste management program involving the various community associations of the different resettlement sites in the city. These community associations are encouraged to participate in the implementation of the total War on Waste (WOW) by using the 3 Rs (Reduce, Re-use and Recycle) approach system and 4 Es(Education, Engineering, Entrepreneur and Enforcement). The program started in 2009 wherein communities were encouraged to participate in this competition.

While there are many studies made in relation to solid waste management in other places, here in Zamboanga City studies on solid waste management among community associations are still lacking. Hence, this study will be helpful in understanding the problem on waste management particularly among community associations and the findings can provide bases for the enactment of ordinance and the implementation of policies that are suitable for the different community associations in the city.

OBJECTIVES OF THE STUDY

The study aimed to assess community participation in the implementation of the solid waste management program in ten (10) community associations in Zamboanga City. Specifically, it was conducted to determine the level of awareness of the community in terms of 5 E (Education, Engineering, Entrepreneurship, Enforcement and Environmental Organization) components; identify the practices of the community on solid waste management; and describe the level of community participation in solid waste management.

METHODS

Research Design

The study employed the triangulation method research design in assessing community participation in the implementation of solid waste management of some community associations in Zamboanga City. Specifically, the study utilized the following: Survey, Focus Group Discussion, and Key Informant Interview as well as Direct Observation.

The first stage of the study was the quantitative approach using survey while the second stage was the qualitative approach using Focus Group Discussion (FGD), Key Informant Interview (KII) as well as Direct Observation by the researcher himself.

Research Locale

The study was conducted in ten (10) randomly selected community associations in Zamboanga City, namely: 1) Gawad Kalinga Tulungatung Resettlement Project; 2) Lower Tulungatung Resettlement Project; 3) Greenfield Homeowners' Association Inc.; 4) Ignacio Ko Homeowners Association Inc.; 5) Paradise HOA, Inc.; 6) Ayudahan Homeowners Association Inc.; 7) Hiland Park, UPA Inc.; 8) Advent HOA; 9) San Juanino Village HOA, Inc.; and 10) Lunzuran Resettlement Project.

Respondents

The main respondents of the study were the heads of the families or the wives in the absence of the husbands in the ten (10) identified community associations. There were a total of 353 respondents who were randomly selected. The respondents were informed on the purpose of the research and their participation in the survey will be treated with utmost confidentiality and will solely be used for the purpose of the study.

Sampling Design

In selecting the respondents, cluster sampling was employed. First, 10 community associations were randomly selected from 42 community associations. In identifying participants for the Focus Group Discussion (FGDs), purposive sampling was used. The presidents of the selected community associations were chosen as FGD participants. They were purposively selected due to their knowledge and awareness of the study.

Research Instruments

The study used four (4) major instruments: survey, focus group discussion (FGDs), key informant interviews (KII) and direct observation.

The survey has two parts: Part I, Level of awareness of the respondents regarding the five E components; and Part II, the practices of the respondents and the community. The first part was composed of 20 items or statements and broken down into five areas while the second part was composed of 20 items for the practices in the solid waste management program. The survey was designed to collect quantitative information from the members of the associations, the members' level of awareness, practices, observations and other information regarding the solid waste management program in the different identified communities.

To establish their level of awareness regarding the five (5) Es components (education, engineering, entrepreneurship, enforcement, environmental organization) of the solid waste management program

indicators, respondents were asked to indicate their responses using a scale ranging from Strongly Disagree (1) indicating the least degree of awareness; Disagree (2); Uncertain (3); Agree (4) and Strongly Agree (5), expressing the greatest level of awareness. Similarly, for the practices the respondents were asked to indicate their responses using the scale ranging from Never (1) indicating the least degree of practices; Seldom (2); Sometimes (3); Often (4) and Always (5) expressing the greatest level of practices.

The instrument was also tested for validity. The content of the instruments were based on the Ecological Solid Waste Management Handbook (ESWM Handbook). The survey instrument was pre-tested in shanty town, one of the community associations located in Luyahan, Barangay Pasonanca, Zamboanga City. This association was chosen because it was in existence for the last thirteen years and whose members more or less have the same condition as those of the members in other communities covered in the study. In testing for reliability, the parallel test or the equivalent form method was employed. These results were then subjected to Cronbach Alpha. The test yielded a reliability of 93%. For ethical consideration, the respondents were informed on the purpose of the survey and were assured that the information gathered will be treated with utmost confidentiality and only those respondents who are willing to participate in the study were included. For FGD and KII sessions, participants were informed of the venue for the sessions, purpose of the study, instrument used to record their responses and their names will not be mentioned in the final paper and likewise they can withdraw anytime their participation during the session.

For FGD sessions, five guide questions were prepared, i.e. program on solid waste, problems encountered, issues and challenges and recommendations. The guide questions were formulated based on RA 9003 and the conceptual framework of the study.

For Key Informant Interview (KII), four (4) guide questions were prepared that included program, inputs, implementation, linkages and sustainability of the program. Guide questions were formulated based on the conceptual framework of the study. Two personnel from the OCENR and one from the HLMD participated in the KII session.

For direct observation, observation guide and checklist for the different components and indicators were among the instruments employed during the site visits to substantiate the data gathered from the different respondents.

RESULTS AND DISCUSSION

Demographic Profile of the Respondents

A total of 353 residents were randomly chosen as respondents for the ten community associations. Majority of the respondents or 79.89% were female, while only 20.11% were male. While for the age bracket of the respondents, most of them fell between ages 41-52, followed by those with ages 29-40 and approximately 8% were ages 65 and above. Most of the respondents are high school graduates and a few (2.83%) have reached post graduates studies.

Table 1. Family Monthly Income of Respondents

Family Monthly Income	Frequency	Percent
2000 and below	140	39.66
2001-4000	76	21.53
4001-6000	68	19.26
6001-8000	20	5.67
8001 and above	49	13.88
Total	353	100.00

Table 1 shows that 39.66% of respondents have a monthly earning of P2000.00 pesos and below while approximately 14% earn P 8,001 pesos and above.

Most of the respondents are Roman Catholic (89.9%), others are Protestant, Islam and from other religion.

For ethnicity of the respondents, most of them are Bisaya (154.39%) followed by the Zamboanguenos and a smaller percentage from other ethnic groups like the Tausog, Tagalog, Yakans and others.

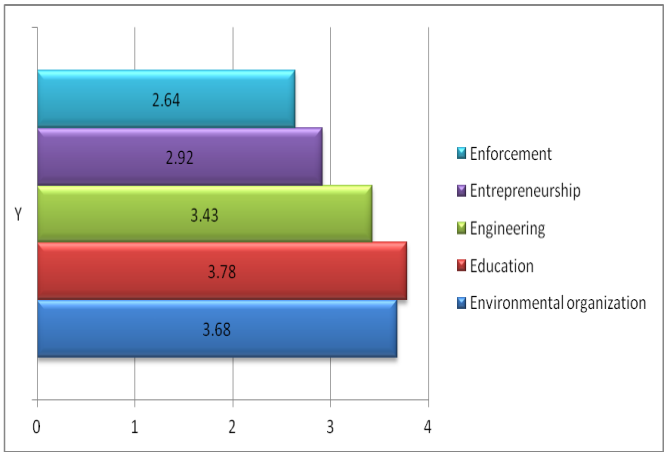

Figure 1. Mean Score Level of Awareness among Individual Community Associations

Figure 1 shows the overall rating of the different community associations in terms of the level of

awareness of the five components as professed by the members of the associations.

Greenfield Homeowners Association obtained the highest rating of 4.24, meaning the level of awareness is high. This is followed by Paradise Homeowners Association (4.12), Gawad Kalinga (4.11), Ayudahan Homeowners Association (4.07) and Hiland (3.61). Other community associations obtained a moderate level of awareness. The overall mean for the level of awareness is 3.55 which indicate that there is a high level of awareness among the different community associations.

Table 2. Range Level of Awareness of the Community

Scale	Rating	Verbal Description	Representation
5	4.50-5.00	Very High Awareness Level	VHAL
4	3.50-4.49	High Awareness Level	HAL
3	2.50-3.49	Moderate Awareness Level	MAL
2	1.50-2.49	Low Awareness Level	LAL
1	1.00-1.49	Very Low Awareness Level	VLAL

Figure 2 shows the Mean Level of Awareness in the five environmental components of the respondent communities. Three out of the five components have high awareness level these are environmental organization, education and engineering with means of 3.95, 3.85 and 3.70, respectively. The respondents have high awareness level on environmental organization component with participation, involvement and committee formation contributing much to the communities' responsiveness to waste management concerns.

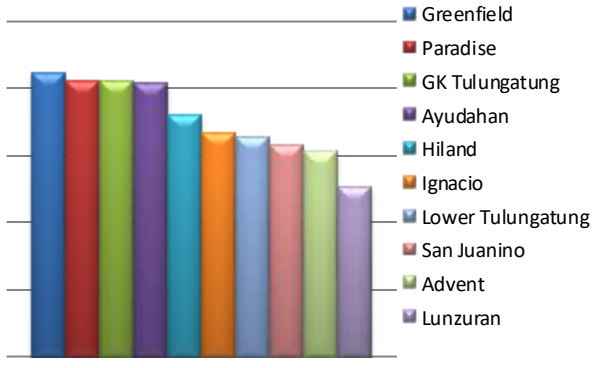

Figure 2. Mean Level of Awareness of all Community Association of the 5 Es.

Likewise, for education, this indicates that the respondents are very much aware of their communities' efforts to educate its residents on proper waste management mainly through meetings, orientations and communication campaigns. Similarly, for engineering, this indicates that the respondents are particularly aware of the availability of trash bins for waste segregation.

For components in Entrepreneurship, and Enforcement, communities' mean levels of awareness were 3.34 and 2.98, respectively or equivalent to moderate awareness level. The data confirmed that the communities are slightly aware of the *incentives given to individuals who practice proper waste management.* Also, the respondents in the community are somewhat aware of any income derived from solid waste management program deposited in the account of the community association. Thus, it affected the overall level of awareness of the community associations in terms of entrepreneurship and enforcement.

The overall mean score (3.97) shows that the members of the community associations are highly aware of the components of the solid waste management program.

The findings of the study revealed that five of the sampled communities (Greenfield, Paradise, Gawad Kalinga, Ayudahan, Hiland) were highly aware, meaning these communities are very much aware of the program on solid waste management. These five communities which constituted half of the sampled communities indicate that people are indeed have full knowledge on the program implemented in their communities. Some of the best practices in these communities include regular meetings are conducted like every Saturday meetings to thresh out problems related to the solid waste management program in their community. Community leaders are active in the dissemination of information regarding the solid waste management program in their area. The members of the association actively participate in the cleanliness program of the community especially during weekends. Trash bins are available in the community. Moreover, four samples were moderately aware, although not strong as compared to the mentioned five communities, but nevertheless these can be a supporting factor that indeed people are generally aware of the program on solid waste management implemented in their communities. However, the information obtained from the individual respondent taken from the sampled communities was not squarely un with the on-site observation which reveals the absence of indicators or at least not visible in the areas.

Furthermore, on the level of awareness of all sampled communities in terms of the 5 Es (education, engineering, entrepreneurship, enforcement, environmental organization), it was revealed that people were highly aware of three components such as Education, Engineering and Environmental organizations while only moderately aware of the other two such as Entrepreneurship and Enforcement. On entrepreneurship, there are few activities or sometimes none wherein members are provided with training on how to convert waste materials into a product that would provide them additional income in the community. In terms of Enforcement there were instances that violators were not penalized for violating RA 9003. Hence, training and strict enforcement of the law is lacking for this purpose. Thus, people in the communities are generally aware on these five E's components of environmental programs.

The implications of the general findings discovered that the communities are generally organized; meaning individual members of the communities have been informed and oriented about the programs. But detailed analysis revealed in the responses of the individual members of the communities, enforcement of the law is very lax, meaning this has not been strictly executed as it is intended to be. Moreover, no activities or programs on entrepreneurship were undertaken. This finding is supported by a personal observation and the result of focus group discussion where majority of the respondents said using the following unedited vernacular versions, *"Nuay ordinansa y lack of enforcement," "nuay ordinansa, nuay resolution na communidad, El asistencia especialmente na entrepreneurship necesita gayot para tiene pondo el mga miembro"* with one participant has different statement which sounded the support to the entrepreneurship saying, *"Supporta na entrepreneurship activities".* But generally, these only implied the weaknesses of the programs implemented.

Table 3. Range for Different Practices

Scale	Rating	Verbal Description
5	4.50-5.00	Always
4	3.50-4.49	Often
3	2.50-3.49	Sometimes
2	1.50-2.49	Seldom
1	1.00-1.49	Never

In describing the different practices in solid waste management among the different community associations, the following ratings and descriptions were utilized to describe the practices of the different community associations.

Table 4. Mean Scores of Different Household Practices

Indicators	Mean	SD	Description
Practices waste segregation at home.	**4.02**	1.46	Often
Encourages household members to practice waste segregation.	3.83	**1.31**	Often
Participates in clean-up activities in the community.	3.73	1.37	Often
Uses recycled materials like paper, cardboard, plastics, etc to recover useful resource.	3.71	1.45	Often
Participates in the waste mgt program of the community.	3.44	1.42	Sometimes
Recycles wastes that are recyclable.	2.99	**1.54**	Sometimes
Does not practice open burning of solid waste.	2.88	1.43	Sometimes
Buys products that are recyclable.	**2.29**	1.45	Seldom
Practices composting in the community.	2.39	1.48	Seldom
Overall	3.25	1.44	**Sometimes**

Table 4 shows the overall ratings of the different community associations in terms of the household practices. It is observed that the *practice of waste segregation at home* has the highest rating of 4.02, although in the descriptive scale it is considered often only". This is followed by *encouraging household members to practice waste segregation (3.83) and participation in clean-up activities in the community* (3.73). These practices fall under the often descriptive scale. Other indicators fall under the descriptive scale of sometimes and seldom. The overall mean for these particular practices is 3.25 which is interpreted as "sometimes." This implies that for household practices the respondents claimed that they sometimes practice such household practices as indicated. For the highest and lowest mean, this shows that the respondents usually *practice waste segregation at home and participate in clean-up activities in the community*. But they seldom *buy products that are recyclable*.

Most of the respondent communities (GK, Greenfield, Hiland, Lower Tulungatung, Advent and Paradise) have always practiced waste segregation at home. Moreover, most of the respondent communities have participated in clean-up activities and have encouraged household members to practice waste segregation. In other words, these communities are

actively participating in the implementation of waste management program on its 3Rs (reduce, recycle and re-use). However, there are communities that do not practice composting which is one the indicators in solid waste management practices.

Community Participation

It was evident that activities were undertaken in the different community associations to improve the solid waste management program in their respective places. This confirmed that the solution to the problem of solid waste management is not only technical but social aspects as well. The level of awareness of the community associations in terms of the five (5) environmental components shows that two (2) out of five (5) components are doing well. Among the five (5) environmental components, education and environmental organization got a high level of awareness rating. The high level of awareness indicates that the different communities were well organized and the persistent Information Education Campaign activities in the different community greatly improved the level of awareness of the community members. However, the relative low awareness in the engineering, entrepreneurship and enforcement may be attributed to the lack of funds, financial support for the mentioned components and the non enactment of resolution, ordinance for the implementation of the law.

In terms of practices, most of the household practices waste segregation at home. Likewise, in terms of community participation, the respondents participate in waste management activities such as clean-up drive in the community. However, the participation of the community members was highly dependent on the leaders in the community. Hence, if the leader in the community is active in the different activities related to solid waste management then as expected the members were also active. Conversely, this does not guarantee that the solid waste management program will be successful.

Finally, solid waste management program should be given a priority vis-à-vis economic development of the community. In so far as the result of the study is concerned, there is a need to provide support and or assistance in terms of engineering structure such as trash bins, eco-center or material recovery facility. Support for entrepreneurship activities and funds for the program should also be provided. But it is also necessary for a policy to be in place so that enforcement of the law can be applied. The barangay being the smallest political unit should take the lead in addressing the gap for this purpose. In essence, there is a need to formulate a comprehensive solid waste management program supported by sound policies and the political will of community leaders to strictly enforce these policies.

Since the study was limited to community associations. Further study or research can be undertaken to have a better information of the solid waste management program in the City. A wider study or research can be undertaken that would include the different barangays in the City. Since, based on RA 9003, the barangays are in the forefront in the implementation of the law.

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