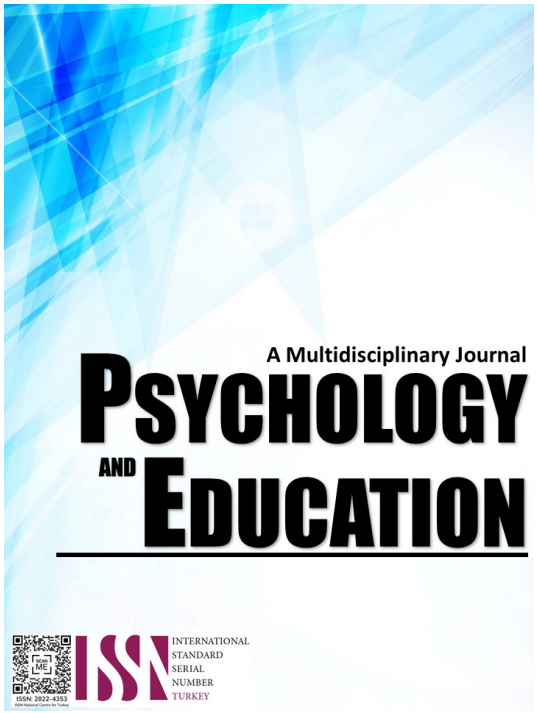
IMPLEMENTATION OF THE ECOLOGICAL SOLID WASTE MANAGEMENT ACT (RA.9003) IN THE MUNICIPALITY OF BINALBAGAN



PSYCHOLOGY AND EDUCATION: A MULTIDISCIPLINARY JOURNAL

2023
Volume: 8
Issue: 8
Pages: 902-908
Document ID: 2023PEMJ700
DOI: 10.5281/zenodo.7922305
Manuscript Accepted: 2023-05-10 23:50:39

Psych Educ, 2023, **8**(8): 902-908, Document ID: 2023PEMJ700, doi:10.5281/zenodo.7922305, ISSN 2822-4353
Research Article

Implementation of the Ecological Solid Waste Management Act (RA.9003) in the Municipality of Binalbagan

Alberto Delacruz*
For affiliations and correspondence, see the last page.

Abstract

This descriptive research study aims to determine the implementation level of the Ecological Solid Waste Management Act in the Municipality of Binalbagan regarding Information Dissemination, Law Enforcement, and Sustainability. This study determines the local people's everyday practices and their Association with the implementation. This study also aims to identify possible extension programs to bridge the ecological waste management implementation gap. This study was conducted in 2021 among nine urban barangays in the Municipality of Binalbagan, utilizing 272 household respondents, which were selected using non-parametric convenient sampling. It utilized a self-made questionnaire through Google forms to find out the extent of implementation of the act. The statistical tools used were mean, standard deviation, frequency, percentages, and the Chi-square test using cross-tabulation. The results revealed that Ecological Solid Waste Management is partially implemented in the Municipality of Binalbagan among the identified variables: information dissemination, law enforcement, and sustainability. The data showed that the respondents seldom apply the recognized practices on waste segregation. However, some local people practiced it while constantly using common practices on proper waste disposal. Finally, data showed a significant association between the rating on ecological solid waste management implementation and the respondents' frequency of application of common practices on generation, segregation, and waste disposal. Despite the partial implementation of ecological solid waste management in the locality, most respondents developed an initiative to adapt the common practices related to waste management with little or no intervention from the local government.

Keywords: Implementation, Philippines, Solid Waste Management, Waste Segregation, Act (RA.9003)

Introduction

The National Solid Waste Management Commission (NSWMC) claimed that the Philippines has 0.40 kilograms average increase of waste per day in both rural and urban places. They estimated that the nation generated 40,087.45 tons of garbage per day in 2016 SEPO, up from 37,427.46 tons per day in 2012. (2017). Ecological solid waste management is defined by DENR Administrative Order No. 2001 as the systematic management of initiatives and programs that support source separation, segregated solid waste processing, treatment, and disposal, as well as all other waste management practices that do not harm the environment. Following the relevant R.A., the LGUs are in charge of implementing and executing the terms of this act within their respective jurisdictions under No. 7160 or the Local Government Code (RA 9003: Chap 1 Art 1, Sec 10). In response to this, the Municipality of Binalbagan has created Ord. No. 2017-004 entitled "A Solid Waste Management Ordinance" imposing penalties for violation thereof and other purposes.

The Local Government Units (LGUs) must be concerned with delivering social services on waste management as it improves the health condition status of all the residents in the community. It also provides investors, travelers, and local people with a safe and secure place to visit and boosts business opportunities. Indeed, it is a complex task that requires good organizational capacity and cooperation between many stakeholders in the private and public sectors. The proper implementation of ecological solid waste management in a municipality is also based on the people's responses in the community. They provide baseline data to be used in the planning to impose the ordinances and other regulations better and improve its waste management services. However, despite the effort exerted by the local government unit in implementing the said act through ordinances, littering on roads and public places, and incineration of garbage in the houses, improper segregation in many establishments can still be observed in the locality. Determining the level of implementation will help the Local Government Unit (LGU) to enhance its services and focus its effort on implementing the Municipality Solid Waste Management Ordinance. Surprisingly, the Municipality became one of the awardees for the Seal of good environmental governance in the previous years.

Furthermore, this study aims to determine the frequency of Solid Waste Management common practices in waste production, segregation, and disposal. It unfolds the initiatives of the respondents

toward solid waste management and being responsible members of society. This study also proposes an extension program to augment the Municipality's effort through an educational campaign in shaping the community's behavior towards waste management and introducing a system to combat improper waste management.

Research Objectives

This study's primary purpose is to determine the extent of the R.A. 9003's implementation in the urban Barangays of the Municipality of Binalbagan, Philippines. Specifically, this study sought to answer the following objectives:

1. Determine the extent of the R.A. 9003's implementation in the Barangay as assessed by the community regarding Information Dissemination, Law enforcement, and Sustainability.
2. Identify the common practices of the community as implemented in the following areas: Waste Generation, Segregation, and Waste Disposal.
3. Determine the Association between the level of implementation of RA 9003 and the common practices of the community, such as waste generation, segregation, and waste disposal.
4. Propose an extension program to enhance the implementation of the Ecological Waste Management Act in the Municipality of Binalbagan.

Literature Review

Solid Waste Management

An enhanced solid waste management system can, directly and indirectly, meet numerous SDGs throughout Asia's developing economies (Hondo D. et al., 2020). According to Mir (2021), administrative restrictions prevent the successful implementation of solid waste management at the beginning of the process. These restrictions include a need for more modern technology and equipment, a lack of land for dumping and disposal, and a need for an integrated solid waste management (ISWM) program. Domingo S. et al. (2021) explain that when various implementation strategies in all areas of concern are noticeable, it will create more ways to solve the problems and replicable initiatives in which best practices may be done. The implementation will ripple and become more attractive to others for duplication. According to Nyampundu (2020), ordinances and sustainability programs are partially implemented by providing training and skills development related to reducing, reusing, and recycling waste to benefit people for extended periods.

Furthermore, due to the limitation of modern equipment to better facilitate the operation, other local government units also need help with the same problem. LGU could only afford to spend a significant percentage of its budget when the National Government provided monetary assistance. Because of this, Local Government Units only create activities according to their capacity. This scenario is commonly experienced by many local government units in the Philippines, especially in the provinces, as the main reason why most of these LGUs do not have proper dumping sites and sustained ecological waste management.

Weak law enforcement of the act has also been why most establishments and individuals have not contributed to this success since its implementation in 2000. If this is addressed, the problem of improper waste management will continue. Implementing R.A.: 9003, or ecological solid waste management, will still be problematic for all local government units. According to Kojima and Michida Ed's (2011) research, solid waste management and a sustainable recycling business require good governance, the involvement of several stakeholders, robust awareness campaigns, and the promotion and application of innovative and suitable technology. Encouraging participation in various private or public institutions is a must. They need to contribute to solving the most significant and never-ending problem of our times: plastic waste. In general, the Philippines' system of reuse, recycling, and disposal in a landfill with strict environmental regulations cannot be regarded as effective and efficient in achieving a clean environment (Castillo, A., et al., 2013). It is believed that the key to accomplishing effectively with compliance the act is the political will of the local government officials. If no one cares to sacrifice and fully support its mandates in implementing the said act, this mission is impossible. To reduce the production of solid waste, maintain waste segregation, and dispose of garbage appropriately, the community, private waste groups, and organizations must be mobilized and actively involved.

Methodology

The descriptive research design was employed in the study. The descriptive research approach correctly and methodically characterizes, observes, or validates elements of groups that have been quantified, such as

the connection between variables, in their unaltered condition (Siedlecki, 2020).

Participants/Respondents

The study covered the nine urban barangays in the Municipality of Binalbagan, namely: Canmoros, Enclaro, Pagla-um, Progreso, San Jose, San Pedro, San Teodoro, and Sto. Rosario and San Vicente. Two hundred seventy-two (272) household respondents from the barangays were selected through a convenient sampling technique. The researcher utilized Google Forms in the study to avoid face-to-face contact with the respondents due to the existing health protocol implemented by the Municipality during the conduct. The link to the instrument in a google form was sent to the students of Carlos Hilado Memorial State University and allowed their parents to answer the link with their help to ensure that these questionnaires were correctly filled out before submission.

Instruments of the Study

This study utilizes two-part self-made questionnaires; part I measures the level of implementation on the following activities: information dissemination, law enforcement, and sustainability. On the other hand, part II determines the frequency of common practices of the community in activities such as a). generation/production, b). segregation, and c). disposal of waste. Each area consists of 5-item statements measuring the following identified variables, with 30 items ensuring an accurate description of each implementation area. The instrument underwent validity with the help of three expert jurors in the area using the instrument set by Goods and Scates (1972) with a rating of 4.70, interpreted as good and valid. A reliability test was also conducted in Brgy. Aguisan, Himamaylan City, is an adjacent city to the location of the study. The respondents in this barangay were not included as participants in the study. The test was participated by 30 respondents having the same characteristic as the identified respondents of this study to ensure the trustworthiness of the instrument. The internal consistency was calculated through Microsoft Excel using Cronbach's alpha; it has a computed value of 0.925. The calculation signified a very high-reliability result of the instrument to be used in the study.

Procedure

The researcher initiated proper communication with the municipal mayor and the people in charge of Solid Waste Management. Coordination with barangay councils was also sought through an endorsement letter after receiving approval from the municipal mayor to ensure cooperation with the full implementation of the research under study. The data were treated accordingly using mean and standard deviation to determine the extent of implementation of RA 9003 in terms of information dissemination, law enforcement, and sustainability. In determining the frequency of applying common practices on activities such as waste generation, segregation, and waste disposal in their houses or locality, frequency and percentage were used. In determining the Association between the level of implementation of RA 9003 and the frequency of application of common practices in terms of waste generation, segregation, and disposal, the Chi-square test using cross-tabulation was implemented.

Ethical Considerations

The researcher followed Bryman and Bell (2007) for the key principles for ethical considerations include: making that the participants are not subjected to harm of any form, their dignity as participants are prioritized, obtaining full consent, ensuring confidentiality, protecting the participants' privacy, ensuring the confidentiality of the participants in the research, both individuals and organizations, avoiding deception of the research's goals and objectives, disclosing affiliations, funding sources, and any conflicts of interest, all relationships, financing, being honest and transparent in any communication and avoiding reporting key data results in a biased manner and from incorrect information of any type.

Result

This section reveals the results and discusses the analyses of data presented below under descriptive and inferential statistics as stated in the study's objectives.

Interpretation of Data

This study utilizes the scale and interpretation below (Table 1) to describe the implementation of the said act.

Table 1. *Scale, Range, and Interpretation of Data*

Scale	*Range*	*Interpretation*
3.51-4.00	Highly Implemented	Programs and projects are appropriately communicated and implemented in all Barangays in the Municipality.
2.51-3.50	Implemented	Implementation is introduced to all levels of society with corresponding programs and activities
1.51-2.50	Partially Implemented	Implementation of the act is selective where the majority of the people are unaware of its plans and programs related to Ecological Solid Waste Management
1.00-1.50	Not Implemented	Information about the act and its programs/activities must be discovered or familiar to the respondents.

Figure 1. .

Table 2. *The extent of Implementation of RA 9003 in the Municipality of Binalbagan*

Information Dissemination	272	2.0956	1.01922
Law Enforcement	272	2.1434	1.01539
Sustainability	272	2.1176	1.00228
Total	272	2.12	1.06

Figure 2. .

Table 2 above shows the extent of implementation of R.A. 9003 in the Municipality of Binalbagan. The study with 272 respondents reveals that information dissemination, law enforcement, and sustainability got the mean of 2.09, 2.14, and 2.12, with standard deviations of 1.01, 1.01, and 1.00, respectively. These led to an average mean of 2.12 and a standard deviation of 1.06, which means that the Ecological Solid Waste Management in the Municipality of Binalbagan is partially implemented. It only implies that respondents needed to be made aware with clear evidence of the plans and programs of the Municipality concerning its implementation of ESWM in the Municipality. During the COVID-19 pandemic, massive lockdowns led residents to stay at home. In contrast, the local government's attention has been diverted to the distribution of relief goods and other related concerns to pacify the struggles experienced by the citizens amidst the pandemic. This action has resulted in the stagnation of all its programs and activities.

Moreover, the relief goods with plastic packaging from private and public agencies contributed much waste. According to Jagath P. et al. (2013), the Local Government Unit (LGU) must have a high level of political commitment, effective local policies, partnerships, capability development, financing, close monitoring, and performance evaluation in order to undertake ecological solid waste management. The effective and efficient control of solid waste generation, collection, storage, and disposal is caused by a need for more awareness of the community's sustainable solid waste management measures (Nyampundo, 2020). In detail, information dissemination must be given attention. The committee in charge must be actively involved in conducting activity awareness to inform its plans and programs related to the act. According to Prabhakaran & Kalyani (2014), professionals also use social media platforms for information dissemination in delivering resources to groups of people or individuals. Instant Messaging can be a good form of information dissimilation (WhatsApp, Imo), including Google SMS, Twitter, Facebook, and Pinterest during the pandemic. In addition, ICTs also provide high-speed and adequate access to information. Through information communication technology, people can access various information daily. Those who have a stable internet connection can access relevant information online. Thus, this can be a suitable medium for disseminating information where an internet connection is accessible. They may also use occasions like fiesta, assembly meetings, and other official activities as opportunity venues to inform the people about their plans and programs to have a uniform approach to accomplishing this colossal task. Thus, this requires implementers to take information dissemination seriously to advance the cleanliness and organization of the locality. An efficient implementation is coupled with vigorous law enforcement. However, the status of partial implementation requires a great desire to meet

the requirements of the law.

Table 3. *Frequency of application of Common Practices such as generation, segregation, and disposal of waste*

Waste Generation		
Wala(no)	7	2.6
Malaka (sometimes)	135	49.6
Permi (always)	130	47.8
Segregation	3	1.1
Wala (no)	111	40.8
Malaka (sometimes)	158	58.1
Permi (always)		
Disposal	3	1.1
Wala(no)	113	41.5
Malaka(sometimes)	156	57.4
Permi(always)		

Figure 3. .

Table 3 shows the respondents' frequency of application of common practices in activities like generation, segregation, and waste disposal in their houses. Data revealed that only 7 or 2.6% of the respondents did not observe common practices on waste segregation, and 135 or 49.6% sometimes observed these practices. In comparison, 130 47.8% of respondents said they always do the common practice of minimizing waste generation/production of waste in their activities like shopping or marketing. These may be attributed to their access to information and education to adopt strategies of the wise buyer to minimize the garbage they may bring to their houses when they purchase. The respondents practice using and reducing plastics, bringing their containers, bags, or baskets instead, and buying in bulk when they go to the market. They even clean and reuse good-condition plastics for future use. Respondents have initiatives to minimize waste generation by refusing to buy more plastics and reusing them if they need to buy the item for future use. Moreover, only 3, or 1.1% of 272 respondents, said they do not perform any activity related to segregation at home. One hundred eleven, or 40.8% of the respondents, said they sometimes segregate their waste. Moreover, finally, 158 or 58.1% of the respondents, attest that they always segregate their waste according to its nature. Data only shows that respondents realize the importance of segregation. In the Philippines, 74% of household is considered the primary source of waste. In addition, 52% of this rubbish can be composted, 43% of it can be recycled, and 95% of it can still be used (JICA Waste Characterization Research, 1997). (Castillo, A.L. et al. 2013). Maximizing Solid Waste Management's national impact and altering behavior are crucial for strategic improvement. So, educating households to appropriately segregate their waste would be advantageous if offered to the community as payment (de Paz, V. et al. 2020). In the waste disposal, data show that only 3 or 1.1% of the respondents claimed not initiated any practices on waste disposal. In comparison, 113 or 41.5% of them claimed that they sometimes follow the correct way of waste disposal in their area. Furthermore, 156 or 57.4% of the respondents claimed that they perform proper waste disposal. The results imply that most respondents have managed to dispose of their garbage properly, utilizing recyclable materials and turning them into profit, including other products, through recycling. However, the increase in percentage results cannot significantly change the practices of those who do not. No matter how frequently the common practices in ESWM are implemented, the problem still needs to be solved because of a few uninformed individuals who keep scattering their waste. Thus, this leads to becoming a problem for the general public. De Paz V. et al. (2020) pointed that a Material Recovery Facility is mandatory by law for each barangay. However, the need for more budget to construct one becomes a common problem. Many Local Government Units have established Material Recovery Facilities; however, the facilities have lowered their use due to improper segregation and budget constraint for a single barangay with a small amount of funds for its operation cannot withstand the demand of maintenance and the amount of work needed to sustain the facility. Generally, many respondents are not practicing activities related to waste generation, segregation, and disposal of waste. Even though they are common activities to an individual, still, some people do not seem to care for this endeavor. These individuals must be informed and educated about their role as responsible residents in their locality. The local government must focus on finding ways and partnering with educational institutions to bring information right to their doorstep to see the actual status of their locality in terms of cleanliness for sustainability. Conversely, only some of the respondents practice ways of waste generation. The majority of the respondents practice segregation and disposal of waste.

Table 4. *Association between the level of implementation of RA 9003 and the frequency of application of common community practices on generation, segregation, and disposal of waste*

Variables	*Computed Value*	*P-Value*	*Interpretation*
Implementation Level vs. Waste Generation	22.488	.001	Significant
Implementation Level vs. Segregation	20.127	.003	Significant
Implementation Level vs. Waste Disposal	19.418	.004	Significant

Figure 4. .

Table 4 shows the Association between the level of implementation of ESWM and the frequency of application of the common practices of the community on generation, segregation, and disposal of waste. Data show that the variables in the study had computed values of 22.488, 20.127, and 19.418, and p-value of 0.001, 0.003, and 0.004, respectively; all were interpreted as significant. The study implies an association between the level of implementation and frequency of application of common practices on generation, segregation, and disposal of waste. Data showed that despite the increasing percentage values on the frequency of application from waste generation followed by the respondents' segregation and disposal practices as the highest percentage, the interpretation remains significant with the ESWM as partially implemented. As observed, the numerical values are close enough to tell. They are interpreted to have a significant relationship to the frequency of common practices of the respondents. This finding implies that respondents' responses to implementing Ecological Solid Waste Management influence their behavior on generation/production, segregation, and waste disposal. This act's implementation generally follows a lesser frequency of applying common practices related to ESWM.

Moreover, Lema et al. (2019) revealed that lack of information is the cause of improper solid waste management practices. Therefore, it is recommended to heighten community awareness about proper solid waste management. In addition, a provision of solid waste collection service municipality is required. This statement agreed that the decrease in awareness and lack of education resulted in the low practice of implementation and practice of activities related to proper waste management. However, those who frequently practice despite the partial implementation of the act have an educational advantage that they tend to perform without being told and continue to practice without any intervention. These can also be related to having access to social media platforms. During the pandemic, people increasingly utilize most of their time checking information online. The internet has provided enormous information on waste management, significantly influencing their behavior and applying the information since they have all the time to fix and manage their houses during lockdowns.

Discussion

The results indicate that the solid ecological management act of 2000 in the Municipality of Binalbagan is partially implemented in the variables such as information dissemination, law enforcement, and sustainability in which every citizen needs to be informed of whatever plans and programs the Municipality will be having related to Ecological Solid Waste Management. Thus, Ordinances and policies shall be created with full implementation to impose fines on violators reasonably to all individuals. Check-ups and monitoring of waste management in public and private establishments, including schools and houses, should have been done more regularly. There was little skill training and support funding for waste segregation, recycling, and other capacity-building projects. To disseminate an information campaign on Ecological Solid Waste Management, the LGU should revisit its programs and activities. They must consider the new normal situation in educating and engaging more individuals in the community using different social media platforms.

Regarding Law Enforcement, reactivation of the task force is necessarily equipped with the necessary enforcement skills and knowledge of the act. Deploying a task force in areas like a market, plazas, and other public places ready to remind, educate and issue penalties to consistent violators is recommended. Assigning individuals who will evaluate solid waste management in all establishments and become one of the bases of their business permit and others are suggested. It is also recommended to improve the funding for community training related to solid waste management and be monitored regularly for sustainability. Clean and green competitions, search for best practices, and recycling contests in every barangay shall be initiated to motivate people to promote culture and habit among individuals in the community.

The majority of the respondents frequently perform the common practices in Ecological Solid Waste management, such as good practices on waste generation, segregation, and proper disposal of waste. Respondents, who observed the solid waste management activities such as refusing and reducing plastics during marketing, segregating waste according to its nature on the specified bins, recycling, and

composting waste as part of the disposal process, show that they have developed an initiative to be responsible on their waste management practices. This individual has considered these practices advantageous to health and sanitation, aesthetics, and their family's comfort. However, those individuals who rated themselves as not applying the common activities mentioned must be given attention through capability building and skills training to actively participate in the barangay activities.

Basic skills in waste management must be emphasized in educational institutions to instill in learners the importance of waste management. Those individuals with no good practices in waste management may be provided seminars about waste management.

There is a significant association between the implementation of ecological waste management and the frequency of application of common practices in the community. Thus, the lower the implementation of Ecological Solid Waste Management, the less frequent their application of common practices on waste management becomes, or vice versa. Respondents who do not practice or sometimes practice cannot guarantee compliance with the act caused by the partial implementation of ecological solid waste management in the locality. However, those individuals, who implement the act frequently, possess an internal motivation to initiate the common practices related to waste management in their ways, with or without the local government's intervention during this partial implementation. The respondents believed that the government's implementation is not a requirement for them to practice proper waste management but rather an initiative that motivates them to perform for themselves and their entire families, community, and future generations.

Finally, conduct an extension program to schools in the Municipality focusing on an education campaign on waste management and develop essential skill in recycling and composting that was left behind by many institutions but still viewed as essential to the success of the act's implementation. Students must be exposed to the ESWM if the Municipality wants to have a long-term impact on their plans and program in the community.

References

Siedlecki, S. (2020). Understanding Descriptive Research Designs and Methods. Clinical nurse specialist CNS. 34. 8-12. 10.1097/NUR.0000000000000493.

Bryman, A. & Bell, E. (2007). "Business Research Methods," 2nd edition. Oxford University Press.

Camarillo, M. & Bellotindos, L. (2021). A Study of Policy Implementation and Community Participation in the Municipal Solid Waste Management in the Philippines. Applied Environmental Research, 43(2), 30–45. https://doi.org/10.35762/AER.2021.43.2.3

Castillo, A. et.al. (2013). Status of Solid Waste Management in the Philippines: the University of Kitakyushu, Japan .https://www.jstage.jst.go.jp/article/jsmcwm/24/0/24_677/_pdf

de Paz, V. et al., (2020) IOP Conf. Ser.: Earth Environ. Sci. 511 012004

Fehr, A . et al. (2020) Establishing a SustainableWaste Management System in a Transitional Economic Context: Analysis of the Socio-Economic Dynamics: Sustainability 2020, 12, 3887; doi:10.3390/su12093887

Kojima & Michida ed,(2011) Economic Integration and Recycling in Asia: An Interim Report Chosakenkyu Hokukosho, Institute of Developing Economics Retrieved from https://www.nswai.com/docs/Review%20of%20the%20Waste%20Management%20System%20in%20the%20Philippines.pdf

Lema, G. et al. (2019). Assessment of Status of Solid Waste Management in Asella town, Ethiopia. Retrieved from https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-019-7551-1

Mir, I.S (2021) Environmental Challenges, Volume 2,100023, ISSN 2667-0100, retrieved from https://doi.org/10.1016/j.envc.2021.100023.

Mishra, A. & Mishra, S. & Tiwari, A. (2013). SOLID WASTE MANAGEMENT -CASE STUDY. 2. 2321–9637. Retrieved from https://www.researchgate.net/publication/262523386

SEPO (2017). Philippine Solid Wastes At A Glance. Retrieved from http://legacy.senate.gov.ph/publications/SEPO/AAG_Philippine%20Solid%20Wastes_Nov2017.pdf on October 30, 2021.

Jagath, P. (2013). Policy Implementation of the Republic Act (R.A.) 9003 in the Philippines: A Case Study of Cebu City. Institute for Global Environmental Strategies retrieved from https://www.iges.or.jp/en/pub/policy-implementation-republic-act-ra-9003/en.

Shonhe, L. (2017). "A Literature Review of Information Dissemination Techniques in the 21st Century Era". Library Philosophy and Practice (e-journal). 1731. https://digitalcommons.unl.edu/libphilprac/1731

Hondo, D, Arthur,L, & Gamaralalage, P. (2020). Solid Waste Management in Developing Asia: Prioritizing Waste Separation. ADBI Policy Brief. Governance and public sector management. ISSN 2411-6734

Affiliations and Corresponding Informations

Corresponding: Alberto DeLaCruz
Email: alberto.delacruz@gamil.com
Phone:

Alberto DeLaCruz:
Carlos Hilado Memorial State University - Philippines