

## Status Of Solid Waste Management In The Municipality Of Jolo

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### Abstract

This study intends to determine status of solid waste management in the municipality of Jolo, Sulu during the Fiscal Year 2022. Employing descriptive-correlational research design with 112 respondents chosen through purposive sampling design, where data gathered through survey questionnaire and analyzed via weighted mean, standard deviation, t-test for independent samples, One-Way ANOVA, and Pearson's  $r$  correlation coefficient, this reveals the following findings: 1) More than one-half of the respondents are female, married, within the 30-40 years old of age bracket, and great majority have bachelor's degree. 2) Generally, residents of Jolo municipality affirmed that the status of solid waste management is affected by policy, facility, changing lifestyle, individual behavior, and community participation. 3) Profile variables used in this study such as gender, age, civil status, and educational attainment do not significantly intervene in ways how residents of Jolo municipality perceive the status of solid waste management. 4) All sub-categories subsumed under the status of solid waste management in Jolo municipality are moderately correlated. This study tends to support Kayode and Omole which states that composition of waste generation reflected variation of socio-economic factors of the people. Also, socioeconomic factors such as income, age, education, occupation and building types had greater influence on the choice of method of disposal. In this theory it was recommended that effective solid waste management can be achieved through the adoption of urban renewal strategy on the chaotic areas, provision of sizable fund by the government and proper education to the people among others.

Keywords: Solid Waste, Management, Jolo Municipality

Index Terms—About four key words or phrases in alphabetical order, separated by commas.

## I. INTRODUCTION

As the world becomes more urbanized and developed, consumption rates are on the rise. An inevitable consequence of more consumption is the rapid increase in the amount of solid waste that is produced. Today, solid-waste management (SWM) conditions in the developing world are often quite dire of those found in the developed world several generations ago. The impact of inadequate SWM practices on natural and human environments is now being acknowledged (Jessica McAllister, 2015).

In Wayu town, Ethiopia per study conducted by Wolde, the estimated household solid waste generation rate per household per day is 8.7 Kg and 0.29m<sup>3</sup> by weight and volume respectively. And per day per household solid waste by density are 30kg/m<sup>3</sup>. The percentage composition of commercial solid waste fractions clearly shows that food waste takes the largest proportion of commercial solid waste and followed by ash, miscellaneous groups, wood, dust and soil, paper, bones, textile, plastic, glass, hair and metal waste by weight. The result shows, if composting and recycling are exercised in the town there is a possibility to reduce the amount of household solid waste going to be disposed illegally by 82.6% and 35.4% (Tsfaye Wolde, 2015).

With rapid increase in population and economic growth, the republic of the Philippines is facing a major challenge for effective management of its growing municipal waste. The government has enacted the Republic Act 9003, which is also called the Ecological Solid Waste Management Act of 2000, to overcome the challenges of waste management (Bijan Maskey et. al., 2016).

Despite the enactment of Ecological Solid Waste Management Act in 2000 which provides the required policy framework, institution mechanisms and mandate the Local Government Unit (LGU) to achieve 25% waste reduction target through establishing integrated solid waste management plan, still solid waste disposal management remains to be the top problem

of the country until today where Jolo municipality is non-exceptional.

This study was conducted to determine the status of solid waste management in the municipality of Jolo. Empirical data collected for this study will serve as significant input in the formulation of policies and program implementation of solid waste management in the municipality of Jolo.

## **II. METHODOLOGY**

A DESCRIPTIVE-CORRELATIONAL RESEARCH EMPLOYED IN THIS STUDY WAS PURPOSEFUL SAMPLING DESIGN BECAUSE THE RESPONDENTS WILL COME FROM THE DIFFERENT STRUCTURE OR BARANGAYS.

The study was conducted in the eight barangays of the municipality of Jolo, province of Sulu as follows: Alat, Asturias, Bus-Bus, Chinese Pier, Sanraymundo, Takut-Takut, Tulay, and Walled City. Jolo is the capital town of the province of Sulu. According to the 2015 census, it has a population of 125,564 people. Part of its population is a Chinese descent, mainly from Singapore. It has an area of 126.4 square kilometer (google.com).

The instrument used in gathering the data in this study was self-made questionnaire, which consist of two parts. The first part is the Demographic profile of the respondent with five categories. The second part is the extent of solid waste management divided into five blocks. Block I extent of solid waste management in terms of Policy. Block II extent of solid waste management in terms of Facility. Block III extent of solid waste management in terms of Changing Lifestyle. Block IV extent of solid waste management in terms of individual behavior. Block V extent of solid waste management in terms of community participation.

Before administering the research instrument to the respondent, the questions were subjected for validation to two (2) panels of expert in the field research for examination as to its appropriateness to the study. The research instrument was also subjected for pilot testing to assure its reliability and validity.

The reliability test was done to check if the survey questionnaire would measure what it intends to measure. The test – retest was done by selecting 10 persons who are not part of the participants to answer the survey questionnaire. After a few days, the same 10 persons were asked to answer the same survey questionnaire. The responses from the two tests were compared by computing their

reliability. Pearson Product- Moment Correlation was used to compute the reliability of the survey questionnaire. It was found that  $r = 0.72$ . It means that there is a high correlation between the two tests or that the survey questionnaire is highly reliable. It is now ready to be launched to the intended participants of the study.

### **III. RESULTS AND DISCUSSION**

THIS SHOWCASES THE PRESENTATIONS, ANALYSES AND INTERPRETATIONS OF RESULTS BASED ON THE DATA GATHERED FOR THIS STUDY. IT ALSO TACKLES ON THE STATUS OF SOLID WASTE MANAGEMENT IN THE MUNICIPALITY OF JOLO DURING FISCAL YEAR 2022; RESPONDENTS' DEMOGRAPHIC PROFILES IN TERMS OF GENDER, AGE, CIVIL STATUS, AND EDUCATIONAL ATTAINMENT; THE STATUS OF SOLID WASTE MANAGEMENT IN THE MUNICIPALITY OF JOLO IN THE CONTEXT OF POLICY, FACILITY, CHANGING LIFESTYLE, INDIVIDUAL BEHAVIOR, AND COMMUNITY PARTICIPATION; AND THE SIGNIFICANT CORRELATION AND DIFFERENCES AMONG THE SUB-CATEGORIES SUBSUMED UNDER THESE SUB-CATEGORIES WHEN DATA ARE CLASSIFIED ACCORDING TO RESPONDENTS' DEMOGRAPHIC PROFILES.

#### **1. What is the demographic profile of respondents in the municipality of Jolo according to: 1.1 Gender, 1.2 Age, 1.3 Civil status, and Educational attainment?**

##### **1.1 In terms of Gender**

The results of the the demographic profile of respondents in the municipality of Jolo according to gender. It can be gleaned from this table that out of 112 respondents, 63 (56.2%) are Female and 49 (48.8%) are Male. In this study, this means that more than one-half of the respondents involved in this study are from female sector. This result implies that female respondents in this a bit greater in number over their male counterparts.

##### **1.2 In terms of Age**

The results presented the demographic profile of respondents in municipality of Jolo according to age. It can be gleaned from this table that out of 112 respondents, 84 (75.0%) are 30-40 years old, 19 (17.0%) are 41-50 years old, 7 (6.2%) are 51-60 years old, and 2 (1.8%) are 61 years old & above. In this study, this means that

three-fourth of the respondents are within the 30-40 years old of age bracket. This result implies that there is significant number of the respondents in this study that are within the lowest level of age bracket.

### **1.3 In terms of Civil Status**

The demographic profile of respondents in the municipality of Jolo according to civil status. It can be gleaned from this table that out of 112 respondents, 35 (31.2%) are single, 73 (65.2%) are married, and 4 (3.6%) are either separated or widowed. This result reveals that almost three-fourth of the respondents are married. It implies that there exist a considerable number of respondents who are married that are occupied with household chores relative to family affairs such as rearing with their children's education, social activities and personal well-being.

## **2. What is the extend of solid waste management in the municipality of Jolo as assessed by its constituents in terms of: 2.1 Policy, 2.2 Facility, 2.3 Changing lifestyle, 2.4 Individual behavior, and 2.5 Community participation?**

### **2.1 In terms of Policy**

This shows the extent of solid waste management in the municipality of Jolo as assessed by its constituents in terms of policy. Under this category, respondents have total weighted mean score of 3.8571 with standard deviation of .62294 which is rated as "Agree". This result indicates that respondents expressed agreement that the Jolo municipal government and other government agencies are formulating and implementing rules and policies on solid waste management

Moreover, from among the items under this category, respondents rated with "Agree" the following items: "Municipal ordinance on Solid Waste management is conspicuously posted at the barangay level", "I am fully aware that there is ordinance on solid waste management", "People awareness on solid waste management should be strengthened", "I heard of violators who were penalized", and "The Local Government Unit and other related agencies are conducting Information Education Campaign on solid waste management from time to time".

## **2.2 In terms of Facility**

This showcase the extent of solid waste management in the municipality of Jolo as assessed by its constituents in terms of facility. Under this category, respondents have total weighted mean score of 3.7612 with standard deviation of .79723 which is rated as “Agree”. This result indicates that respondents expressed agreement that the Jolo municipal government and other government agencies are providing facilities needed in the operation solid management in the municipality of Jolo.

Moreover, from among the items under this category, respondents rated with “Agree” the following items: “There is designated pick up point for the solid waste in our barangay”, and “There is garbage truck roaming around to collect the solid waste per schedule”.

Meanwhile, respondents rated as “Undecided” the items: “There is Material Recovery Facility in our barangay”, and “The barangay provided a container/receptacle in every collection point which serves as”.

## **2.3 In terms of Changing Life-Style**

The extent of solid waste management in the municipality of Jolo as assessed by its constituents in terms of changing life-style. Under this category, respondents have total weighted mean score of 4.3631 with standard deviation of .57831 which is rated as “Agree”. This result indicates that respondents expressed agreement that the modern life-style of the constituents in the locality recognized as one from among the causes in the alarming increase in solid waste products and materials.

Moreover, from among the items under this category, respondents rated with “Agree” the following items: “Nowadays disposable diaper is prepared than Lampin”, “Several years ago, when there is occasion, the following can be observed: a. Rice is being wrap in a banana leaf but now it is place in a plastic cellophane, b. Re-usable glass is used but now bottled water is being used instead, and c. soft drinks in a re-usable bottle is used but now soft drinks in a can/plastic bottle are prepared”, “Restaurants are using Styrofoam or plastic cellophane instead of banana leaves for take-out orders”, and “Sanitary pad is prepared over cloth-like pad.”

#### **2.4 In terms of Individual Behavior**

This shows the extent of solid waste management in the municipality of Jolo as assessed by its constituents in terms of individual behavior. Under this category, respondents have total weighted mean score of 3.5476 with standard deviation of .55949 which is rated as "Agree". This result indicates that respondents expressed agreement that the individual involvement and participation of the residents in the enforcement of the policies on waste management control plays a significant role. Individual's values of cleanliness and sanitation help much in the effective implementation of rules and policies on solid waste management.

Moreover, from among the items under this category, respondents rated with "Agree" the following items: "I am fully aware of the policy on solid waste management in our municipality", "I practice segregation of solid waste at home according to type of waste like", "I practice composting of compostable waste at home", "I only dispose my waste at the designated pick-up point for collection", and "If I saw somebody throwing solid waste to canal, or river bank, I reprimand him/her."

Notably, respondents rated with "Disagree" the item: "I throw my solid waste anywhere".

#### **2.5 In terms of Community Participation**

In terms of Community Participation, the extent of solid waste management in the municipality of Jolo as assessed by its constituents under this category, respondents have total weighted mean score of 3.8125 with standard deviation of .58219 which is rated as "Agree". This result indicates that respondents expressed agreement that the social and civic activities organized by some cause-oriented groups toward cleanliness and sanitation information drives, are believed that this can help ease and minimize solid waste management problem.

Moreover, from among the items under this category, respondents rated with "Agree" the following items: "The residents of barangay are very much supportive of the barangay officials' efforts towards a cleaner community", "Is the community fully aware of the solid waste management approach of the barangay/municipal", "Have you seen someone throwing solid waste in canal/riverbank", "The community is adopting a Bakuran

ko Linis ko approach”, and “I observed group of people conducting cleanliness drive in our barangay frequently”.

**3. Is there a significant difference in the extent of solid waste management in the municipality of Jolo as assessed by the constituents when data are classified to demographic profile in terms of: 3.1 Age, 3.2 Gender, 3.3 Civil status, and 3.4 Educational attainment?**

**3.1 In terms of Gender**

This illustrates the difference in the extent of solid waste management in the municipality of Jolo as assessed by the constituents when data are classified to demographic profile in terms of gender. It can be gleaned from this table that, except for Changing Lifestyle, the Mean Differences, t-values, and probability values of all other sub-categories subsumed under extent of solid waste management are NOT significant at alpha .05. This means that, male and female respondents in this study generally DO NOT differ in their perceptions toward the extent of extent of solid waste management. This result implies that being a male respondent may not probably make him on a vantage point of perceiving toward the extent of extent of solid waste management than the female respondents, or vice versa. Henceforth, it is safe to say that variable gender has no significant influence in the ways how respondents perceive toward the extent of extent of solid waste management. Therefore, the hypothesis which states that, “There is no significant difference in the extent of solid waste management in the municipality of Jolo as assessed by the constituents when data are classified to demographic profile in terms of gender” is accepted.

**3.2 According to Age**

This illustrates the difference in the extent of solid waste management in the municipality of Jolo as assessed by the constituents when data are classified to demographic profile in terms of age. It can be gleaned from this table that the F-values and probability values of all the sub-categories subsumed under extent of solid waste management are NOT significant at alpha .05. This means that, though respondents in this study vary in their age bracket, generally they DO NOT differ in their perceptions toward

the extent of solid waste management. This result implies that a respondent being 61 years old and above may not probably make him on a vantage point of perceiving toward the extent of solid waste management than those who are 30 to 40 years old, 51 to 60 years old, and 41 to 50 years old, or vice versa.

Henceforth, it is safe to say that variable age has no significant influence in the ways how respondents perceive toward the extent of solid waste management. Therefore, the hypothesis which states that, "There is no significant difference in the extent of solid waste management in the municipality of Jolo as assessed by the constituents when data are classified to demographic profile in terms of age" is accepted.

### **3.3 According to Civil Status**

The civil status differs in the extent of solid waste management in the municipality of Jolo as assessed by the constituents when data are classified to demographic profile. It can be gleaned from this table that the F-values and probability values of all the sub-categories subsumed under extent of solid waste management are NOT significant at alpha .05. This means that, though respondents in this study vary in their marital status, generally they DO NOT differ in their perceptions toward the extent of solid waste management. This result implies that a respondent being 61 years old and above may not probably make him on a vantage point of perceiving toward the extent of solid waste management than those who are 30 to 40 years old, 51 to 60 years old, and 41 to 50 years old, or vice versa.

Henceforth, it is safe to say that variable civil status has no significant influence in the ways how respondents perceive toward the extent of solid waste management. Therefore, the hypothesis which states that, "There is no significant difference in the extent of solid waste management in the municipality of Jolo as assessed by the constituents when data are classified to demographic profile in terms of civil status" is accepted.

### **3.4 According to Educational Attainment**

This illustrates the difference in the extent of solid waste management in the municipality of Jolo as assessed by the constituents when data are classified to demographic profile in terms of educational attainment. It can be gleaned from this table

that, except for Changing Lifestyle the F-values and probability values of all other sub-categories subsumed under the extent of solid waste management are NOT significant at alpha .05. This means that, though respondents in this study vary in their educational attainment, generally they DO NOT differ in their perceptions toward the extent of solid waste management. This result implies that a respondent being a Doctorate Degree may not probably make him on a vantage point of perceiving toward the extent of solid waste management than those who have Elementary/High school level, Master's Degree, and Bachelor's Degree level of education, or vice versa.

Henceforth, it is safe to say that variable educational attainment has no significant influence in the ways how respondents perceive toward the extent of solid waste management. Therefore, the hypothesis which states that, "There is no significant difference in the extent of solid waste management in the municipality of Jolo as assessed by the constituents when data are classified to demographic profile in terms of educational attainment" is accepted.

#### **4. Is there a significant correlation among sub-categories subsumed under solid waste management in the Municipality of Jolo in terms of policy, facility, changing lifestyle, individual behavior, and community participation?**

This illustrates the correlation among the extent of sub-categories subsumed under the extent of solid waste management in the Municipality of Jolo in terms of policy, facility, changing lifestyle, individual behavior, and community participation Fiscal Year 2022. It can be gleaned from this table that the computed Pearson Correlation Coefficients (Pearson r) between these variables are all significant at alpha .05.

Specifically, the degrees of correlations among the sub-categories subsumed under the extent of solid waste management are as follows:

- 1) Moderate positive correlation between Policy **and** Facility, Changing Lifestyle, Individual Behavior, and Community Participation;
- 2) Moderate positive correlation between Facility **and** Changing Lifestyle, Individual Behavior, and Community Participation;

- 3) Nearly Zero positive correlation between Changing Lifestyle **and** Individual Behavior, and Community Participation;
- 4) Moderate positive correlation between Individual Behavior **and** Community Participation

These results indicate that the group of respondents who rated Policy Engagement as “Agree” most probably the same group of respondents who rated Facility, Changing Lifestyle, Individual Behavior, and Community Participation as “Agree” respectively.

Meanwhile, it is safe to say that, generally the extent of sub-categories subsumed under solid waste management is moderately correlated.

Therefore, the hypothesis which states that, “There is no significant correlation among sub-categories subsumed under solid waste management in the Municipality of Jolo in terms of policy, facility, changing lifestyle, individual behavior, and community participation” is rejected.

## **SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

### **Summary of Findings**

This study reveals the following findings:

#### **1) For Research Question Number 1: On demographic profile of respondents:**

Out of 112 respondents, more than one-half are from female sector, three-fourth are within the 30-40 years old of age bracket, almost three-fourth are married, and great majority have bachelor’s degree.

#### **2) For Research Question Number 2: On the Extent of Solid Waste Management**

Generally, respondents affirmed that policy, facility, changing lifestyle, individual behavior, and community participation affect the status of solid waste management in the municipality of Jolo.

#### **3) For Research Question Number 3: On Differences in the Extent of the Status of Solid Waste Management**

There is no significant difference in the extent of the status of solid waste management in the municipality of Jolo when data are grouped according to gender, age, civil status, and educational attainment. In other words, residents of municipality of Jolo do not differ in their ways of perceiving the extent of the status of solid waste management in terms of policy, facility, changing lifestyle, individual behavior, and community participation.

#### **4. For Research Question Number 4: On Correlation among Sub-Categories subsumed under the extent of the Status of Solid Waste Management**

Generally, there is moderate positive correlation among sub-categories subsumed under the status of solid waste management in municipality of Jolo. Apparently, it is with moderate probability that the group of respondents assessed Policy as moderate, sometimes the same group who assessed facility, changing lifestyle, individual behavior, and community participation as moderately affect the status of solid waste management.

#### **Conclusions**

This puts forward the following conclusions:

- 1.) In this study, residents of the municipality of Jolo are adequately represented in terms of gender, age, civil status, and educational attainment.
- 2) Generally, residents of Jolo municipality affirmed that the status of solid waste management is affected by policy, facility, changing lifestyle, individual behavior, and community participation.
- 3) Profile variables used in this study such as gender, age, civil status, and educational attainment do not significantly intervene in ways how residents of Jolo municipality perceive the status of solid waste management.
- 4) All sub-categories subsumed under the status of solid waste management in Jolo municipality are moderately correlated.
- 5) This study tends to support Kayode and Omole which states that composition of waste generation was a reflection of variation of socio-economic factors of the people. Also, socioeconomic factors such as income, age, education, occupation and building types had greater influence on the choice of method of disposal. In this theory it was recommended that effective solid waste management can be achieved through the adoption of urban

renewal strategy on the chaotic areas, provision of sizable fund by the government and proper education to the people among others.

### **Recommendations**

This study recommends the following:

- 1) Residents of Jolo municipality should support the programs and policies of Jolo municipality on solid waste management.
- 2) Jolo municipality should strengthen more its information and education campaign on issues pertain the impact of solid waste management.
- 3) Jolo municipality and other line agencies in Jolo should allocate more funds to effectively implement the programs and policies of solid waste management.
- 4) Student-researchers in the field of public administration are encouraged to conduct study similar to this one but to include other variables such as type of occupation, average monthly income and type of residence.