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# COMMUNITY AWARENESS AND ENGAGEMENT IN LOCAL SOLID WASTE MANAGEMENT PRACTICES IN THE MUNICIPALITY OF BAY, LAGUNA: A BASIS FOR POLICY AND PROGRAM ENCAHCEMENT

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## ABSTRACT

*The study aimed to assess the awareness and participation of residents and local Solid Waste Management officials in Bay, Laguna, and the relationship between demographic factors, awareness, participation, policy compliance, and waste management practices. Results showed that awareness of solid waste management practices was high, but actual participation was moderate to high, with gaps in recovery and reuse. Factors such as barangay location and household head had significant effects on awareness and participation, while age, gender, and educational level had low effects. A weak correlation was found between awareness and engagement, suggesting that knowledge of waste management doesn't guarantee proper disposal.*

## INTRODUCTION

The world generates 2.01 billion tons of solid waste annually, with 33% of these being improperly managed. The World Bank estimates that this problem will worsen as global waste is expected to grow to 3.40 billion tonnes by 2050. The growing use of plastic among Filipinos also contributes to solid waste pollution, diseases, and flooding. The government has enacted legislation to address these issues, such as Section 12 of Republic Act No. 9003, mandating local chief executives to create a This study employs a quantitative research method, specifically the Survey Method, to gather data on attitudes, behaviors, opinions, and demographics. The survey questions are designed to measure variables such as awareness and engagement. Descriptive statistics will be used to present demographic profiles and Solid Waste Management Practices. The Likert Scale will be used to measure the level of awareness and engagement. The Municipal Solid Waste Management Board. This board is responsible for implementing and enforcing Solid Waste Management Programs, waste segregation and collection programs, material recovery facilities, resource mobilization and budgeting, and waste management ordinances. The government plays a crucial role through public policies and consistent implementation of Solid Waste Management Practices.

## MATERIALS AND METHODS

survey questionnaire, a self-made four-part survey, will be used to answer research problems. Indicative statements, some self-made and some derived from related studies will be used to measure awareness and engagement levels. The overall level of awareness and engagement will be computed using the weighted mean.

## RESULTS AND DISCUSSION

| Demographic Profile (Barangay) | Bay Residents | | LSWM official | |
|---|---|---|---|---|
| | Freq. | % | Freq. | % |
| Bitin | 58 | 15.06 | 0 | 0.00 |
| Calo | 41 | 10.65 | 8 | 5.76 |
| Dila | 48 | 12.47 | 15 | 10.79 |
| Maitim | 21 | 5.45 | 1 | 0.72 |
| Masaya | 50 | 12.99 | 16 | 11.51 |
| Puypuy | 7 | 1.82 | 10 | 7.19 |
| Paciano Rizal | 25 | 6.49 | 3 | 2.16 |
| San Agustin | 39 | 10.13 | 17 | 12.23 |
| San Antonio | 23 | 5.97 | 15 | 10.79 |
| San Isidro | 22 | 5.71 | 4 | 2.88 |
| San Nicholas | 11 | 2.86 | 3 | 2.16 |
| Santa Cruz | 12 | 3.12 | 9 | 6.47 |
| Sto Domingo | 7 | 1.82 | 10 | 7.19 |
| Tagumpay | 11 | 2.86 | 18 | 12.96 |
| Tranca | 10 | 2.60 | 10 | 7.19 |
| TOTAL | 385 | 100.00 | 139 | 100.00 |

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Table 1 shows the demographic profile of respondents in different barangays. Bay residents are predominantly from Brgy. Bitin, while LSWM Officials are mostly from Brgy. Tagumpay. Bose (2020) highlights the barangay government's significant role in solid waste management implementation. Respondents often practice various components of waste management, and the degree of seriousness of problems encountered is all described as serious. A significant relationship exists between socio-demographic profile and awareness level.

**Table 2. Level of Awareness of the Community to Solid Waste Management Practices in terms of Awareness to Practices**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I am aware of the Solid Waste Management Practices implemented in our town. | 3.72 | 1.11 | HA | 4.04 | 1.01 | HA |
| 2. I know how to properly execute these SWM practices. | 3.57 | 1.16 | HA | 3.83 | 1.06 | HA |
| 3. I know how vital these SWM practices are in keeping the surroundings clean | 3.77 | 1.15 | HA | 4.10 | 0.98 | HA |
| 4. I know that these practices should be taught to the youth early on. | 3.86 | 1.10 | HA | 4.02 | 1.04 | HA |
| 5. I know these SWM practices have proven effective. | 3.76 | 1.19 | HA | 4.04 | 1.01 | HA |
| *Overall Mean* | 3.74 | 1.14 | HA | 4.01 | 1.02 | HA |
| *Overall Interpretation* | | | | | | |

Table 2 shows the community's awareness of Solid Waste Management Practices. Bay residents have the highest awareness of SWM practices, with a mean of 3.86, indicating they should teach these practices to the youth. LSWM officials have the highest awareness, with a mean of 4.09, indicating they understand the importance of these practices in maintaining cleanliness. However, the standard deviation of 1.14 indicates high dispersion, indicating low reliability.

**Table 3. Level of Awareness of the Community to Solid Waste Management Practices in terms of Temporal Waste Collection Storage Facility**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I know the waste collection storage facilities in Bay, Laguna. | 3.57 | 1.17 | HA | 3.81 | 1.04 | HA |
| 2. I know that our barangay has a temporal waste collection storage if the garbage truck is unable to transport waste. | 3.60 | 1.14 | HA | 3.75 | 1.04 | HA |
| 3. I know that we should not put waste outside our house not unless it is collection day. | 3.61 | 1.17 | HA | 4.02 | 0.97 | HA |
| 4. I know that the temporal waste collection storage in our community are sufficient. | 3.44 | 1.11 | HA | 3.84 | 1.09 | HA |
| 5. I know that the temporal waste collection storage in our community are situated far from residential zones | 3.53 | 1.12 | HA | 3.83 | 1.05 | HA |
| *Overall Mean* | 3.55 | 1.14 | HA | 3.85 | 1.04 | HA |
| *Overall Interpretation* | | | | | | |

Table 3 shows the community's awareness of Solid Waste Management Practices. Bay residents are highly aware of the importance of teaching these practices to the youth, with a mean of 3.74. Similarly, LSWM officials are highly aware of the importance of these practices in maintaining cleanliness, with a mean of 4.09. However, the standard deviation of 1.02 indicates high dispersion, indicating low reliability.

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**Table 4. Level of Awareness of the Community to Solid Waste Management Practices in terms of Schedule of Waste Collection**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I know that the collectors and barangay officials have clearly communicated the schedule of trash collection. | 3.62 | 1.08 | HA | 3.94 | 1.08 | HA |
| 2. I know that the schedule of waste collection is followed | 3.68 | 1.12 | HA | 4.01 | 0.98 | HA |
| 3. I know that the length of collection time is sufficient to collect all waste from our barangay. | 3.64 | 1.14 | HA | 3.90 | 1.02 | HA |
| 4. I know that the frequency of collection of waste is enough for the waste not to build up. | 3.60 | 1.17 | HA | 3.86 | 1.07 | HA |
| I know that the SWM implementers advise us if collection will not push through | 3.69 | 1.11 | HA | 3.88 | 1.12 | HA |
| *Overall Mean* | 3.65 | 1.12 | HA | 3.92 | 1.05 | HA |

The study shows that Bay residents and officials of Local Solid Waste Management are highly aware of the waste collection schedule, with an average score of 3.65. Staff members are slightly more aware than residents and municipal officials, especially in waste management. Respondents are most informed about when collection is canceled, and officials have the highest awareness on adherence to the schedule. Improving collection frequency and program information dissemination could improve waste management outcomes.

**Table 5. Level of Awareness of the Community to Solid Waste Management Practices in terms of Benefits of Solid Waste Management**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I know that proper SWM helps prevent health hazards and reduces the spread of diseases | 3.85 | 1.08 | HA | 4.10 | 1.08 | HA |
| 2. I know that proper SWM reduces pollution. | 3.71 | 1.14 | HA | 4.09 | 1.03 | HA |
| 3. I know that efficient SWM protects the environment. | 3.55 | 1.13 | HA | 4.12 | 0.96 | HA |
| 4. I know that proper SWM like recycling promotes resource conservation | 3.99 | 1.04 | HA | 4.08 | 1.01 | HA |
| 5. I know that efficient SWM beautifies the community | 3.77 | 1.09 | HA | 4.06 | 1.04 | HA |
| *Overall Mean* | 3.78 | 1.10 | HA | 4.09 | 1.02 | HA |
| *Overall Interpretation* | | | | | | |

The study shows that Bay residents and officials of Local Solid Waste Management are highly aware of the waste collection schedule, The study shows that both Bay residents and LSWM officials are highly aware of the benefits of proper Solid Waste Management (SWM), with an average score of 4.09 and 3.78. Residents are most aware of recycling and its contribution to resource conservation, while officials rate environmental conservation through SWM as significant. However, the study suggests further education and enhanced recycling strategies are needed to complement public involvement and sustainability efforts.

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**Table 6. Level of Awareness of the Community to Solid Waste Management Practices in terms of Waste Segregation**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I know that the proper way of segregation is by sorting recyclables from trash of no more use. | 3.91 | 1.01 | HA | 4.12 | 1.09 | HA |
| 2. I know that we have to separate wet from dry waste | 4.04 | 0.99 | HA | 3.96 | 1.05 | HA |
| *3.* I know that Residents of Bay, Laguna are knowledgeable of the proper way to segregate. | 3.86 | 1.12 | HA | 3.94 | 0.97 | HA |
| *4.* I know that residents or medical institutions segregate medical waste like used needles and syringe. | 3.86 | 1.07 | HA | 3.88 | 1.04 | HA |
| 5. I am aware that residents segregate food scraps | 3.85 | 1.08 | HA | 3.82 | 1.03 | HA |
| *Overall Mean* | 3.90 | 1.05 | HA | 2.94 | 1.04 | HA |
| *Overall Interpretation* | | | | | | |

Bay, Laguna residents are generally aware of proper waste segregation procedures, with a mean awareness score of 3.90. They are most aware of segregating wet and dry waste, recognizing recyclables, medical waste, and food scrap segregation. However, a lower mean of 2.94 indicates a knowledge-action gap, suggesting that practical compliance is restricted due to convenience deficiency, access to segregation spaces, or policy backing. Increased community engagement, improved infrastructure, and favorable local regulations are needed for efficient waste segregation practices.

**Table 7. Level of Awareness of the Community to Solid Waste Management Practices in terms of Reduction of Waste**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I am aware that going digital reduces paper use. | 3.99 | 1.02 | HA | 3.95 | 1.05 | HA |
| 2. I know that buying only what you can consume can cut down food waste. | 4.05 | 1.06 | HA | 3.92 | 1.08 | HA |
| 3. I know that buying in bulk avoids the single use sachets and packaging | 4.06 | 1.03 | HA | 3.96 | 1.10 | HA |
| 4. I know that bringing my own water bottle reduces uses of single use PET water bottles. | 4.11 | 1.03 | HA | 3.96 | 1.07 | HA |
| 5. I know that using less disposal plates and cutleries could reduce waste. | 4.16 | 0.97 | HA | 3.99 | 1.04 | HA |
| Overall Mean | 4.08 | 1.02 | HA | 3.96 | 1.07 | HA |
| Overall Interpretation | | | | | | |

Table 7 shows that respondents are highly conscious of sustainable consumption practices, with the highest recognition for minimizing waste through disposable plates and cutlery. However, there is a moderate gap in understanding the environmental benefits of digitalization, particularly in areas like virtual sustainability and bulk shopping. More guidance and education are needed to bridge the gap between awareness and action..

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I know that handing down my old clothes to friends and relatives instead of throwing them could lessen wastage | 4.10 | 1.01 | HA | 4.04 | 0.96 | HA |
| 2. I know that reusing single use plastic can help lessen plastic waste | 3.94 | 1.04 | HA | 4.09 | 1.00 | HA |
| 3. I know that reusing ice cream containers and plastic PET bottles could lessen solid waste. | 4.02 | 1.04 | HA | 3.97 | 1.08 | HA |
| 4. I know that reusing ecobags could also lessen use of plastic bags | 3.98 | 1.06 | HA | 3.89 | 1.17 | HA |
| 5. I know that rice sacks can be reused as garbage bags. | 3.80 | 1.06 | HA | 3.88 | 1.16 | HA |
| Overall Mean | 3.97 | 1.04 | HA | 3.97 | 1.07 | HA |
| Overall Interpretation | | | | | | |

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The study shows that Bay residents and LSWM officials have high awareness of solid waste reuse practices, with upcycling being the most common. They have a good grasp of plastic waste management, but the lowest level of awareness is for reusing rice sacks as garbage bags. The study suggests that while awareness is high for garment and plastic reuse, it does not necessarily lead to practice, especially for underpromoted or less convenient activities like rice sack and eco-bag reuse.

**Table 9. Level of Awareness of the Community to Solid Waste Management Practices in terms of Recycle Solid Waste**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I know how to separate steel scrap, bottles and plastics | 3.91 | 1.03 | HA | 3.86 | 1.17 | HA |
| 2. I know that recyclables can be sold to junkshops | 3.87 | 1.05 | HA | 3.88 | 1.12 | HA |
| 3. I know how to repurpose broken furnitures to give them new use. | 3.94 | 1.01 | HA | 3.81 | 1.20 | HA |
| 4. I know that old tires and product containers can be used as pots | 4.00 | 1.00 | HA | 3.97 | 1.14 | HA |
| 5. I know that product bottles can be used for storing condiments. | 4.00 | 0.99 | HA | 3.93 | 1.18 | HA |
| *Overall Mean* | 3.94 | 1.02 | HA | 3.89 | 1.16 | HA |
| *Overall Interpretation* | | | | | | |

Bay residents and LSWM officials showed high awareness of recycling integration into solid waste management and practical recycling in daily life. However, they had lower awareness of profit-making activities like selling recyclable materials to junkshops and repairing damaged furniture. Segregating waste was moderate, suggesting some acknowledgment of recycling's importance but requiring compulsion. The lack of participation in monetized recycling suggests more emphasis on funding options and economic benefits of recycling.

**Table 10. Level of Awareness of the Community to Solid Waste Management Practices in terms of Recover Solid Waste**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I know that discarded fruit and vegetable waste into rich compost | 4.12 | 0.95 | HA | 4.03 | 1.10 | HA |
| 2. I know that used oil can be used to start a flame for cooking or burning. | 4.07 | 0.97 | HA | 3.98 | 1.10 | HA |
| 3. I know that old clothes or textile scraps can be used as rags to lessen solid waste. | 3.93 | 1.10 | HA | 4.01 | 1.10 | HA |
| 4. I know that coffee grounds could be used as plant fertilizer | 3.94 | 1.03 | HA | 3.85 | 1.14 | HA |
| 5. I know that paint containers can be used as trash cans or bath pail. | 3.88 | 1.02 | HA | 3.80 | 1.13 | HA |
| *Overall Mean* | 3.99 | 1.01 | HA | 3.93 | 1.16 | HA |
| *Overall Interpretation* | | | | | | |

Bay residents and LSWM officials are both knowledgeable about waste recovery methods. They are most aware of composting fruit and vegetable waste, likely due to the town's agricultural nature. However, they have low awareness of reusing paint cans due to safety concerns. Both groups have high awareness of oil repurposing but need more instruction on safe use. The reuse of textiles and coffee grounds is also high, but the low awareness suggests the need for more focused education on practical and safe recovery methods. Overall, improving knowledge on less frequent waste management practices would enhance waste management.

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**Table 11. Level of Awareness of the Community to Solid Waste Management Practices in terms of Disposal of Solid Waste**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I know that trash should be placed in proper containers so as to prevent animals from scattering them around. | 3.98 | 0.98 | HA | 3.93 | 1.08 | HA |
| 2. I know that food scraps are fed to animals | 3.96 | 0.96 | HA | 3.93 | 1.13 | HA |
| 3. I know that solid waste should be sorted | 4.05 | 0.94 | HA | 3.99 | 1.08 | HA |
| 4. I know that recyclables should be separated and sold or recycled. | 4.12 | 0.94 | HA | 4.04 | 1.09 | HA |
| 5. I know that remaining solid waste after segregation are to be incinerated or dumped in landfills | 4.05 | 1.00 | HA | 4.05 | 1.10 | HA |
| *Overall Mean* | 4.03 | 0.96 | HA | 3.99 | 1.09 | HA |
| *Overall Interpretation* | | | | | | |

The study reveals that Bay residents and LSWM officials have high awareness about solid waste disposal, with mean scores ranging from 3.93 to 4.12. Residents are most aware about segregating recyclables, while officials are most aware about landfill and incineration. However, the lowest awareness is in giving animals food waste and correct disposal to avoid garbage scattering. The research suggests that future action should focus on waste segregation, composting, and increased enforcement to promote effective waste management.

**Table 12. Extent of Solid Waste Management Practices in Terms of Waste Segregation**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. Residents segregate recyclable waste like bottles, cans, metals and plastics | 3.71 | 1.13 | HP | 3.93 | 1.03 | HP |
| 2. Residents segregate wet and dry garbage | 3.63 | 1.17 | HP | 3.74 | 1.08 | HP |
| *3.* Residents of Bay, Laguna are knowledgeable of the proper way to segregate. | 3.61 | 1.20 | HP | 3.88 | 1.02 | HP |
| 4. Residents segregate medical waste like used needles and syringe. | 3.61 | 1.21 | HP | 3.91 | 1.20 | HP |
| 5. Residents segregate food scraps | 3.66 | 1.11 | HP | 3.89 | 1.11 | HP |
| *Overall Mean* | 3.64 | 1.16 | HP | 3.87 | 1.07 | HP |
| *Overall Interpretation* | | | | | | |

Bay residents and LSWM officials have high waste segregation levels, with LSWM officials slightly outperforming residents. Both groups practice the highest level of segregation for recyclable waste, indicating understanding of environmental and economic issues. Residents have the lowest practice of segregating medical waste due to lack of facilities, while LSWM officials have the lowest practice of segregating wet and dry waste, indicating a lack of household compliance. Improved waste management systems through educational campaigns are needed

**Table 13. Extent of Solid Waste Management Practices in Terms of Waste Collection**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. Waste are collected regularly | 3.60 | 1.13 | HP | 3.88 | 1.07 | HP |
| 2. Waste is collected in designated collection zones. | 3.56 | 1.15 | HP | 3.94 | 1.03 | HP |
| 2. Collectors adheres to the collection schedule | 3.52 | 1.19 | HP | 3.77 | 1.21 | HP |
| 6. Collectors refuses unsorted waste | 3.52 | 1.14 | HP | 3.55 | 1.17 | HP |
| 7. There are enough garbage collectors as against the waste to be collected. | 3.58 | 1.12 | HP | 3.73 | 1.13 | HP |
| *Overall Mean* | 3.56 | 1.15 | HP | 3.78 | 1.12 | HP |
| *Overall Interpretation* | | | | | | |

The study shows that waste collection practices are high among Bay residents and LSWM officials, with LSWM officials reporting higher engagement. Residents with the lowest score reported regular waste collection, but there was inconsistency. LSWM officials scored highest in organizing waste collection in allocated areas, demonstrating efficiency control. Both groups had the lowest practice of refusing unsorted waste, indicating difficulty with enforcing segregation and collection timetables.

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To improve efficiency, scheduling waste collection, enforcement of separation policies, and increasing personnel are needed.

**Table 14. Extent of Solid Waste Management Practices in Terms of Waste Transportation**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. The LGU provides a garbage truck for collection | 3.61 | 1.17 | HP | 3.93 | 1.09 | HP |
| 2. There are people collecting food scraps for animal consumption like for pigs and dogs and other animals | 3.45 | 1.22 | HP | 3.68 | 1.10 | HP |
| 3. The garbage collectors sells recyclables to junkshops. | 3.48 | 1.16 | HP | 3.65 | 1.20 | HP |
| 4. Smaller waste collection vehicles like wooden carts and tricycles are used to collect waste from places not reached by the garbage truck.. | 3.47 | 1.18 | HP | 3.57 | 1.11 | HP |
| 5. Residents of Bay, Laguna can direct their waste in MRF centers.. | 3.48 | 1.14 | HP | 3.72 | 1.06 | HP |
| *Overall Mean*<br>*Overall Interpretation* | 3.50 | 1.17 | HP | 3.71 | 1.11 | HP |

Table 14 shows that waste transportation was highly practiced by both Bay residents (3.50) and LSWM officials (3.71), The study reveals that Bay residents are more active in waste transportation, with LSWM officials being more active in implementing waste transport services through garbage truck collection. However, food scrap collection for animal feeding is not widely adopted, and tricycles and wooden carts are less optimized for waste collection in some areas. The results suggest that there are irregularities in transportation services and need to enhance systems for alternative food scrap collection and reduce reliance on Material Recovery Facilities (MRFs). Future efforts should focus on difficult areas, encourage food waste recycling, and expand MRFs.

**Table 15. Extent of Solid Waste Management Practices in Terms of Waste Treatment and Disposal**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. We have composting facilities for garden, food and agricultural waste. | 3.64 | 1.12 | HP | 3.58 | 1.15 | HP |
| 2. We incinerate or bury waste remaining after sorting | 3.66 | 1.09 | HP | 3.45 | 1.16 | HP |
| 3. We have a Materials Recovery Facilities where recyclables are sorted.. | 3.69 | 1.09 | HP | 3.58 | 1.17 | HP |
| 4. We separate and treat hazardous waste separately | 3.62 | 1.12 | HP | 3.50 | 1.19 | HP |
| 5. Waste remaining after segregation are buried under landfills. | 3.55 | 1.11 | HP | 3.50 | 1.21 | HP |
| *Overall Mean*<br>*Overall Interpretation* | 3.63 | 1.10 | HP | 3.52 | 1.18 | HP |

The study shows that Bay residents and LSWM officials are highly active in waste treatment and disposal, with Bay residents showing a slight edge. The highest practice is sorting recyclables in Materials Recovery Facilities (MRFs), while the lowest is composting garden, food, and agricultural waste. Landfilling waste is not favored by residents, and incinerating or landfilling sorted waste is declining for LSWM officials. The study emphasizes the importance of waste treatment in environmental sustainability and recommends enhancing composting, improving hazardous waste management, and minimizing landfilling and incineration.

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**Table 16. Extent of Solid Waste Management Practices in Terms of Monitoring and Reporting**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. We submit reports to the national agencies about our SWM. | 3.53 | 1.10 | HP | 3.72 | 1.09 | HP |
| 2. The Barangay officials inform the SWM Implementers of the status of their waste pileage. | 3.54 | 1.20 | HP | 3.72 | 1.09 | HP |
| 3. Inefficiencies in Solid Waste Management are monitored, reported and are used as basis for enhancements in the SWM | 3.58 | 1.09 | HP | 3.63 | 1.11 | HP |
| 4. Offenders of SWM laws and regulations are reported and are penalized | 3.65 | 1.10 | HP | 3.55 | 1.15 | HP |
| 5. The SWM implementers have a complete statistics | 3.54 | 1.16 | HP | 3.69 | 1.07 | HP |

The study shows that Bay residents and LSWM officials heavily practice monitoring and reporting in solid waste management, with officials being more proactive. Residents report and sanction offenders most, while officials file reports and inform implementers. The research highlights the importance of public participation and enforcement in successful waste management, suggesting future initiatives should enhance public engagement, enforce stronger sanctions, and ensure transparency in reporting mechanisms.

**Table 17. Extent of Solid Waste Management Practices in Terms of Training and Education**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. Information Education Materials are given to residents to educate them on SWM | 3.54 | 1.12 | HP | 3.82 | 1.05 | HP |
| 2. We advise them if they are not properly disposing of waste. | 3.63 | 1.11 | HP | 3.88 | 1.07 | HP |
| 3. We are trained if there are new technologies or better ways of waste management | 3.47 | 1.16 | HP | 3.77 | 1.19 | HP |
| 4. Offenders are educated on what they have done wrong and are taught on how to do it right | 3.56 | 1.13 | HP | 3.85 | 0.98 | HP |
| 5. The SWM also launches talks in schools and barangay town hall meetings about SWM | 3.54 | 1.07 | HP | 3.77 | 1.04 | HP |
| *Overall Mean* | 3.55 | 1.12 | HP | 3.82 | 1.07 | HP |
| *Overall Interpretation* | | | | | | |

The study shows that Bay citizens and LSWM officials are more likely to practice training and education on strong waste management, with officers being more proactive. The most common exercise is reminding others to prevent incorrect waste disposal. Less practiced practices include new technologies and schooling in colleges and barangays, reflecting a lack of access and frequency.

**Table 18. Level of Engagement of the Community to Solid Waste Management Practices in terms of Minimize Solid Waste**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I use Ecobags instead of plastics. | 3.54 | 1.16 | HE | 3.95 | 0.99 | HE |
| 2. I go digital and use less paper | 3.52 | 1.16 | HE | 3.81 | 0.99 | HE |
| 3. I buy in bulk to avoid the use of sachets ang plastic packagings that adds up to solid waste | 3.48 | 1.10 | HE | 3.88 | 1.01 | HE |
| 4. I feed scrap food to cats, dogs or pigs. | 3.55 | 1.11 | HE | 3.85 | 1.02 | HE |
| 5. I compost vegetables and fruit peels and dried leaves. | 3.54 | 1.12 | HE | 3.68 | 1.11 | HE |
| *Overall Mean* | 3.53 | 1.13 | HE | 3.83 | 1.03 | HE |
| *Overall Interpretation* | | | | | | |

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The study shows that Bay residents and LSWM officials are highly engaged in waste reduction practices, with officers showing better involvement. The highest engagement was found in feeding food scraps to animals, while the lowest was bulk shopping for packaging reduction. However, efforts need to be bolstered in composting, bulk buying, and digitalization. Future packages should focus on enhancing infrastructure, increasing attention, and expanding access to sustainable practices.

**Table 19. Level of Engagement of the Community to Solid Waste Management Practices in terms of Reuse**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I reuse single use plastics.. | 3.58 | 1.11 | HE | 3.69 | 1.19 | HE |
| 2. I reuse water and soft drink bottles for storage. | 3.62 | 1.06 | HE | 3.63 | 1.15 | HE |
| 3. I hand down used clothing to family members and friends instead of throwing them. | 3.50 | 1.18 | HE | 3.92 | 0.98 | HE |
| 4. I use ice cream containers for freezer storage. | 3.55 | 1.17 | HE | 3.69 | 1.14 | HE |
| 5. I wash ecobags and reuse them | 3.62 | 1.07 | HE | 3.69 | 1.12 | HE |
| *Overall Mean* | 3.56 | 1.12 | HE | 3.73 | 1.12 | HE |
| *Overall Interpretation* | | | | | | |

The study reveals that Bay residents and LSWM officials are actively involved in reusing waste, with residents focusing on water bottles and eco-bags, and officials on antique garments. However, the lowest participation was seen in apparel reuse and bottle reuse for garage. The statistics suggest a need for improved apparel reuse and plastic recycling, with future initiatives focusing on expanding reuse training, promoting fabric recycling, and establishing formal reuse systems.

**Table 20. Level of Engagement of the Community to Solid Waste Management Practices in terms of Recycle**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I separate steel scrap, bottles and plastics | 3.74 | 1.09 | HE | 3.90 | 1.03 | HE |
| 2. I sell recyclables to junkshops | 3.69 | 1.12 | HE | 3.88 | 1.14 | HE |
| 3. I repurpose broken furnitures to give them new use. | 3.61 | 1.15 | HE | 3.85 | 0.96 | HE |
| 4. I use old tires and product containers can be used as pots | 3.63 | 1.10 | HE | 3.84 | 1.04 | HE |
| 5. I use product bottles for storing condiments. | 3.49 | 1.17 | HE | 3.72 | 1.13 | HE |
| *Overall Mean* | 3.53 | 1.12 | HE | 3.84 | 1.06 | HE |
| *Overall Interpretation* | | | | | | |

The study found that both Bay citizens and LSWM officers are highly engaged in recycling, with officials showing more involvement. Both organizations actively participate in waste segregation, showing strong awareness of recycling tactics. However, the lowest engagement was for reusing product bottles for condiment storage, possibly due to hygiene concerns or practical obstacles. Future programs should focus on improving public education, increasing access to recycling infrastructure, and increasing financial incentives for recycling.

**Table 21. Level of Engagement of the Community to Solid Waste Management Practices in terms of Recover**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I use discarded fruit and vegetable waste as rich compost. | 3.45 | 1.12 | HE | 3.70 | 1.09 | HE |
| 2. I utilize used oil to start flames for cooking or burning. *Ginagamit kong pagluto ang gamit na langis para pangpaapoy sa pagluluto at pagsunog* | 3.49 | 1.15 | HE | 3.60 | 1.23 | HE |
| 3. I use old clothes or textile scraps as rags to lessen solid waste | 3.54 | 1.15 | HE | 3.78 | 1.06 | HE |
| 4. I utilize used coffee grounds as plant fertilizer | 3.44 | 1.15 | HE | 3.60 | 1.22 | HE |
| 5. I use paint containers as trash cans or bath pails | 3.40 | 1.13 | HE | 3.68 | 1.22 | HE |
| *Overall Mean* | 3.46 | 1.14 | HE | 3.67 | 1.16 | HE |
| *Overall Interpretation* | | | | | | |

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The study shows that Bay citizens and LSWM officers are highly engaged in waste recovery practices, with officials showing higher involvement. The best engagement was found in reusing textiles as rags, while the lowest was in repurposing paint cans. The findings highlight lively recovery efforts, particularly in fabric reuse and composting. However, practices regarding household byproduct recovery, like repurposing bins or organic waste, require development. Future tasks should focus on training and incentives to encourage community participation in comprehensive recovery strategies.

**Table 22. Level of Engagement of the Community to Solid Waste Management Practices in terms of Proper Disposal**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I put trash in proper containers to prevent animals from scattering around. | 3.48 | 1.09 | HE | 3.99 | 1.03 | HE |
| 2. I use food scraps to feed animals | 3.39 | 1.17 | HE | 4.09 | 0.94 | HE |
| 3. I sort through our solid waste | 3.40 | 1.17 | HE | 3.96 | 1.01 | HE |
| 4. I separate recyclables and sell or recycle them | 3.49 | 1.15 | HE | 4.06 | 1.01 | HE |
| 5. I bag the remaining solid waste after segregation and dispose them for transport to be incinerated or dumped in landfills | 3.40 | 1.18 | HE | 3.93 | 0.99 | HE |
| *Overall Mean* | 3.43 | 1.15 | HE | 4.01 | 1.00 | HE |
| *Overall Interpretation* | | | | | | |

Table 22 assesses the level of engagement in solid waste control practices among Bay residents and Local Solid Waste Management (LSWM) officials. Citizens scored an average of 3.43, while officials scored a better suggest of 4. Bay residents showed the highest involvement in sorting recyclables for sale or recycling, while LSWM officers had the highest involvement in using food scraps for animal feed. Residents had the lowest engagement in using food waste for animal feed, possibly due to limited access to farm animals or pets. LSWM officials had the lowest engagement in bagging and disposing waste post-segregation, indicating a preference for recycling and composting.

**Table 23. Level of Engagement of the Community to Solid Waste Management Practices in terms of Follow Public Policies**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I follow the collection schedule | 3.33 | 1.14 | HE | 4.11 | 1.02 | HE |
| 2. I follow the segregation rules | 3.46 | 1.13 | HE | 4.01 | 1.01 | HE |
| 3. I keep the area near my house clean | 3.35 | 1.17 | HE | 4.15 | 0.98 | HE |
| 4. I don't throw garbage just anywhere. | 3.42 | 1.13 | HE | 4.15 | 0.96 | HE |
| 5. I follow instructions as to when to put out the garbage | 3.37 | 1.11 | HE | 4.01 | 1.06 | HE |
| *Overall Mean* | 3.38 | 1.13 | HE | 4.07 | 1.01 | HE |
| *Overall Interpretation* | | | | | | |

The study evaluates community involvement in waste control practices and compliance with public policies among Bay residents and Local Solid Waste Management officials. Both agencies are highly engaged, with residents showing maximum engagement in obeying segregation policies and LSWM officers showing the best involvement in cleanliness and littering. Residents scored the lowest in complying with waste series schedules due to inflexible private exercises or unreliable waste offerings. Officers scored the lowest in segregation compliance and timely disposal, suggesting challenges in enforcement or logistical constraints. Officers' higher mean aligns with coverage requirements. Moderate deviations suggest that most individuals comply, possibly due to behavior, enforcement gaps, or carrier inconsistencies.

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**Table 24. Level of Engagement of the Community to Solid Waste Management Practices in terms of Follow Solid Waste Management Regulations and Laws**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I segregate waste before disposing them (Republic Act 9003) | 3.37 | 1.16 | HE | 3.92 | 1.07 | HE |
| 2. I don't do open burning of solid waste (Solid Waste Management Act of 2000) | 3.44 | 1.20 | HE | 3.99 | 1.05 | HE |
| 3. I don't litter, throw, dump of waste matters in public places, such as roads, sidewalks, canals, esteros or parks, and establishment, (Republic Act 9003) | 3.31 | 1.14 | ME | 4.04 | 1.04 | HE |
| 4. Our Community Dumping site is not open dumpsite(Solid Waste Management Act of 2000) | 3.35 | 1.16 | ME | 3.96 | 1.13 | HE |
| 5. I adhere to barangay policies on SWM | 3.29 | 1.22 | ME | 4.04 | 1.02 | HE |
| *Overall Mean* | 3.35 | 1.17 | ME | 3.99 | 1.06 | HE |
| *Overall Interpretation* | | | | | | |

The study reveals a moderate level of compliance between Gulf residents and local solid waste management (LSWM) officials. Bay citizens are moderate, while LSWM officials are busy. Most people practice open burning, demonstrating awareness of environmental risks. Most are involved in Barangay SWM regulations, suggesting vulnerable enforcement. The lowest rating in waste insulation before disposal indicates inconsistent implementation. The gap between resident and reputable involvement highlights political issues and strong public education. Medium variability indicates inconsistent compliance due to factors like focus, comfort, and service accessibility.

**Table 25. Level of Engagement of the Community to Solid Waste Management Practices in terms of Convince others to follow Proper Solid Waste Management**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I share the schedule of waste collection to neighbors so they can dispose waste properly. | 3.58 | 1.11 | HE | 3.96 | 1.01 | HE |
| 2. I teach them my best practices in SWM | 3.62 | 1.06 | HE | 3.93 | 1.01 | HE |
| 3. I call their attention when they are doing improper SWM | 3.50 | 1.18 | HE | 3.76 | 1.14 | HE |
| 4. I share with others the benefits of SWM to convince them to do proper SWM | 3.55 | 1.17 | HE | 3.81 | 1.09 | HE |
| 5. I inform the young generation of the proper SWM and its importance. | 3.62 | 1.07 | HE | 3.91 | 1.05 | HE |
| *Overall Mean* | 3.56 | 1.12 | HE | 3.87 | 1.06 | HE |
| *Overall Interpretation* | | | | | | |

Table 25 shows that Bay citizens and Local Solid Waste Management officers are highly engaged in persuading others to follow proper strong waste control practices. However, they are less assertive in correcting flawed behaviors, indicating a need for network empowerment tasks. Future programs should focus on management education, social obligation campaigns, and creating supportive environments where correcting flawed behavior is normalized and endorsed.

**Table 26. Level of Engagement of the Community to Solid Waste Management Practices in terms of Convince others to Join Local Trainings**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I join trainings on proper waste segregation | 3.64 | 1.12 | HE | 3.82 | 1.12 | HE |
| 2. I join trainings on composting | 3.66 | 1.09 | HE | 3.59 | 1.20 | HE |
| 3. I join trainings on reduction of waste | 3.69 | 1.09 | HE | 3.80 | 1.14 | HE |
| 4. I join trainings on recycling | 3.62 | 1.12 | HE | 3.63 | 1.29 | HE |
| 5. I join trainings on reusing waste. | 3.55 | 1.11 | HE | 3.61 | 1.26 | HE |
| *Overall Mean* | 3.63 | 1.10 | HE | 3.69 | 1.20 | HE |
| *Overall Interpretation* | | | | | | |

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Table 26 shows Bay residents and Local Solid Waste Management officials are highly engaged in waste control training, particularly in waste reduction and segregation. However, composting and reuse schooling participation remains low. Future tasks should include expanding schooling availability, promoting the environmental and financial benefits of composting and reuse, and offering incentives and creative programs to enhance participation.

**Table 27. Level of Engagement of the Community to Solid Waste Management Practices in terms of Convince others to Join Local Activities on Waste Management**

| Indicative Statement | Bay Residents | | | LSWM Officials | | |
|---|---|---|---|---|---|---|
| | Mean | SD | R | Mean | SD | R |
| 1. I join community clean ups. | 3.98 | 0.98 | HE | 3.71 | 1.27 | HE |
| 2. I help the SWM implementers in spreading the proper way of managing waste | 3.96 | 0.96 | HE | 3.75 | 1.26 | HE |
| 3. I join SWM related contests like the cleanest barangay, recycling contests etc. | 4.05 | 0.94 | HE | 3.59 | 1.28 | HE |
| 4. I join community or workplace waste recycling.. | 4.12 | 0.94 | HE | 3.69 | 1.25 | HE |
| 5. I attend public hearings on waste management. | 4.05 | 1.00 | HE | 3.65 | 1.24 | HE |
| *Overall Mean* | 4.03 | 0.96 | HE | 3.68 | 1.26 | HE |
| *Overall Interpretation* | | | | | | |

Table 27 assesses the active participation of Bay citizens and Local Solid Waste Management (LSWM) officials in waste control activities like easy-up drives, recycling, and public hearings. Both companies are highly engaged, with residents showing more involvement than officers. However, residents show stronger direct engagement, particularly in recycling initiatives, while officers focus on focus campaigns. Future SWM efforts should increase LSWM officers' visibility and support resident-led initiatives.

**Table 28. Significant Relationship between Respondents Demographic Profile and Level of Awareness Concerning Solid Waste Management Practices**

| Level of Awareness | Demographic Profile | | | | | |
|---|---|---|---|---|---|---|
| | Age | Gender | CS | HEA | HR | BRGY |
| Awareness to Practice | F=0.40ns *p*=0.810 | F=1.04ns P=0.379 | F=1.98ns P=0.119 | F=2.02ns P-0.067 | F=3.92** P<0.01 | F=1.70ns P=0.070 |
| Temporal Waste Collection SF | F=0.272ns *p*=0.896 | F=1.512ns P=0.214 | F=1.55ns P=0.203 | F=0.87ns p=0.516 | F=2.89** P=0.005 | F=2.16* P=0.015 |
| Schedule of Waste Collection | F=0.24ns *p*=0.916 | F=2.617ns P=0.054 | F=1.24ns P=0.297 | F=0.60ns p=0.732 | F=0.63ns P=0.749 | F=3.24** P<0.01 |
| Benefits of SWM | F=0.423ns *p*=0.792 | F=2.361ns P=0.074 | F=2.69* P=0.049 | F=1.47ns P=0.193 | F=0.89ns P=0.529 | F=2.83** P= 0.001 |
| Waste Segregation | F=0.175ns *p*=0.951 | F=2.125ns P=0.100 | F=0.45ns P=0.720 | F=0.73ns P=0.630 | F=1.16ns P=0.329 | F=2.41** P=0.006 |
| Reduction of Waste | F=0.912ns *p*=0.459 | F=2.045ns P=0.133 | F=2.19ns P=0.092 | F=1.43ns P=0.208 | F=1.11ns P=0.360 | F=2.56** P=0.004 |
| Reuse Solid Waste | F=0.425ns *p*=0.790 | F=2.13ns P=0.099 | F=2.44ns P=0.067 | F=1.50ns P=0.182 | F=0.92ns P=0.498 | F=2.22* P=0.012 |
| Recycle Solid Waste | F=0.810ns *p*=0.521 | F=2.15ns P=0.097 | F=1.96ns P=0.112 | F=1.38ns P=0.228 | F=0.92ns P=0.505 | F=2.46** P=0.005 |
| Recovery Solid Waste | F=1.088ns *p*=0.365 | F=4.61** P=0.004 | F=1.42ns P=0.240 | F=1.00ns P=0.427 | F=1.47ns P=0.173 | F=2.94** P=0.001 |
| Disposal of Solid Waste | F=0.462ns *p*=0.764 | F=2.05ns P=0.110 | F=1.07ns P=0.366 | F=1.33ns P=0.249 | F=0.75ns P=0.648 | F=2.06** P=0.021 |

Table 28 shows that demographic variables, such as age, gender, training, household position, and barangay affiliation, significantly influence awareness and participation in solid waste management practices. Localized rules, education, and function-specific interventions are crucial in marketing sustainable waste practices in Bay Areas, emphasizing the importance of these factors in promoting sustainable waste management..

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**Table 29. Significant Relationship between Respondents Demographic Profile and Solid Waste Management Practices**

| SMW Practices | Demographic Profile | | | | | |
|---|---|---|---|---|---|---|
| | Age | Gender | CS | HEA | HR | BRGY |
| Waste Segregation | F=0.67ns | F=0.88ns | F=0.77ns | F=1.17ns | F=1.11ns | F=0.61ns |
| | P=0.614 | P=0.473 | P=0.510 | P=0.321 | P=0.354 | P=0.857 |
| Waste Collection | F=0.87ns | F=0.66ns | F=0.98ns | R=0.75ns | F=0.87ns | F=1.78* |
| | P=0.482 | P=0.618 | P=0.402 | P=0.607 | P=0.539 | P=0.038 |
| Waste Transportation | F=0.85ns | F=1.03ns | F=0.09ns | F=0.51ns | F=1.71ns | F=1.21ns |
| | P=0.492 | P=0.392 | P=0.968 | P=0.804 | P=0.094 | P=0.266 |
| Waste Treatment and Disposal | F=0.31 | F=0.58ns | F=0.78ns | F=0.34ns | F=1.52ns | F=2.21** |
| | P=0.874 | P=0.674 | P=0.51 | P=0.913 | P=0.149 | P=0.007 |
| Monitoring and Reporting | F=0.66ns | F=0.71ns | F=1.47ns | F=0.53ns | F=0.63ns | F=1.74* |
| | P=0.621 | P=0.582 | P=0.223 | P=0.789 | P=0.754 | P=0.045 |
| Training and Education | F=0.66 | F=0.73ns | F=0.43ns | F=1.07ns | F=1.13ns | F=1.50ns |
| | P=0.622 | P=0.574 | P=0.728 | P=0.382 | P=0.339 | P=0.107 |

The study reveals a strong correlation between respondents' demographic profile and waste management practices, including waste segregation, collection, transportation, treatment, monitoring, and education. However, demographic indicators like age, gender, civil status, and educational attainment do not significantly impact SWM practices. The study suggests that external factors like rules, infrastructure, and access to services are more influential. Barangay location also strongly influences SWM behavior, with waste series and waste remedy being the most significant factors.

**Table 30. Significant Relationship between Respondents Demographic Profile and Solid Waste Management Practices**

| Level of Engagement | Demographic Profile | | | | | |
|---|---|---|---|---|---|---|
| | Age | Gender | CS | HEA | HR | BRGY |
| Minimize Solid Waste | F=0.41ns | F=1.20ns | F=0.31ns | F=2.01ns | F=3.32** | F=1.99* |
| | P=0.804 | P=0.311 | P=0.815 | P=0.063 | P=0.001 | P=0.017 |
| Reuse | F=1.04ns | F=2.98* | F=0.22ns | F=0.50ns | F=1.34ns | F=1.96* |
| | P=0.384 | P=0.019 | P=0.886 | P=0.812 | P=0.222 | P=0.019 |
| Ricycle | F=0.76ns | F=0.28ns | F=1.17ns | F=1.53ns | F=1.20ns | F=0.92ns |
| | P=0.552 | P=0.891 | P=0.322 | P=0.167 | P=0.299 | P=0.537 |
| Recover | F=0.36ns | F=1.44ns | F=0.32ns | F=0.79ns | F=1.90ns | F=1.19ns |
| | P=0.840 | P=0.221 | P=0.811 | P=0.576 | P=0.058 | P=0.277 |
| Proper Disposal | F=0.90ns | F=1.44ns | F=1.18ns | F=1.61ns | F=1.49ns | F=2.21** |
| | P=0.466 | P=0.220 | P=0.317 | P=0.143 | P=0.157 | P=0.007 |
| Follow Public Policies | F=1.64ns | F=0.75ns | F=1.10ns | F=0.75ns | F=2.58** | F=1.51ns |
| | P=0.162 | P=0.555 | P=0.348 | P=0.608 | P=0.009 | P=0.103 |
| Follow Solid Waste Management Regulations and Laws. | F=2.50* | F=0.85ns | F=1.59ns | F=0.79ns | F=1.48ns | F=1.50ns |
| | P=0.049 | P=0.492 | P=0.192 | P=0.578 | P=0.161 | P=0.106 |
| Convince others to follow proper Solid Waste Management | F=1.11ns | F=1.66ns | F=1.08ns | F=2.16* | F=1.14ns | F=1.35ns |
| | P=0.353 | P=0.159 | P=0.357 | P=0.045 | P=0.335 | P=0.172 |
| Join Local Trainings | F=0.97ns | F=1.84ns | F=0.09ns | F=1.24ns | F=0.88ns | F=1.57ns |
| | P=0.426 | P=0.119 | P=0.967 | P=0.282 | P=0.531 | P=0.083 |
| Join Local Activities on Waste Management | F=0.43ns | F=4.10** | F=0.16ns | F=1.12ns | F=0.94ns | F=2.29** |
| | P=0.789 | P=0.003 | P=0.924 | P=0.350 | P=0.483 | P=0.005 |

The study reveals that demographics significantly influence respondents' engagement in solid waste control practices. Age has a limited influence, with older individuals more likely to follow laws. Gender plays a role in waste reuse and local sports, with women being more involved in home waste control. Household roles and barangay locations also influence participation. Training is minimal, with community rules, initiatives, and accessibility being more influential. Network-based programs and local authorities are crucial for improving SWM compliance.

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**Table 31. Significant Relationship between the Level of Awareness to the Level of Engagement as Perceived by the Target Respondents (1 of 2 tables)**

| Level of Awareness | Level of Engagement | | | | |
|---|---|---|---|---|---|
| | Minimize Solid Waste | Reuse | Recycle | Recover | Proper Disposal |
| Awareness to Practices | R = 0.200** Weak P<0.01 | R=0.228** Weak P<0.01 | R=0.231** Weak P<0.01 | R=0.190** Very Weak P<0.01 | R=0.307** Weak P<0.01 |
| Temporal Waste Collection Storage Facility | R=0.190** Weak P<0.01 | R=0.183** Very Weak P<0.01 | R=0.262** Weak P<0.01 | R=0.279** Weak P<0.01 | R=0.276** Weak P<0.01 |
| Schedule of Waste Collection | R=0.207** Weak P<0.01 | R=0.204** Weak P<0.01 | R=0.294** Weak P<0.01 | R=0.247** Weak P<0.01 | R=0.354** Weak P<0.01 |
| Benefits of Solid Waste Management | R=0.316** Weak P<0.01 | R=0.240** Weak P<0.01 | R=0.261** Weak P<0.01 | R=0.258** Weak P<0.01 | R=0.406** Moderate P<0.01 |
| Waste Segregation | R=0.261** Weak P<0.01 | R=0.236** Weak P<0.01 | R=0.251** Weak P<0.01 | R=0.327** Weak P<0.01 | R=0.267** Weak P<0.01 |
| Reduction of Waste | R=0.242** Weak P<0.01 | R=0.221** Weak P<0.01 | R=0.178** Very Weak P<0.01 | R=0.296** Weak P<0.01 | R=0.287** Weak P<0.01 |
| Reuse Solid Waste | R=0.279** Weak P<0.01 | R=0.216** Weak p<0.01 | R=0.251** Weak P<0.01 | R=0.253** Weak P<0.01 | R=0.343** Weak P<0.01 |
| Recycle Solid Waste | R=0.302** Weak P<0.01 | R=0.287** Weak P<0.01 | R=0.273** Weak P<0.01 | R=0.284** Weak P<0.01 | R=0.260** Weak P<0.01 |
| Recover Solid Waste | R=0.302** Weak P<0.01 | R=0.316** Weak P<0.01 | R=0.261** Weak P<0.01 | R=0.305** Weak P<0.01 | R=0.283** Weak P<0.01 |
| Disposal of Solid Waste | R=0.283** Weak P<0.01 | R=0.270** Weak p<0.01 | R=0.245** Weak P<0.01 | R=0.255** Weak P<0.01 | R=0.296** Weak P<0.01 |

**Table 32. Significant Relationship between the Level of Awareness to the Level of Engagement as Perceived by the Target Respondents (2 of 2 tables, continuation)**

| Level of Awareness | Level of Engagement | | | | |
|---|---|---|---|---|---|
| | Follow Public Policies | Follow Solid Waste Management Regulations and Laws | Convince others to follow proper Solid Waste Management | Join Local Trainings | Join Local Activities on Waste Management |
| Awareness to Practices | R=0.193** Very Weak P<0.01 | R=0.159** Very Weak P<0.01 | R=0.245** Weak P<0.01 | R=0.167** Very Weak P<0.01 | R=0.216** Weak P<0.01 |
| Temporal Waste Collection Storage Facility | R=0.206** Weak P<0.01 | R=0.162** Very weak P<0.01 | R=0.332** Weak P<0.01 | R=0.297** Weak P<0.01 | R=0.346** Weak P<0.01 |
| Schedule of Waste Collection | R=0.206** Weak P<0.01 | R=0.200** Weak P<0.01 | R=0.294** Weak P<0.01 | R=0.281** Weak P<0.01 | R=0.271** Weak P<0.01 |
| Benefits of Solid Waste Management | R=0.317** Weak | R=0.333** Weak | R=0.301** Weak | R=0.272** Weak | R=0.219** Weak |

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Volume: 11| Issue: 5| May 2025|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2025: 8.691 || ISI Value: 1.188

| | | | | | |
|---|---|---|---|---|---|
| | P<0.01 | P<0.01 | P<0.01 | P<0.01 | P<0.01 |
| Waste Segregation | R=0.209** | R=0.257** | R=0.275** | R=0.282** | R=0.264** |
| | Weak | Weak | Weak | Weak | Weak |
| | P<0.01 | P<0.01 | P<0.01 | P<0.01 | P<0.01 |
| Reduction of Waste | R=0.247** | R=0.240** | R=0.185** | R=0.194** | R=0.169** |
| | Weak | Weak | Very Weak | Very Weak | Very Weak |
| | P<0.01 | P<0.01 | P<0.01 | P<0.01 | P<0.01 |
| Reuse Solid Waste | R=0.255** | R=0.289** | R=0.263** | R=0.255** | R=0.270** |
| | Weak | Weak | Weak | Weak | Weak |
| | P<0.01 | P<0.01 | P<0.01 | P<0.01 | P<0.01 |
| Recycle Solid Waste | R=0.260** | R=0.317** | R=0.296** | R=0.257** | R=0.262** |
| | Weak | Weak | Weak | Weak | Weak |
| | P<0.01 | P<0.01 | P<0.01 | P<0.01 | P<0.01 |
| Recover Solid Waste | R=0.249** | R=0.287** | R=0.238** | R=0.226** | R=0.230** |
| | Weak | Weak | Weak | Weak | Weak |
| | P<0.01 | P<0.01 | P<0.01 | P<0.01 | P<0.01 |
| Disposal of Solid Waste | R=0.258** | R=0.321** | R=0.264** | R=0.263** | R=0.229** |
| | Weak | Weak | Weak | Weak | Weak |
| | P<0.01 | P<0.01 | P<0.01 | P<0.01 | P<0.01 |

Tables 31 and 32 show a strong correlation between focus and participation in solid waste management practices. While awareness is related to participation, it is insufficient to encourage extensive conduct exchange. Proper waste disposal is strongly associated with recognition, suggesting that those aware of the environmental benefits of SWM are more likely to dispose of waste well. Recycling, reuse, and waste segregation also show strong associations with focus, but other factors like access, infrastructure, and network support are also important. Adherence to public guidelines and SWM legal guidelines has weak correlations with focus, suggesting that awareness alone is not enough to ensure compliance.

**Table 33. Significant Relation between SMW Practices and Level of Engagement as Perceived by the Target Respondents**

| Level of Engagement | SMW Practices: Waste Segregation | Waste Collection | Waste Transport-ation | Waste Treatment and Disposal | Monitoring and Reporting | Training and Education |
|---|---|---|---|---|---|---|
| Minimize Solid Waste | R=0.282** Weak P<0.01 | R=0.236** Weak P<0.01 | R=0.195** Very Weak P<0.01 | R=0.290** Weak P<0.01 | R=0.222** Weak P<0.01 | R=0.228** Weak P<0.01 |
| Reuse | R=0.284** Weak P<0.01 | R=0.179** Very Weak P<0.01 | R=0.200** Weak P<0.01 | R=0.300** Weak P<0.01 | R=0.231** Weak P<0.01 | R=0.222* Weak P<0.01 |
| Recover | R=0.313** Weak P<0.01 | R=0.239** Weak P<0.01 | R=0.249** Weak P<0.01 | R=0.249** Weak P<0.01 | R=0.286** Weak P<0.01 | R=0.251** Weak P<0.01 |
| Proper Disposal | R=0.333** Weak P<0.01 | R=0.257** Weak P<0.01 | R=0.212** Weak P<0.01 | R=0.252** Weak P<0.01 | R=0.242** Weak P<0.01 | R=0.285** Weak P<0.01 |
| Follow Public Policies | R=0.279** Weak P<0.01 | R=0.254** Weak P<0.01 | R=0.189** Very Weak P<0.01 | R=0.489** Moderate P<0.01 | R=0.175** Very Weak P<0.01 | R=0.253** Weak P<0.01 |
| Follow Solid Waste Management Regulations and Laws. | r-0.230** Weak P<0.01 | R=0.221** Weak P<0.01 | R=0.185** Very Weak P<0.01 | R=0.813** Very Strong P<0.01 | R=0.244** Weak P<0.01 | R=0.258** Weak P<0.01 |
| Convince others to follow proper Solid | R=0.321** Weak p<0.01 | R=0.260** Weak P<0.01 | R=0.284** Weak P<0.01 | R=0.343** Moderate P<0.01 | R=0.193** Very Weak P<0.01 | R=0.347** Moderate P<0.01 |

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| | | | | | | |
|---|---|---|---|---|---|---|
| Waste Management | | | | | | |
| Join Local Trainings | R=0.335** Moderate P<0.01 | R=0.234** Weak P<0.01 | R=0.268** Weak P<0.01 | R=0.308** Weak P<0.01 | R=0.262** Weak P<0.01 | R=0.301** Weak P<0.01 |
| Join Local Activities on Waste Management | R=0.350** Moderate P<0.01 | R=0.290** Weak P<0.01 | R=0.252** Weak P<0.01 | R=0.181** Very Weak P<0.01 | R=0.186** Very Weak P<0.01 | R=0.326** Moderate P<0.01 |

Table 33 explores the correlation between engagement and Solid Waste Management practices, focusing on unique engagement activities like waste discount, reuse, and local participation. The low correlation indicates issues like inadequate infrastructure, wasteful routes, and community participation. Improvements in planning and infrastructure, technology, and education are needed, particularly in growing nations. Inadequate training and educational activities hinder community awareness of SWM practices. Low compliance with policies indicates negative enforcement and unawareness, suggesting the need for stronger enforcement and incentives.

## CONCLUSIONS

The study reveals that Bay residents are well aware of the environmental implications of waste management, and their most active involvement is in spreading awareness and participating in local initiatives. The study also found a strong correlation between household role and barangay, suggesting that waste management programs are more effective at the community level. However, awareness does not necessarily mean active participation, and participation in waste management is strongly associated with appropriate segregation, collection, and disposal, although the strength of the association is mostly weak to moderate.

**Recommendations**

To improve Solid Waste Management (SWM) practices in Bay, Laguna, several key suggestions have been proposed. These include boosting waste delivery infrastructure by purchasing additional motors, optimizing collection routes, and integrating GPS monitoring technology. Modernizing non-public zones can also reduce costs and enhance device capabilities. Automated monitoring and reporting machines can ensure compliance with SWM requirements. Regular tests, audits, and public reporting mechanisms can increase duty and responsiveness. Education and academic applications should be reinforced to increase focus and participation in proper waste management. Public focus campaigns, workshops, and collaboration with environmental experts can further reinforce these efforts. Stricter policy implementation and public adherence to waste management regulations are also necessary. Finally, local waste control guidelines should be accompanied by incentives for compliance.

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