

Solid Waste Disposal Practices and Problems Encountered Of the Coastal Residents in Boac, Marinduque

John Carlo J. Sto. Domingo, and Liza Marie M. Manoos, Ph. D.

Abstract—The study focused on the solid waste disposal practices of the coastal residents in the Municipality of Boac, Province of Marinduque. From the 11 coastal barangay, the researcher randomly selected three hundred sixty-six (366) residents living along the said coastal areas. Descriptive method was used aided by survey questionnaire and unstructured interviews. The findings revealed that direct burning, waste segregation, dumping in compost pit, barangay ordinances, trading in junkshops and others were the common solid waste disposal practices done by most residents along the coastal areas of Boac. The effects of the solid waste management practices were also shown wherein majority of the respondents foresee problems regarding the said practices. Furthermore, it was also revealed that the residents were aware of the law but do not fully understand it. It is therefore recommended that several interventions must be made to help the local government units of Boac to provide technical knowhow and increase awareness of the people in coastal waste management practices.

Keywords—Solid Waste Practices, Coastal Areas, Boac Marinduque, Waste Management, waste segregation

I. INTRODUCTION

Every government around the world including the Philippines has become more aware of disposing its solid waste, thus making it more conscious in the world's undying battle against complicated waste problems and its diverse impact in environmental, social, and economic development of our country (Ordanez II, 2003)^[1]. As population increases, the spaces for residential areas become more and more scarce thus they press nearer and nearer to the coastal areas and with limited space, the surroundings of the coastal areas tend to become their waste disposal areas leading to garbage crisis therein. Unlike watersheds, there are no exact natural boundaries that unambiguously delineate coastal areas (Food and Agriculture Organizations of the United Nations, 2005)^[2].

Consequently, we can see similar problems in the province of Marinduque. As the population of Marinduqueño increases

in every community, the volume of solid wastes generated in each household either bio gradable and non – bio gradable also increases and more solid waste can be collected and disposed. As a solution, each of the Municipality of the Province has passed Ordinances regarding the proper solid waste disposal and formulated their own solid waste management system. Some barangay fully adapted and implemented their respective ordinance, however, due to lack of garbage collecting trucks, dump site location, honorarium for the collecting personnel and the distance of the dumping site, some barangays were not able to comply to their ordinance.

The Municipality of Boac, focused its Solid Waste Management System in Poblacion Area which is composed of seven (7) barangays: Tampus, Mataas na Bayan, Isok 1, Malusak, Mercado, Murallon and San Miguel including the market site and two (2) schools. As estimated, the garbage generation in the area of operation is twenty – eight (28) cubic meter per day. The garbage and disposal system in the municipality is being undertaken by the Municipal Engineer's Office which has eight (9) laborers assigned for street cleaning and five (5) laborers assigned in garbage collection. The collected garbage is being dumped at the river of Barangay Santol and Murallon. Garbage burning was being avoided pollution, and a new dumpsite at Barangay Maybo was utilized last 2011. (Plantilla of Personnel, 2015)^[3]. In the remaining barangays where garbage are uncollected especially in the remote areas like the Barangays along the Coastal Area, most households practice the improper method of garbage disposal; either direct burning, burying or dumping in the nearby creeks, vacant lots, open canals, and shoreline. As a result, during rainy seasons, the shorelines tend to be full of trash and waste.

These derived the researcher to study the Solid Waste Disposal Knowledge and Practices of the Coastal Residents in the Municipality of Boac, Province of Marinduque to determine possible and necessary solutions to help reduce the problems in solid waste disposal.

II. METHODOLOGY

The study utilized a descriptive method with respondents from the eleven (11) barangays in the coastal area of Boac. Based on the Consolidated Barangay Reports as of March 2015, out of the 4,300 total number of households of the eleven (11) Barangays, 366 households were taken compliment in the study with 5% marginal error. The researcher used a questionnaire to serve as the primary source of data and a non-standardized or informal interview in an unstructured format to understand the existing situation.

The manuscript is being received on November 29, 2016, the International Association of Civil, Agricultural & Environmental Engineering Researcher's Scientific and Technical Committee to be peer-reviewed & refereed conference paper id: AE0117708, titled as "Solid Waste Disposal Practices and Problems Encountered of the Coastal Residents in Boac, Marinduque" and authored by John Carlo J. Sto. Domingo, and Liza Marie M. Manoos, Ph. D., has been accepted for Oral Presentation at the conference and publication of proceedings in the Manila on January 2017.

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III. RESULTS AND DISCUSSION

Residents Method of Disposal

The data gathered from the three hundred sixty-six (366) respondents along coastal areas of Boac, Marinduque are tabulated as follows:

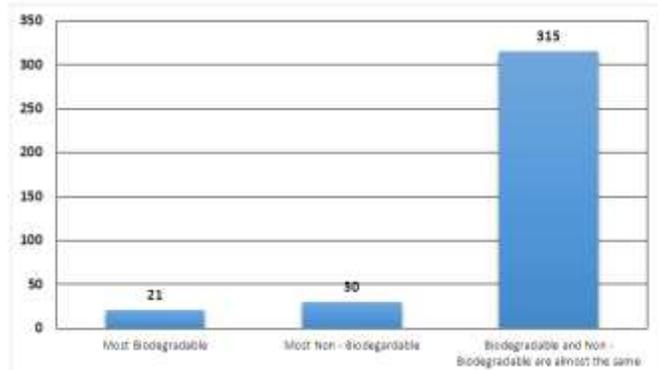


Fig. 1. Common solid waste being disposed in each barangay

Fig. 1 revealed that the common solid waste being disposed in all barangays of the coastal area, out of 366 respondents 21 respondents or 5.74% produce biodegradable while 30 respondents or 8.20% produce non-biodegradable and the majority of respondents produce an equal amount of biodegradable and non-biodegradable waste with 315 respondents or 86.07%.

The data revealed that most residents have an equal amount of biodegradable and non-biodegradable waste which produce every day from their everyday needs. However, it also depends upon the households needs like foods and other needs.

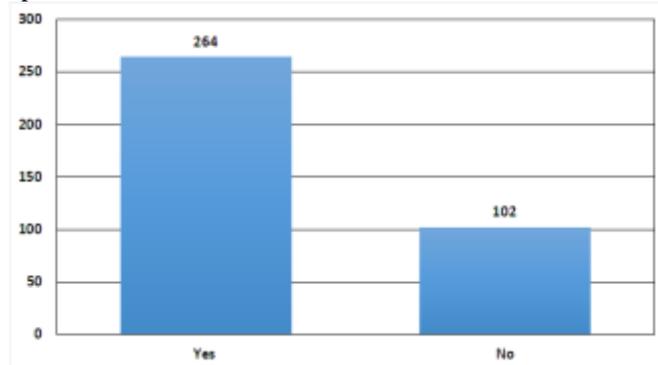


Fig. 2. Residents' Separation of Solid Waste before Disposal is Done

Fig.2 revealed that the residents' separation of solid waste before is done in barangays of the coastal area, there were only 264 or 72.13% out of the total number of respondents from all the barangay separate their biodegradable from non-biodegradable waste before disposing, while the remaining 102 or 27.87% of respondents do not practice waste segregation.

The data revealed that most residents in the coastal barangays segregate the solid waste they generate every day.

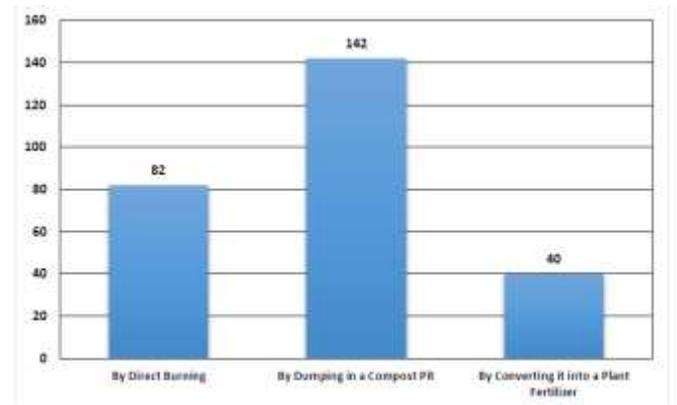


Fig. 3. Methods of disposal of biodegradable solid waste

Fig. 3 revealed that on the question regarding the methods practiced in the coastal area in disposing biodegradable, out of 264 respondents that separate their waste into biodegradable and non-biodegradable. For the direct burning 82 respondents or 31.06%, while for dumping in a compost pit of 142 respondents or 53.79% and the remaining 40 respondents or 15.15% are biodegradable are converting into a plant fertilizer.

The data revealed that the respondents' method of dumping their biodegradable dumping into a compost pit in the coastal area.

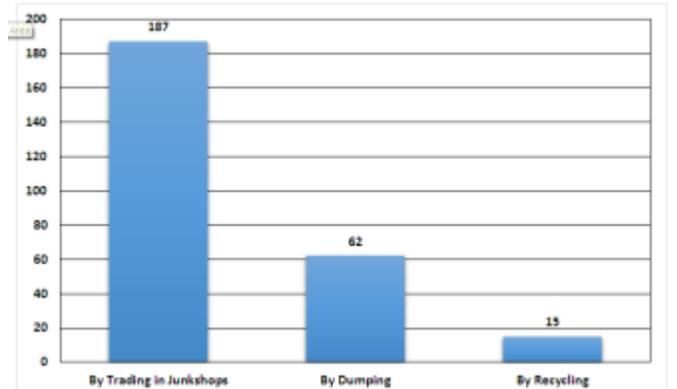


Fig. 4. Methods of disposal of non-biodegradable solid waste

Fig. 4 revealed the methods practiced in the coastal area in disposing non-biodegradable, wherein for trading in junkshops 187 respondents or 70.83%, while for dumping 62 respondents or 23.48% and the remaining 15 respondents or 5.68% is by recycling.

The data revealed that majority of the respondent separates their waste by trading rather than recycling.

Problems Encountered by the Residents in their Waste Disposal Practices

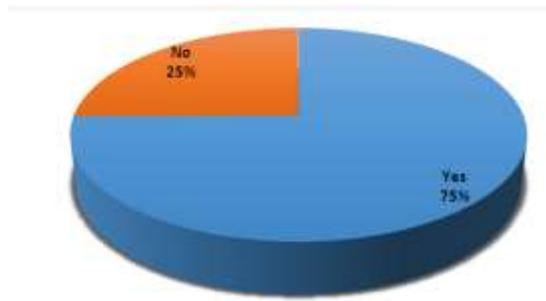


Fig. 5. The Residents' Response if they Foresee any Problems Regarding the Solid Waste Management they Currently Practice

Fig. 5 revealed the residents' response if they foresee any problems regarding the solid waste management they currently practice, there are only 274 or 74.86% out of the total number of respondents from all the barangay who foresee problems regarding the solid waste management, while the remaining 92 or 25.14% of its residents do not have any foresee problems with regards to solid waste management they currently practice.

The data revealed that the majority of the respondents have foresee problems on their current practice regarding to solid waste management.

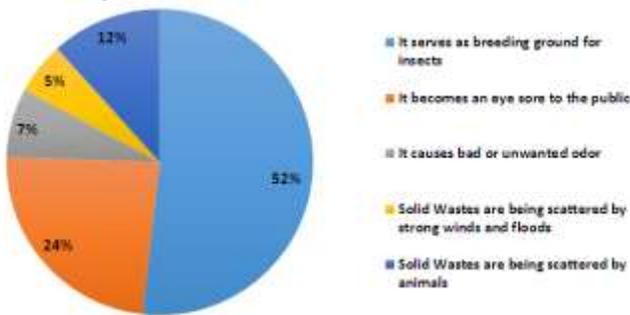


Fig. 6. Effects of Dumping in Vacant Lots

Fig. 6 revealed that the effect of dumping in vacant lots in the coastal barangays of Boac, it implied that the residents have observed that 142 or 51.82% of solid waste serves as breeding ground for insects, 65 or 23.72% it becomes an eye sore to the public. 20 or 7.30% of respondent response it causes bad or unwanted odor while 15 or 5.47% respondents the solid waste are being scattered by strong winds and floods. Lastly, 32 or 11.68% solid waste are being scattered by animals.

The data revealed that the effect of dumping vacant lots serves as breeding ground for insects which can cause different diseases. The main causes of littering or dumping in vacant lots are laziness, ignorance, the bins are dirty and not big enough. There are actually enough bins however those bins aren't emptied often enough.

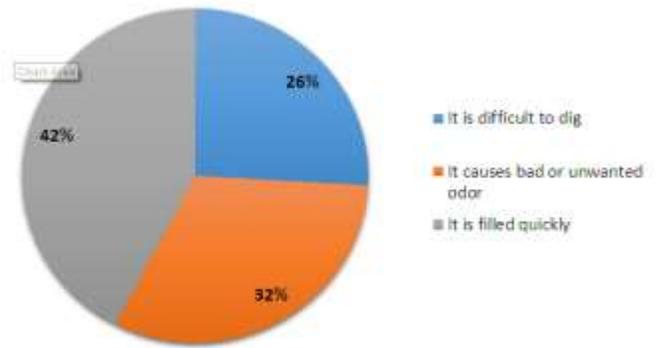


Fig. 7. Effects of Dumping in Compost Pit

Fig. 7 revealed that the effect of dumping in compost pit in the coastal barangays of Boac, it implied that the residents have observed that 71 or 25.91% using practices like compost pit is difficult to dig, 87 or 31.75% it causes bad or unwanted odor. 116 or 42.34% of respondent response it is filled quickly depending on its pit.

The data revealed that the effect of dumping on compost pit that majority is filled quickly by water and serves as breeding ground for insects which can cause many diseases.

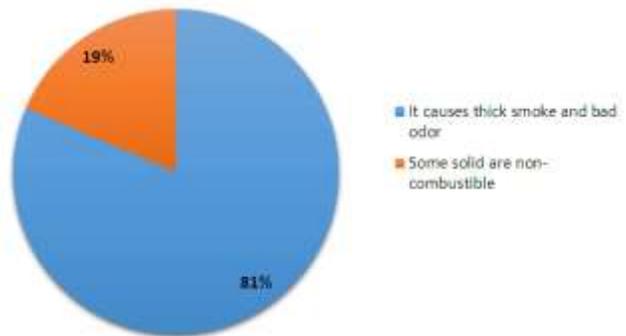


Fig. 8. Effects of Direct Burning of Waste

Fig. 8 revealed that the effect of direct burning of waste in the coastal barangays of Boac, it implied that the residents have observed that 223 or 81.39% that the problems they foresee in the effect of direct burning of waste it causes thick smoke and bad odor while 51 or 18.61% said some solid waste are non-combustible.

The data revealed that the residents in the coastal barangays said that the effect of directly burning of solid waste causes thick smoke and bad odor that can cause or worsen the health of people who has cardiac illnesses and contributes to the deterioration of the environment. Direct burning of garbage also poses health risks to those exposed directly to the smoke. It affects people with sensitive respiratory systems, as well as children and the elderly. In the short term, exposure to smoke can cause headaches, nausea, and rashes. Over time, it can increase the risk of developing heart disease.

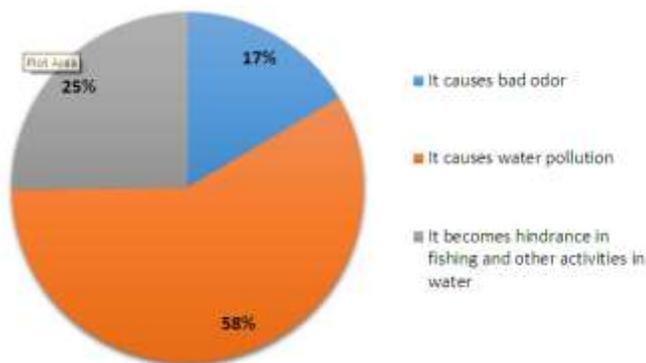


Fig. 9. Effects of Dumping Solid Waste in Rivers, Streams, and Oceans

Fig. 9 revealed that the effect of dumping of solid waste in rivers, streams, and oceans in the coastal barangays of Boac, it implied that the residents have observed that 46 or 16.79% it causes bad odor, 163 or 59.49% it causes water pollution and 65 or 25.72% of respondent response it becomes a hindrance in fishing and other water activities.

The data revealed that the majority believe that solid waste causes water pollution when dumping in rivers, streams, and oceans and it will also serves as breeding ground for the insects. People will get contaminated easily by eating contaminated seafood that can cause serious health problems, from cancer to damage the immune system and the garbage like plastic bottles, aluminium cans, shoes, packaging material – if not disposed correctly, can reach the sea and the same garbage can again reach the sea shore where it can pollute beaches and affect local tourism industry.

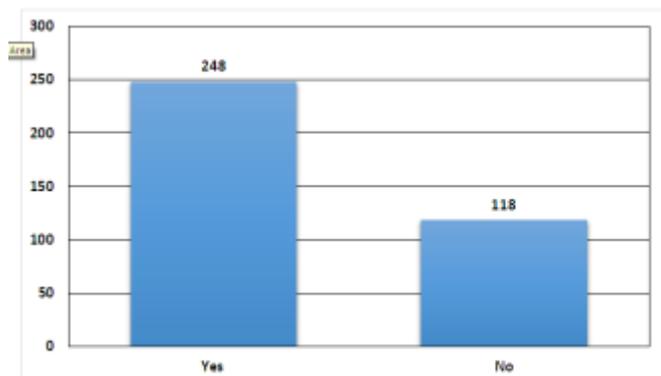


Fig. 10. Resident's Satisfaction on the Solid Waste Disposal they Currently Practice

Fig. 10 revealed the residents' satisfaction on the solid waste disposal they currently practice, out of 366 respondents there are only 248 or 67.76% out of the total number of respondents from all the barangay satisfied on their current practice in solid waste, while the remaining 118 or 32.24% of the residents is not satisfied in their current practice

The data revealed that the majority of the residents is satisfied on their current practice on solid waste disposal.

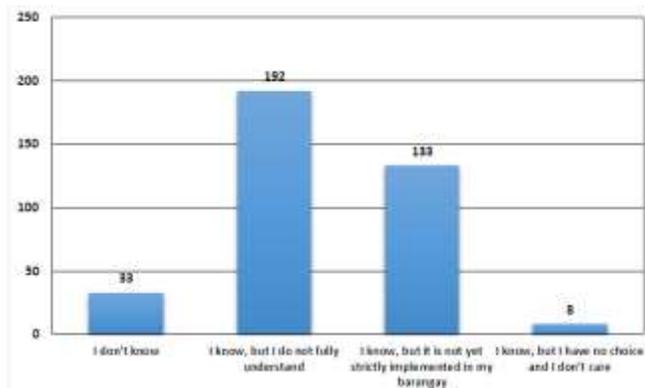


Fig. 11. Level of awareness about solid waste management laws

Fig. 11 revealed that on the question regarding the level of awareness of the coastal residents about solid waste management of the municipality. Out of 366 respondents 33 respondents or 9.02% of them answers "I don't know", 192 respondents or 52.45% answers "I know, but I do not fully understand" while 133 respondents or 36.34% answers "I know, but it is not yet strictly implemented in my barangay" and the remaining 8 respondents or 2.19% answers "I know, but I have no choice and I don't care".

The data revealed that the respondents level of awareness about solid waste management in their municipality and barangay answers "I know, but I do not fully understand". It shows that they understand but not fully understand the meaning and objectives respectively.

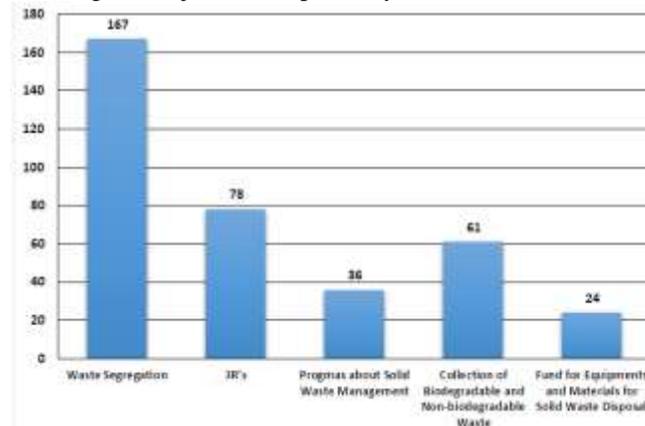


Fig. 12. Recommendations came from the coastal residents of Boac with regards to the effective disposal of solid waste

Fig. 12 revealed that the residents of the coastal area of Boac, Marinduque recommended about effective disposal of solid waste, out of the 366 respondents 167 or 45.63% said that waste segregation is the best practice in solid waste disposal while 78 or 21.31% of the respondents said that 3R's is the 2nd best practice in disposing solid waste. Moreover, 61 or 16.67% said that collection of garbage is the 3rd best practice in disposing solid waste. While the remaining 36 or 9.84% and 24 or 6.56% said that setting of programs about solid waste and fund for the new equipment and materials for solid disposal is the best practice for solid waste disposal.

IV. CONCLUSION

Based on the findings of the study, the following conclusions were drawn:

1. The most common solid waste dispose along the coastal area of Boac, Marinduque are almost the same amount of biodegradable and non-biodegradable waste.
2. The most likely practiced solid waste disposal of biodegradable along the coastal area of Boac, Marinduque is dumping into a compost pit.
3. The most likely practiced solid waste disposal of non-biodegradable along the coastal area of Boac, Marinduque is trade in junkshops.
4. Majority of the respondents are likely to observe future problems regarding their solid waste management practices.
5. The level of awareness of solid waste management laws along the coastal area of Boac, Marinduque is "I know, but I do not fully understand the objectives and content.
6. The most effective solid waste disposal practices recommended by the residents along the coastal area of Boac, Marinduque is Waste Segregation.

V. RECOMMENDATION

Based on the findings of the questionnaire and surveys, the following recommendations were prepared for further promotion of the proper solid waste disposal of the barangays.

1. There should be an auditing of the total amount of solid waste generated by each barangays in the research locale, determining the common solid waste disposal practices adapted by the residents, and its potential effects will greatly help to alleviate the continuous destruction of the environment and protect lives from vanishing.
2. Conduct of seminars and orientation programs on solid waste management in the coastal barangays.
3. Strict enforcement of the existing law and ordinances regarding solid waste management.
4. Impose appropriate fines and penalties for those residents who will violate the law.
5. Provision of segregation bins in strategic areas of each barangay and designation of person-in-charge for its disposal.
6. Possible collection of solid waste from households in each selected barangay if any case the residents are willing to pay the garbage collection fees.

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