



# The Solid Waste Disposal Management in Laoag City

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## APPROVAL SHEET

This research entitled “**THE SOLID WASTE DISPOSAL MANAGEMENT IN LAOAG CITY**” prepared and submitted by **Aguete, John Lester F., Bagarra, Aldreih M., Butay, Jenny Anne B., Duyao, Jerome B., Juan, Rey Adrian L., Magayano, Chris Charlz L., Sacramento, Jerome M., Saguimo, Izza G., Vergara, Erica R.**, in partial fulfillment of the requirements for the course of Criminological Research II has been examined and is recommended for the oral examination.

Approved for the course Criminological Research and Statistical by the Committee on oral examination on January 9, 2023 with grade of \_\_\_\_.

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*Trust in the Lord with all your heart and lean not on your own understanding in all your ways submit to Him, and He will make your paths straight. (Proverbs 3: 5-6)*

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## **DEDICATION**

This work is the fruit of countless and arduous sacrifices. Through the researchers' efforts, this work is proudly dedicated to the people who serve as inspiration. From parents and guardians to classmates and circle of friends who extended their help for the completion of this study,

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**The Researchers**

## ABSTRACT

The purpose of this study was to determine *“The Solid Waste Disposal Management in Laoag City”*. The study used a quantitative research approach along with a descriptive research design. Residents of the five (5) selected barangays in Laoag City, Ilocos Norte, served as respondents.

According to the study's findings, 103 or 34% of respondents are between the ages of 16 and 20. High school graduates make up most respondents, accounting for 56% of those interviewed. The study discovered that the methods used in solid waste disposal management, reuse has an overall weighted mean of 2.98 and falls under the descriptive interpretation of sometimes, reduce has an overall weighted mean of 3.23 and falls under the descriptive interpretation of sometimes, and recycle has an overall weighted mean of 2.90 as well as falls under the descriptive interpretation of sometimes.

A problem with resident behavior was found, as well as a lack of awareness among people about the impact of solid waste disposal management practices on their health and the environment. The study also discovered that burning collected solid waste is the least common negative solid waste management strategy. In terms of implementation, the Barangay Officials face challenges in strictly enforcing rules governing solid waste disposal.

Based on the findings, it was advised that the Barangay Officials implement the researchers' proposed initiative, the *“Basura Mo, Palitan Ko”* Program. This idea aims to exchange usable household commodities for recyclable items or solid garbage that residents will collect and exchange.

*Keywords:- Solid Waste, Practices, Implementation, Disposal, Problem Encountered on Proper Solid Waste Disposal.*

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## CHAPTER ONE

### THE PROBLEM AND ITS SETTING

#### ➤ *Introduction*

Solid wastes are getting larger in quantity and thus bring more unpleasant outcomes to our society. The government and even our own localities have made laws, rules, and regulations in countering improper solid wastes disposal and reducing the amount and volume of waste. However, we can see that these are still disregarded. For that reason, we have conducted this type of study and research to give and augment the awareness of every individual about the negative impacts of improper solid waste disposal. In this study, we can somehow help the barangays where the study was conducted with the implementation of strategies to combat their problems regarding solid waste. The researchers are hoping that over time, the locals will learn more about how to properly manage their own solid wastes, which will relieve the barangay officials of some jurisdiction's load.

Societies regularly produce and discard solid materials from a variety of sectors, including the agricultural, commercial, household, industrial, and institutional ones, because of the rapid expansion of the production and consumption processes. Solid waste is the large amount of waste produced and rejected in this manner. To put it another way, solid wastes are by-products of human and animal activity that are often solid and are thrown away as unnecessary or unwanted. Natural resources are unavoidably severely strained by this, substantially jeopardizing effective and sustainable growth. Effective management of solid wastes, which is the subject of this paper, is one method to turn things around.

One of the functional components of the solid waste management system is the creation of solid wastes. The reduction of trash produced would be substantially aided if this function could be eliminated by educating the populace on correct segregation, collection, transport, and disposal.

To be more inclusive, "Solid Waste" refers to any undesirable solid material that remains after industrial, commercial, agricultural, and human activity. Nearly all our activities as humans produce garbage, which is not just restricted to solid objects. Semi-solid and gaseous materials can both be found in some solid wastes. 202 (Earth Sigma).

In the Philippines, managing solid waste is still a significant concern, particularly in urban regions like Metro Manila. One of the main issues in the nation's solid waste management is improper waste disposal. Other major issues include ineffective waste collection and a shortage of disposal facilities. If these issues are not resolved, the wastes produced by diverse sources will continue to pose a threat to public health and have negative effects on the environment, including air pollution, flooding, and the spread of disease (Philippine Solid Waste, 2017).

The adaptability of waste treatment systems is greatly influenced by the earth's capacity to absorb our garbage. Landfilling, which was used up until the 1970s, is one of the first forms of organized waste management. It entails the careless disposal of trash in any convenient site without regard for human health or safety, environmental protection, or financial efficiency (Poulsen, 2014). This has brought more environmental problems and has been since discouraged worldwide. In fact, as the world evolved, there has been a need to innovate more efficient waste treatment technologies.

In response to this situation, this study aims to identify the methods residents use for disposing of solid waste, to identify the issues with solid waste management that barangay officials and residents of the barangays have encountered, and to suggest a more effective plan for solid waste management that the barangay officials can put into practice.

#### ➤ *Background of the Study*

Solid wastes are unwanted items in every home and in our community. If they are disposed of improperly, they may have a detrimental impact on human health, cause air and water pollution, and contaminate the soil, especially if there is a lot of it. Nowadays, they can personally see and experience the undesirable result of too much solid waste in our vicinities, particularly in Laoag City, that is, the visible accumulated solid wastes and its pervasively negative effects. This research study intends to gather and collect data and information to come up with a possible plan or program that could help the residents and barangay officials to address their solid waste concerns by minimizing production and controlling improper disposal of waste within their barangays. The degree of public involvement and awareness in solid waste management is considered in the study. The study looks at how the public disposes of waste, their understanding of recycling and waste segregation, and their desire to use environmentally friendly waste management techniques. and to offer a thorough overview of the state of waste management techniques now, the problems they are currently facing, and prospective solutions. The results of these research can be used to help design plans and policies that will enhance waste management procedures and encourage environmentally friendly garbage disposal.

The objective was to know how the residents of the barangay concerned practice solid waste disposal, their methods, and manner of managing their wastes, and to determine if there are ways used by the barangays to decrease the accumulation of their solid waste.



➤ *Statement of the Problem*

This study aims to determine the solid waste disposal management in Laoag City. Specifically, it seeks to answer the following questions:

- What are the demographic profiles of the respondents in terms of;
  - a. Age
  - b. Gender
  - c. Educational Attainment
- What are the methods used by the residents for solid waste disposal management?
- What are the problems encountered in managing solid waste disposal by the officials and the residents of the barangays?
- What is the proposed project to improve solid waste disposal management to be implemented by the officials in addressing their problem within their barangay?

➤ *Theoretical Framework*

The structure that can hold or support a research study's theory is known as the theoretical framework. The following hypotheses were applied in this study:

• *Waste Management Theory*

The Theory of Waste Management (Pongrácz et al., 2004) provides a more in-depth analysis of the subject and includes conceptual analyses of waste, activity on waste, and an overall perspective of waste management objectives. The premise of waste management theory is that waste management should work to protect both the environment and human health. For creating a sustainable waste management strategy, the appropriate definition of waste is essential.

Waste disposal and waste segregation are the two key factors that have an impact on waste management. Without these two, they are unable to effectively manage or control the garbage buildup in the neighborhood. Application of the self-sufficient concept and discipline has an impact on waste disposal. These two are impacted by discipline because without discipline, people are unable to govern their lives effectively and correctly.

• *Learning Theory (LT)*

LT in behavioral psychology addresses how people receive, process, and remember knowledge, as well as the activities they take while learning. Individual behavior, according to LT, is a learning process that is impacted by reward (e.g., lottery tickets, prizes, money, incentives, and coupons) or punishment (e.g., penalties or fines) (Geller, 1989). Thus, LT proposes that when individuals are exposed to environmental stimuli that serve as facilitators of goal behaviors, they will behave pro-environmentally. External variables, according to behaviorists, have a considerable influence on individual behavior (Diamond and Loewy 1991; Katzev and Johnson 1987; Katzev and Pardini 1988). Needleman and Scott Geller (1992) discovered that a recycling rewards program could influence individual behavior in this situation. Similarly, Wang and Katzev (1990) found that when incentives were provided, paper recycling increased significantly.

Some have criticized LT's method of establishing extrinsic motivation as the sole criterion for behavioral adjustment. Extrinsic motivation is useful for short-term behavioral goals but not for long-term behavioral goals (Schultz, Oskamp, and Mainieri 1995). This is because rewards are transient and become obsolete over time. Participants may lose interest following the end of incentives, erasing any behavioral modifications. Furthermore, not everyone would be drawn to a SWM reward program and investigating a person's environmental behavior from a materialistic aspect may not be a viable option because SWMB is altruistic by nature. Thus, LT behaviorists should highlight various ways of interpreting intrinsic motivational variables based on eco-friendly morals, values, attitudes, beliefs, and intentions.

• *Value Belief Norm (VBN) Theory*

VBN Theory, a NAT-integrated paradigm, provides a relationship between individual values, beliefs, attitudes, and behaviors. According to Stern (2000), environmental values drive behaviors in generating beliefs and play a major role in attitude formation. Beliefs operate as a mediator between attitude and values in the process of behavior formation (Daneshvary, Daneshvary, and Keith Schwer 1998), leading to behavior. As a result, someone who values item reuse over the desire to buy new things may not compromise on environmental values, because they accept the information that reusing methods reduce environmental stress and believe that unnecessary waste disposal is environmentally harmful. Finally, according to VBN Theory, value orientation contributes to moral norms; thus, individuals who possess environmentally conscious beliefs and an awareness of the consequences of pollution, and feel responsible in this process, behave in an eco-friendly manner for the benefit of themselves and others.

The link between values and behavior is the central premise of VBN Theory. SWM research has focused on waste separation (Daneshvary and Keith Schwer 1998; IzagirreOlaizola, FernándezSainz, and VicenteMolina 2015) and waste minimization behavior (Xu et al. 2017). Nordlund and Garvill (2002) found that personal norms impacted general and environmental values in their research of environmental behavior among householders in Sweden. The same study indicated that public awareness activates personal norms because it causes remorse, self-respect, and self-accomplishment, allowing the public to establish pro-environmental attitudes. McCarty and Shrum (1994) proposed that attitude and beliefs regulate values and recycling behaviors to better understand trash generation trends among American students. They discovered that opinions regarding recycling were unrelated to recycling behavior; rather, inconvenience had a substantial impact on recycling behavior.

Value Belief Norm (VBN) Theory provides environmentalist postulates that values impact pro-environmental behavior via pro-environmental attitudes and personal norms such as discipline, as according to this theory, is the studies on SWM by focusing on waste separation.

➤ *Conceptual Framework*

The Input-Process-Output (IPO) Model was used in this study to depict all the variables that comprise a process. The IPO diagram comprises all the supplies and information needed for the process, as well as the specifics of the process itself and explanations of all products and by-products based on the process that occurred (Canonizado, 2021).

The study's inputs include three components: the methods utilized by residents for solid waste disposal management, as well as the challenges encountered by barangay authorities and inhabitants in managing solid waste disposal management. The approach focuses on survey data analysis. The analysis is followed by the design of strategies that identify the methods employed and issues encountered by the citizens of Laoag City, which was based on the survey findings and data treatment using a Likert scale and weighted mean. The study's output is an action project to solve solid waste disposal management, which will be implemented by barangay officials.

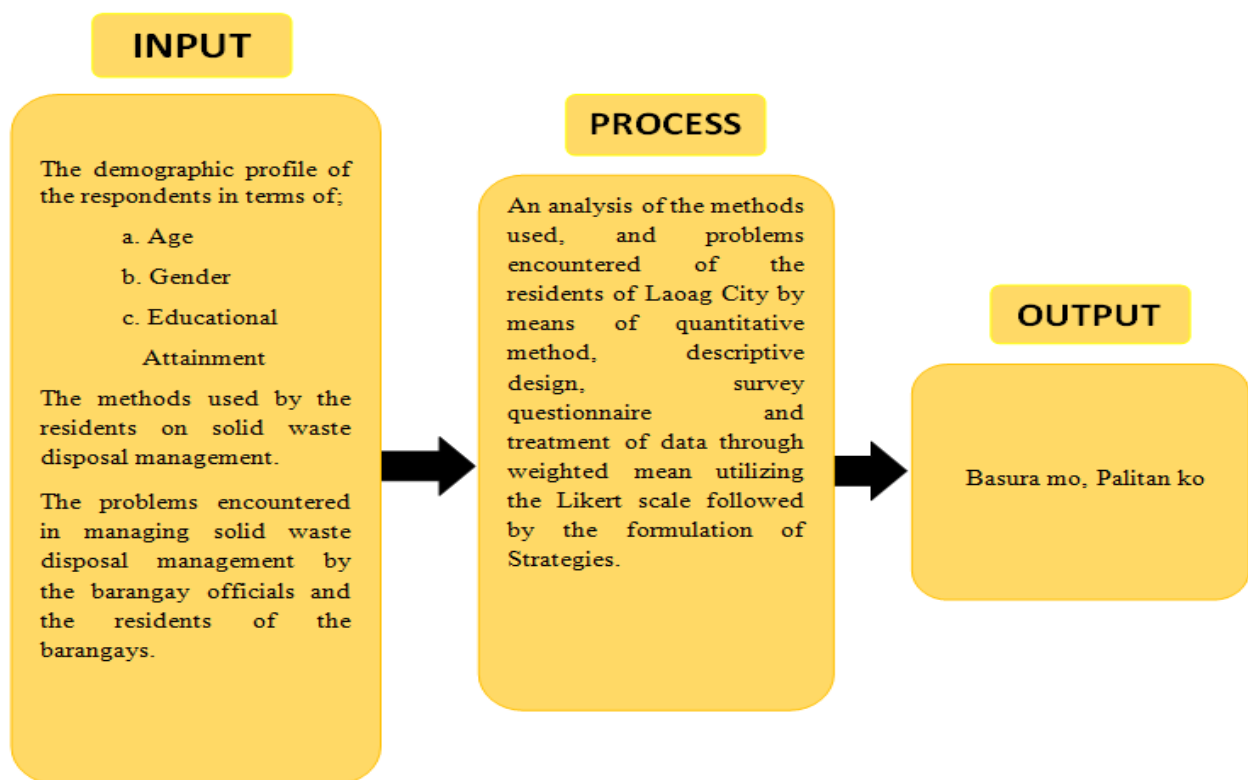


Fig 1 The Research Paradigm

➤ *Significance of the Study*

This project was meant to provide the following sectors with possibilities and to participate in the establishment of a waste-free community in Laoag City through a composting rewards program. Beneficiaries included:

- *Community*  
The residents and the community were benefited in having a waste-free, conducive, and cooperative environment.
- *Local Government Unit.*  
The LGU were benefited by having a cooperative community and minimized solid waste disposal concerns.

- *Researchers*

The researchers of the study were benefited by being able to learn and properly implement various insights about proper solid waste management. The researchers have also learned how to balance their time and maintain composure while being under a lot of pressure. The researchers have also had the chance to apply previous leanings in the success of this project.

- *Future Researchers*

The proposed project would serve as a basis for the future researchers for them to improve or add more features to the said project.

- *Scope and Delimitations*

It is notable that the study was undertaken under the specific and currently available methods used by the residents on solid waste disposal management. The issues encountered by barangay officials in managing solid waste disposal management are also largely constrained by the current situation of the economy and the available resources at the time of the study's conduct. The current beliefs and state of the residents of the barangays including their community is also a very vital determinant in the outcome of this study.

This research was carried out during the first semester of SY 2022-2023. This study's respondents are barangay authorities and citizens of the following Laoag City barangays: Barangay 1 - San Lorenzo, Barangay 6 - San Agustin, Barangay 16 - San Jacinto, Barangay 28 - San Bernardo, and Barangay 35 - Gabu Sur.

- *Definition of Terms*

For clarification, these terms were used in this study and were defined as follows:

- *Behaviour.*

It refers to a good or bad aspect of a resident acts upon disposing their solid waste disposal.

- *City Ordinance No. 97-043*

The Environmental Protection and Management Code of Laoag City, more popularly known as the Oplan Dalus Code that strictly implemented and followed.

- *Disposal*

It refers to the process of a resident's systematic treatment of the solid waste materials in their house.

- *Department of Environmental Natural Resources*

The Philippine government agency in charge of conserving, developing, and administering the country's environment and natural resources.

- *Implementation*

The procedure of imposing a judgment or plan on a certain community of jurisdiction.

- *Practices*

The actual application or usage of a resident's notion, belief, or procedures for disposing of solid waste.

- *RA 9003 or the Ecological Solid Waste Management Act*

A law that establishes a systematic, comprehensive, and ecological waste management program to preserve public health and the environment.

- *Recycle*

One of the ways utilized by homeowners for solid waste disposal management is reusing rejected products rather than throwing them away.

- *Reduce*

A method employed by residents for solid waste disposal management to reduce the amount of waste produced.

- *Reuse*

A process of the resident on managing their solid waste disposal by using the same products again.

- *Solid Waste Management*

Practices and management to address solid waste treatment.

## CHAPTER TWO

### REVIEW OF RELATED LITERATURE AND STUDIES

The researcher came across various literatures that were used in the research instrument during this section. The following are some of the important and valuable books and studies that the researcher used in this investigation.

The collection, transportation, processing, recycling, or disposal of waste items is referred to as waste management. This is done to lessen the negative environmental impact of waste products and to recover resources from them.

Waste management differs between developed and developing countries, as well as between urban and rural locations for residential and industrial procedures. Ecological waste management is the proper disposal of trash in a way that does not hurt anyone or anything, whether human, animal, or the environment. trash Management promotes the three R's of trash hierarchy: Reduce, Reuse, and Recycle. These three categories categorize waste management solutions based on their suitability for waste minimization. The goal of waste hierarchy is to maximize the practical utility of products while producing the least amount of waste.

A complete analysis was conducted in Mysore City, India, about the methods of practices associated with the sources, quantity generated, collection, transportation, storage, treatment, and disposal of municipal solid waste. The data on SWM in Mysore was gathered through a questionnaire, an individual field visit, interactions with people, and legitimate municipal corporation records. There was also photographic proof of MSW generation, storage, collection, transportation, treatment, and disposal. According to the Municipal Solid Waste Management & Handling Rules 2000 (Chandra et al., 2009), the current MSWM system in Mysore City is not acceptable. And although unsatisfactory, the researchers find some merit in this study and intend to use it as basis for necessary adjustments needed after analyzing focal similarities and disadvantages.

People's experiences and practices of household trash management in a barrio (village) in Manila, Philippines, are documented. The information was acquired through an open-ended conversation with household members. There were also interviews with garbage collectors and scavengers. The families generated an average of 3.2 kg of solid trash per day, or 0.50 kg/capita/day, according to the findings. Food/kitchen wastes, papers, PET bottles, metals, and cans, boxes/cartons, glass bottles, cellophane/plastics, and yard/garden wastes are the most frequent categories of waste. Respondents categorize their waste as PET bottles, glass bottles, and other rubbish (mixed wastes). Composting is not done by any of the responders. It is worth mentioning, however, that the responders do not burn rubbish. Households rely on government garbage collection, which occurs twice daily, save on Sundays, and household members bring their rubbish when the garbage truck arrives. However, some people dump their rubbish in non-designated pick-up areas, usually in a street corner. Garbage dumps serve as a breeding environment for disease-causing organisms. Some household respondents believe that dumping in some places may have caused dengue disease in some of their family members. home trash management is the responsibility of mothers and home helps. Scavengers typically search for recyclable materials in discarded debris. They all stated that it is their sole source of income, which is usually insufficient to cover their basic needs. Most respondents stated that waste collection and disposal is the government's responsibility. The study's findings revealed that RA 9003, also known as the Ecological Solid Waste Management Act of 2000, is not being properly implemented in Metro Manila (Bernardo, 2008).

With the building of a model cluster plastic recycling and resource recovery plant, the province of Ilocos Norte is resolved to minimize the volume of its solid wastes and turn them into something valuable. According to Estrella Sacro, project coordinator of the Environment and Natural Resources Office of the provincial government of Ilocos Norte, the facility will break ground on Friday (Jan. 8), on a more than 2,500-square-meter government site in Barangay Lydia, Marcos, Ilocos Norte.

Local officials have been waiting for the facility to open since 2018, but it has been delayed due to the large number of paper papers required for the budget's release. According to the proposed agreement, the Provincial Solid Waste Management Board will allow local government entities to group together to solve shared solid waste management concerns and will give logistical and operational support. The initial phase of the project consists of personnel training as well as the purchase and construction of the plastic recycling and resource recovery plant. The provincial government has provided 17 waste compactors to various local government units in support of the initiative (Ilocos Norte Government, 2022).

#### ➤ *PD 1586 Environmental Impact Statement (EIS) Statement of 1978*

With the adoption of Presidential Decree No. 1586 in 1978, the Environment Impact Assessment System was formally formed to promote the attainment and maintenance of a rational and orderly balance between socioeconomic development and environmental protection. EIA is a planning and management tool that will assist the government, decision makers, proponents, and impacted communities in addressing negative environmental effects or hazards. The procedure ensures that environmentally friendly projects are carried out.

➤ *RA 9003 Ecological Solid Waste Management Act of 2000*

The bill tries to solve the country's growing solid waste problem. It establishes the legal foundation for the country's systematic, comprehensive, and ecological solid waste management program, which will preserve public health and the environment. It also establishes the essential institutional institutions, such as the National Solid Waste Management Commission (NSWMC), which will oversee the implementation of solid waste management plans and prescribe policies and incentives to fulfill the Act's objectives.

➤ *RA 6969 Toxic Substances, Hazardous and Nuclear Waste Control Act of 1990*

The purpose of the law is to control, restrict, or ban the importation, production, processing, sale, distribution, use, and disposal of chemical substances and mixtures that pose an undue risk to human health. It also forbids the admission, even in transit, of hazardous and nuclear wastes and their disposal inside Philippine territorial limits for any reason; and to advance and facilitate toxic chemical research and study.

➤ *RA 8749 Philippine Clean Air Act of 1999*

The law intends to achieve and maintain clean air that meets the National Air Quality guideline values for criterion pollutants across the Philippines, while reducing the potential economic consequences.

➤ *RA 9275 Philippine Clean Water Act of 2004*

The purpose of the law is to preserve the country's water bodies from pollution caused by land-based sources such as pollutants from industries and commercial organizations, agriculture, and community/household activities. It establishes a comprehensive and integrated strategy for pollution prevention and reduction through a multi-sectoral and participatory approach including all stakeholders.

The process of collecting and handling solid wastes is referred to as solid waste disposal management. It provides recycling options for objects that do not belong in the rubbish or trash. It is the transformation of solid waste into a profitable resource.

Waste management is a huge problem in the society, a lot of people doesn't have the proper knowledge on disposing solid waste especially in rural areas near bodies of water. People tend to throw away trash to different bodies of water, forests, mountainsides, and it is negatively affecting the environment. These solid wastes are causing pollution that affects resources and ecosystems. In urban areas, residents do not really have enough space to throw their trashes so they tend to leave it outside of their houses, throw it away beside the road, or to some place where nobody would notice, it is a huge problem wherein the officials do not even know where to put these improperly disposed garbage. To add to that problem, these wastes are hard to decompose and take hundreds of years to be disintegrated. If humans will keep on doing this wrong practice this can damage the environment and its inhabitants permanently. Solid Waste Management can be solved by spreading awareness to people in urban and rural areas, teaching proper segregation of trashes and also recycling those that can still be used, maximizing the uses of recyclable products to avoid the congestion of solid wastes.

3Rs waste hierarchy, Reduce, Reuse, Recycle, is a big help in solid waste disposal management, these 3R's will help minimize the solid wastes and in disposing unrecyclable wastes. The continued use of objects or parts of items that still have useable qualities is referred to as reusing. Reducing is choosing to use things with care to limit the amount of trash produced. Recycling is the use of waste as a resource. Because solid wastes take years of decomposing, having good practice in disposing them is important.

The Environmental Protection Agency has developed a three-tiered method to solid waste management. Each of these should be done in order to reduce the amount of material destined for final disposal. They are listed in ascending order of importance:

**REDUCE** is the most effective strategy to manage solid waste. Make no waste in the first place! Purchase only what you require. Use everything you buy. Avoid things that are overly packed. Paper plates and plastic utensils should be avoided. Purchase the largest size package for things that you use frequently.

Green raw materials, product longevity and durability, better process design, reduced energy and heat elimination, and raw material substitution with lighter materials can all help to reduce rubbish output.

Reduce is the first element of solid waste management when discussing the level of effectiveness among techniques because it is known to be the best way of lowering economic expenses as well as bad effects on the environment and mankind. A life cycle assessment is essential for effective waste reduction at the source. (2013) (Ela and Masters).

The better method to manage solid waste is to **REUSE**. Reuse objects and utilize them till they are fully worn out.



Reuse typically refers to the reusing or re-utilizing of a specific object for a similar purpose to where it originally began when it comes to usage. For example, a plastic bag can be used to transport articles or products from merchandisers, supermarkets, or shopping centers whenever they are required. An object can also be recycled for a different purpose, such as when container glasses are repurposed in a store to hold small items such as screws and nails. The word "re-manufacturing" is frequently used in this context, and it refers to the action of returning an object to its original location. It entails re-cleaning and fixing the most frequently used components before storing them in inventory. (2013) (Masters and Ela).

**RECYCLE** is an effective approach to handle solid waste. Recyclable means transforming something old into something new. In the recycling industry, materials such as old newspapers, 1 and 2 plastic bottles, green, clear, and brown glass bottles and jars, and aluminum and steel cans are in high demand. It is critical to remember to rinse out containers and remove lids while collecting products for recycling (Seminole County Government, 2012).

After source reduction, returning things to their original function through recycling is seen as being in the center of the three solid waste management techniques in terms of effectiveness. The term "recycling" simply refers to the use of rubbish as a source of raw materials to produce other items. It comprises the collection and sorting of recyclables, as well as the conversion of these materials into raw materials for other products. There are two categories of recyclable products: pre-consumer and end-user. Pre-consumer materials are scrap that is recycled back into the production process but is not converted into a useful product. Postconsumer recyclables are items that people commonly use, such as used old papers or plastic containers. (Ela and Masters, 2013).

Waste management is more difficult in industrialized countries since there are few robust taxation, tariff, fee-for-service, and loan and debt service regimes to sustain infrastructure. In general, developing countries lack the resources to fund relatively stringent air emission requirements. These countries rely heavily on international donors and national assistance. Paper and cardboard garbage are typically burned before being collected and disposed of, whereas metallic debris (iron, copper, aluminum, zinc, and lead) is collected for recycling. Some establishments, such as cafes, restaurants, and resorts, take care to collect food waste to compost or utilize as animal feed. Others strive to reuse and recycle whatever they can, even if it means reusing sugar, pesticide, and lime bags to hold meals, feed, and construction supplies, and plastic bags and soft-drink bottles to hold gasoline.

In poor countries, lead recycling is a challenge. Youth in numerous major cities collect discarded vehicle batteries to reclaim lead. The lead is melted on kitchen stoves, then poured into wood molds and sold for recycling. Unfortunately, inhaling lead vapors causes neurological stress and sickness. (CNFA-AFSA, 2010). This means that not every solid waste that are recycled can be safely used again, the best option in disposing solid wastes is to minimize the usage of it, reducing materials that are hard to decompose, substituting things that are daily used with materials that are safer for human and for the environment.

The Philippines has worked hard to improve its solid waste management with the adoption of RA 9003 or the Ecological Solid Waste Management Act, which establishes a systematic, comprehensive, and ecological waste management program to protect public health and the environment. It directs the bureau to provide secretariat support to the National Solid Waste Management Commission in the implementation of solid waste management plans, as well as to prescribe policies to achieve the objectives of the National Ecology Center, which oversees the dissemination of information, consultation, education, and training of various local government units on ecological waste management. The ecological solid waste management program is expected to assist Local Government Units in implementing RA 9003 or the Ecological Solid Waste Management Act, specifically in the development of their 10-year SWM Plan, the closure and rehabilitation of dumpsites, the establishment of Materials Recovery Facilities, and the establishment of an environmentally sound disposal system.

In Ilocos Norte, the province-wide environmental awareness campaign "Narimat nga Aglawlaw" explains the necessity of solid waste management and segregation. The program is being executed in several towns and barangays throughout Ilocos Norte, encouraging everyone to take care of their surroundings and environment (PGIN-CMO). DENR-EMB Region I also performed a solid waste management campaign in Burgos, Ilocos Norte.

Environmental Monitoring Officer (EnMO), DENR-Environmental Management Bureau - Region I, Engr. Arnel R. Josue of the Ecological Solid Waste Management Section conducted an Information, Education, and Communication (IEC) campaign on Republic Act 9003 or the Ecological Solid Waste Management Act of 2000, and participated in a river clean-up on April 22, 2022 in Burgos, Ilocos Norte. (DENR-EMB REGION 1 May 31, 2022) The IEC campaign and river clean-up were held in honor of Philippine Earth Day, with the theme "Invest in Our Planet." The activity aims to strictly implement solid waste management concepts such as waste segregation, collection, and disposal; to raise participants' awareness on waste disposal; to discuss the limitations, prohibitions, and appropriate penalties on various Environmental Laws; and to protect and preserve the ecosystem.

In the local context, the City of Laoag has pledged to ensure the effective implementation of Republic Act 9003, also known as the Ecological Solid Waste Management Act of 2000, and City Ordinance No. 97-043, also known as the Laoag City Environmental Protection and Management Code, or more colloquially known as the Oplan Dalus Code. The city government has formulated a 10-year Solid Management Plan to implement the provisions of RA 900 and 97-043 through the establishment of systems and mechanisms, as well as periodic consultations with appropriate Non-Governmental Organizations (NGOs) and People's Organizations (POs), Business entities, and barangay officials and residents. A controlled disposal facility or an open dumpsite is maintained by the city in Barangay Lagui-Sail. In accordance with applicable solid waste management legislation, the city government adopted an ordinance requiring all barangays to create their own Materials Recovery Facility (MRF). These MRFs function as recycling collection points. The city engineer's office provides garbage collection services in all 30 urban and 50 rural barangays of the city. Both biodegradable and residual waste are collected at least twice a week in población, and only once a week in rural barangays. (Laoag City Government)

Avoidance in throwing garbage's around, having the knowledge in keeping the environment clean and being wise in using things that can harm the earth and other living things can help minimize solid wastes.

➤ *Related Studies*

Improper trash disposal is one of the current issues confronting the Philippines, with the difficulties of humans at the root of the problem. Several studies have been undertaken over the years to determine the importance of trash disposal in the community and the repercussions of inappropriate garbage disposal on the community, environment, and people's health. This section introduces all of these.

"Improper waste disposal is one of the biggest environmental issues," writes Khyllie Tumala (January 2015) in her study on the effects of improper garbage disposal in the Philippines. It produced larger concerns that harm not only the environment but also people's health and lives. This issue must be rectified, or it will continue to be a concern for the country in the coming years."

Solid waste management, according to Enriquez (2011), is described as the direct generation, collection, storage, transport, source separation, processing, treatment, recovery, and disposal of solid waste. It is a nice term for waste collection. It is the world's smelly and expanding problem with effective garbage management. The growing trash problem has been the root cause of hazardous illness and land depletion, not to mention the detrimental impact on the ecosystem. Municipal waste collection, recycling programs, open dumping, incineration, and gasification are all examples of trash disposal systems. Despite years of working to solve the growing trash problem, it persists. Another important restraint evident throughout the developing world is a lack of education and awareness. According to Bolaane (2006), research conducted in Gaborone, Botswana, individuals are aware of recycling and other sustainable waste-management strategies, but this does not always convert into engagement in pro-environmental activities such as recycling efforts. They do not appear to have embraced waste management reforms due to their lack of awareness about such operations (Bolaane, 2006). According to Hasiru Dala, a waste management NGO, no women operate as itinerant buyers or scrap merchants. In almost all situations, the enterprises at the end of the value chain (such as aggregators and pre-processors) have male registered owners. In Bengaluru, women mostly work in the waste industry as "Pourakarmikas" - a word for formal waste collectors and street sweepers. Many scholars have claimed that the waste problem is driven by human behavior, and that changing that behavior is the solution (Milea, 2009). This attitude-behavior gap frequently appears and can be exacerbated by a variety of factors such as convenience, societal conventions, a lack of public participation, and a lack of education and understanding of appropriate waste management procedures (Milea, 2009; O'Connell, 2011).

The Philippines is no exception to the rapid urbanization that is occurring in other countries. Trash volume and diversity have expanded considerably in recent years because of changes in lifestyle, consumption patterns, and economic growth and development (Oliveira et al, 2013; Premakumara et al, 2014). Trash disposal is an essential component of the municipal solid waste management system. It is essential for efficiency, collecting, and citizen participation. Because people play such an important part in achieving effective rubbish reduction, their engagement must be greatly strengthened (Anderson and Stage, 2018; IbaezFores et al., 2018).

For this significant transformation to occur, the community must see value in participating in the project. It bears repeating that solid waste can be converted into usable items. Many communities require those who produce solid trash to separate and store bottles, cans, newspapers, cardboards, and other recyclables. These wastes are collected by special trucks and transported to recycling facilities. Recycling is widely established in the Philippines. It is gradually spreading throughout Asia. To augment their income, locals are increasingly collecting plastics for recycling. There are also plans to recycle plastic bottles and cans. The collected material is transported by barge to Cebu City. The bottles can be processed there. It should be noted that the motivations for this recycling initiative are mostly financial rather than environmental. These rural communities remain impoverished, with the revenues of sales utilized to purchase essential food items (Alan, 2011).

## CHAPTER THREE METHODOLOGY

This chapter revealed the research methods to be used by the researchers in conducting the study, which include the research design, study population, research instrument and its development establishing its validity and reliability, data collection procedures, and appropriate statistical data treatment.

### ➤ *Research Method*

The quantitative method was applied in the investigation. Quantitative approaches stress objective measurements and statistical, mathematical, or numerical analysis of data gathered through polls, questionnaires, and surveys, as well as through modifying pre-existing statistical data using computational tools. Earl R. Babbie, Earl R. (2010) Quantitative research is concerned with collecting numerical data and generalizing it across groups of individuals or explaining a specific occurrence.

The descriptive research design was used in this study. According to Voxco (2021), descriptive research design is a sort of research design that tries to characterize a phenomenon, situation, or population precisely and systematically. It can answer the questions what, where, when, and how, but not why (Scribbr, 2020). The data for this study was collected directly from respondents via a survey questionnaire.

### ➤ *Population and Locale of the Study*

The study's 300 respondents include Laoag City citizens and barangay authorities. The study employed quota-sampling approaches, with 300 participants chosen as respondents.

This study assessed the strategies employed and the issues faced in solid waste disposal management. This study's respondents were 300 Laoag City citizens and barangay authorities. Participants were people and barangay officials from Brgy. 1 San Lorenzo, Brgy. 6 San Agustin, Brgy. 16 San Jacinto, Brgy. 28 San Bernardo and Brgy. 35 Gabu Sur, Ilocos Norte.

Table 1 Population and Locale of the Study

<b>Barangay</b>	<b>Number of Respondents</b>
San Lorenzo	60
San Agustin	60
San Jacinto	60
San Bernardo	60
Gabu Sur	60
Total	300

### ➤ *Data Gathering Procedure*

To reach the research aims, the researchers followed a precise process. A letter to the Brgy. Chairman was attached to the letter to learn the overall number of residents in their specific barangay. Before administering the questionnaires, the researchers developed the questionnaires used in this study and submitted them to the adviser for review and approval. Once approved, the researchers distributed copies of the questionnaire to the respondents. The survey was carried out in compliance with the relevant health protocol. Following that, the acquired data was counted, processed, and evaluated.

### ➤ *Data Gathering Instrument*

The survey questionnaire utilized by the researcher was a semi-structured questionnaire. Data was gathered using a semi-structured survey form. It was divided into two sections. The first section identifies the respondent's approach to proper solid waste disposal management. The second section was concerned with the issues encountered by barangay officials and citizens in managing solid waste disposal management.

### ➤ *Treatment of Data*

The data on the methods utilized for solid waste disposal management and the issues encountered by residents of the five (5) Barangays of Laoag City, Ilocos Norte were analyzed and interpreted using weighted means.

The average is calculated using this statistical method by multiplying the weights by their respective means and summing the results. It is a sort of averaging in which individual values are given weights to indicate the relative relevance of each observation. The weighted mean was used by the researchers to establish the number of respondents who responded to the items. The needs responses on a 5-point Likert scale.



Table 2 Treatment of Data

<b>Rating</b>	<b>Range Value</b>	<b>Description</b>	<b>Verbal Interpretation</b>
5	5.00-4.25	Always	Highly Practicable
4	4.24-3.49	Often	Moderately Practicable
3	3.48-2.73	Sometimes	Low Practicable
2	2.72- 1.97	Rarely	Very Low Practicable
1	1.96- 1.00	Never	Never Practicable

## CHAPTER FOUR PRESENTATION, INTERPRETATION AND ANALYSIS OF DATA

This chapter contains the data collected, the results of the statistical analysis, and the findings' interpretation. These are provided in tables in the order of specific study methodologies employed and challenges encountered in relation to Solid Waste Disposal Management.

### ➤ *Demographic Profile of the Respondents*

Three hundred residents from Laoag City, Ilocos Norte's five barangays served as the study's respondents: Barangay 1 San Lorenzo, Barangay 6 San Agustin, Barangay 16 San Jacinto, Barangay 28 San Bernardo, and Barangay 35 Gabu Sur.

Table 3 Demographic Profile of the Respondents

Variables	Frequency
<i>Age</i>	
16-20	103
21-25	26
26-30	20
31-35	15
36-40	22
41-45	25
46-50	29
51-55	18
56-60	13
61-65	15
66-70	7
71-75	7
<i>Gender</i>	
<i>Female</i>	167
<i>Male</i>	133
<i>Educational Attainment</i>	
<i>High School Graduate</i>	111
<i>Elementary Graduate</i>	100
<i>College Graduate</i>	47
<i>Under-graduate</i>	42

Table 3 Present the demographic profile of the respondents compared according to their age, sex, and educational attainment.

- *Age*

With a frequency of 103 or 34%, most respondents are between the ages of 16 and 20. While respondents aged 66-70 and 71-75 make up the smallest proportion of the sample (2%).

The age of the interviewees allowed the researchers to determine that the minors in the barangay. One of their responsibilities at their home is to segregate their garbage. This assertion contradicts the findings of the International Journal of Environmental and Science Education (2010), which found that students aged 16 to 20 in the sample zones were aware of garbage concerns under their school grounds yet practiced poor waste management.

- *Gender.*

The gender of the respondents was classified as male or female. One hundred thirty-three (133) of those interviewed were men, while one hundred sixty-seven (167) were women. According to the findings, the residents of the brgy. 1, 6, 16, 28, and 35 are responsible for segregating their solid waste disposal, regardless of gender.

According to Hasiru Dala, a waste management NGO, there are no women operating as itinerant buyers or scrap merchants. Furthermore, the businesses at the end of the value chain (such as aggregators and pre-processors) virtually always have male registered owners. Only in Bengaluru do women predominately operate in the waste industry as "Pourakarmikas" (formal waste collectors and street sweepers). This statement contradicts to the result of this paper.

- *Educational Attainment*

Regarding the respondents' educational attainment, the researchers discovered that the majority of our respondents are High School Graduates with a frequency of 111 or 37%, while the least number of respondents are under-graduates with a frequency of 42 or 14%. According to the findings of a study conducted in Gaborone, Botswana, individuals are aware of recycling and other

sustainable waste-management strategies, but this does not always convert into engagement in pro-environmental activities such as recycling efforts. They do not appear to have embraced waste management reforms due to their lack of awareness about such activities. (2006) (Bolaane).

➤ *Method used on Proper Solid Waste Disposal Management*

Table 4 Methods used on Solid Waste Disposal Management as to Reuse.

Indicator	Mean	Descriptive Interpretation
Using Disposable spoon and fork.	2.84	Sometimes
Plastic bottles used as container of liquid ingredient and dishwashing.	3.34	Sometimes
Old clothes as rag.	3.45	Sometimes
Old clothes as potholder.	3.11	Sometimes
Plastic bottles used as pencil container.	2.43	Rarely
Plastic tub used as food storage.	3.25	Sometimes
Old newspaper used for wrapping gifts.	2.46	Rarely
Old tired as barricade.	2.39	Rarely
Broken pail used as trash bins.	3.05	Sometimes
Paint container used as a pail.	3.44	Sometimes
<b>Overall Weighted Mean</b>	<b>2.98</b>	<b>Sometimes</b>

Legend	Rating	Range Value	Description
	5	5.00- 4.25	Always
	4	4.24- 3.49	Often
	3	3.48- 2.73	Sometimes
	2	2.72- 1.97	Rarely
	1	1.96- 1.00	Never

The table 2 shows the methods used on solid waste disposal management as to reuse. The respondents have unanimous response to the questionnaires given to them. With an overall weighted mean of 2.98 and falls under the descriptive interpretation of sometimes. That means the residents are using the method reuse in segregating their solid wastes as they find that it is beneficial to them to lessen their burden in disposing their wastes which can be use in other ways as shown with the highest mean (3.45) with the indicator *old clothes as rag*. While the lowest weighted mean is (2.39) which the indicator is *old tires as barricade* perhaps some of the respondents have no suitable used tires to make barricade, they have nothing to use, or they do not need to make ones although some respondents used this method but most of them were rarely using this indicator. Reusing, according to Seminole County Government (2012), is the recurrent use of objects or pieces of items that still have useable qualities. Reuse objects and utilize them till they are fully worn out.

Table 5 Methods used on Solid Waste Disposal Management as to Reduce.

Indicator	Mean	Descriptive Interpretation
Residence participating in clean up drive.	3.95	Often
Daily collection of accumulated solid waste.	3.37	Sometimes
Burning of plastics.	2.39	Rarely
Selling cartoons into junk shop.	3.19	Sometimes
Selling cans, plastic bottles to the junk shop.	3.61	Often
Donating old clothes to any charity.	3.25	Sometimes
Burying garbage at the backyard.	2.96	Sometimes
Limiting using any plastic materials.	3.12	Sometimes
<b>Overall Weighted Mean</b>	<b>3.23</b>	<b>Sometimes</b>

Legend	Rating	Range Value	Description
	5	5.00- 4.25	Always
	4	4.24- 3.49	Often
	3	3.48- 2.73	Sometimes
	2	2.72- 1.97	Rarely
	1	1.96- 1.00	Never

The table 3 shows the methods used on solid waste disposal management as to reduce. The respondents have unanimous response to the questionnaires given to them. With an overall weighted mean of 3.23 and falls under the descriptive interpretation of sometimes. That means the residents are using the method reduce in segregating their solid wastes as they find that it is beneficial to them of disposing their wastes which can be efficient in the method as shown with the highest mean (3.95) with the indicator *residence participating in clean up drive*. While the lowest weighted mean is (2.39) which the indicator is *burning of plastics*, some of the respondents were knowledgeable enough to know the bad effects of burning of plastics that even though it was convenient to them to just burn their wastes specifically the plastics they still chose not to burn plastics, so it came up to be the lowest mean in the table shown.

According to Seminole County Government (2012), minimizing involves choosing to use items with care to limit waste generation. Each of these should be done to reduce the amount of material destined for final disposal. Reduce is the most effective strategy to manage solid waste. Avoid generating waste in the first place. Purchase only what you require. Use them all that you purchase. Avoid things that are overly packed. Paper plates and plastic utensils should be avoided. Purchase the largest size package for things that you use frequently.

Table 6 Methods used on Solid Waste Disposal Management as to Recycle.

Indicator	Mean	Descriptive Interpretation
Disposable spoon and fork to form decoration.	3.00	Sometimes
Plastic bottles into eco bricks.	2.63	Rarely
Plastic bottles to make a flower vase.	2.96	Sometimes
Plastic bottles to make lanterns.	2.81	Sometimes
Plastic bottles as dipper.	2.79	Sometimes
Plastic bottles into water sprinkler.	2.81	Sometimes
Cans as a planting vase.	3.07	Sometimes
Straw as a bag and mat.	2.51	Rarely
Plastic wrappers of junk foods to a pillow.	2.47	Rarely
Scratch paper into DIY scrapbook.	2.82	Sometimes
All kinds of plastic can be burned to make a chair.	2.43	Rarely
Vegetable and fruit peels used as land fertilizer.	3.32	Sometimes
Egg shells used as plant decoration.	3.21	Sometimes
Dead leaves and flowers converted to manure.	3.70	Often
<b>Overall Weighted Mean</b>	<b>2.90</b>	<b>Sometimes</b>

Legend	Rating	Range Value	Description
	5	5.00- 4.25	Always
	4	4.24- 3.49	Often
	3	3.48- 2.73	Sometimes
	2	2.72- 1.97	Rarely
	1	1.96- 1.00	Never

The table 4 shows the methods used on solid waste disposal management as to recycle. The respondents have unanimous response to the questionnaires given to them. With an overall weighted mean of 2.90 and falls under the descriptive interpretation of sometimes. That means the residents are using the method recycle in segregating their solid wastes as they find that it is beneficial to them to lessen their problem in disposing of their wastes which can be useful for a second time as shown with the highest mean (3.70) with the indicator *dead leaves and flowers converted to manure*. While the lowest weighted mean is (2.43) which the indicator is *all kinds of plastic can be burned to make a chair*, this indicator garnered the lowest mean since there was still have lack of equipment to process this kind of method even the result is beneficial to the residents. Also, as stated on the previous table that the residents were knowledgeable enough to know the bad effects of burning any kind of plastics and it caused them a lot of problem, so it resulted as the lowest weighted mean in the table above.

Recycling is the use of waste as a resource. Recyclable means transforming something old into something new. Residents in Seminole County who live in a single-family home can recycle just in front of their property. Residents who live in apartments or condominiums can drop off recyclables at a variety of sites. At the recycling center, you can recycle old newspapers, plastic bottles, green, clear, and brown glass bottles and jars, as well as aluminum and steel cans. Recycling is an excellent technique to manage solid waste. Simply rinse the containers and take off the caps. That's all there is to it; it's both simple and rewarding. Recycling not only keeps stuff out of landfills, but it also conserves natural resources (Seminole County Government, 2012).

➤ *Problems Encountered on Proper Solid Waste Disposal Management*

Table 7 Problems Encountered on Solid Waste Disposal Management as to Behavior.

Indicator	Mean	Descriptive Interpretation
People are unaware of the negative effects of solid waste disposal techniques on their health and the environment.	2.93	Sometimes
Households are not willing to take action for change/transformation.	2.62	Rarely
People disinterested in segregating solid waste disposal.	2.71	Rarely
Segregation of waste adds up to more responsibilities.	2.90	Sometimes
Fail to segregate due to a belief that it is the job of waste collectors.	2.35	Rarely
The “Arubayak Dalusak” ignored.	2.38	Rarely
The Clean-up Drive Program is being avoided.	2.40	Rarely
Most resident do not care even if there are disposed waste scattered on the ground.	2.63	Rarely
Resident who are disposing improperly are often ignored due to lack of care through others are aware.	2.72	Rarely
Avoiding the segregation of non-biodegradable and biodegradable solid waste due to unappropriated and disgusting smell.	2.52	Rarely
<b>Overall Weighted Mean</b>	<b>2.59</b>	<b>Rarely</b>

Legend	Rating	Range Value	Description
	5	5.00- 4.25	Always
	4	4.24- 3.49	Often
	3	3.48- 2.73	Sometimes
	2	2.72- 1.97	Rarely
	1	1.96- 1.00	Never

This table 5 shows the problem encountered by the residents in segregating their solid waste as to behavior. With an overall weighted mean of 2.59 and falls under the descriptive interpretation of rarely. Their respondents have unanimous response to the questionnaires given to them and the highest weighted mean of this table was 2.93 with a descriptive interpretation of sometimes and the indicator was *people are unaware of the negative effects of solid waste disposal techniques on their health and the environment*. The 5 Barangays which was conducted this research have problem in terms of disposing their waste. Also, the barangay officials who are in-charge in disseminating information regarding the effects of solid waste disposal management were not regularly do their responsibilities. The lowest weighted mean was 2.35 with descriptive interpretation of rarely and this is the *fail to segregate due to a belief that it is the job of waste collectors*. The residents have a problem in terms of their behavior in disposing their waste.

According to Milea (2009), the waste problem is created by human behavior, hence changing that behavior is the solution. This attitude-behavior gap frequently appears and can be worsened by a variety of factors such as convenience, societal conventions, a lack of public participation, and a lack of education and understanding of appropriate waste management procedures.

Littering is a negative practice that is frequently related with poor solid waste management in underdeveloped countries. A lack of societal pressure to prevent littering, the absence of actual sanctions or regular enforcement, and a lack of knowledge of the negative environmental effects of littering are all factors that might lead to an increase in public littering rates (Al-Khatib et al., 2009).

Table 8 Problems Encountered on Solid Waste Disposal Management as to Practices.

Indicator	Mean	Descriptive Interpretation
Designated trash bins are used to in the proper solid disposal of waste.	3.73	Often
A schedule is followed in the disposal waste.	3.32	Sometimes
Leftovers are thrown into separate garbage container.	3.66	Often
Leftovers foods are fed to household pets, such as dog or cats.	4.07	Often
Bottles, plastics, cans, and other scraps are sold to junk shops.	3.86	Often
Water bottles are used as decorations.	3.23	Sometimes
Old newspapers, modules, notebooks were used a curtain.	2.89	Sometimes
Household wastes are combined for incoming garbage collector.	3.11	Sometimes
Broken glasses and diapers are properly wrapped.	3.45	Sometimes
Waste materials are thrown into bodies of water or a vacant lot.	2.33	Rarely
Household garbage is disposed through open burning.	2.48	Rarely
Plastic wastes are burned to reduce household waste.	2.31	Rarely

Household wastes are buried to the ground/ Residents are not followed the schedule for collecting waste products.	2.77	Sometimes
Signage like “Bawal magtapon ng basura” are being followed.	2.89	Sometimes
<b>Overall Weighted Mean</b>	<b>3.63</b>	<b>Often</b>
		<b>Sometimes</b>

Legend	Rating	Range Value	Description
	5	5.00- 4.25	Always
	4	4.24- 3.49	Often
	3	3.48- 2.73	Sometimes
	2	2.72- 1.97	Rarely
	1	1.96- 1.00	Never

This table 6 shows the problem encountered by the residents in segregating their solid waste as to practices. With an overall weighted mean of 3.18 and falls under the descriptive interpretation of sometimes. The respondents have unanimous response to the questionnaires given to them and the highest weighted mean of this table was 4.07 with a descriptive interpretation of often and the indicator was *leftovers foods are fed to household pets, such as dog or cats*. The 5 Barangays which conducted this research have no problem in terms of disposing their waste. The lowest weighted mean was 2.31 with descriptive interpretation of rarely and this is the *plastic wastes are burned to reduce household waste*. The residents have no problem in terms of their practices in disposing their waste.

According to Visvanthan and Glawe (2006), public knowledge and engagement are critical in the effective implementation of the solid waste management system. However, Anschutz (1996) considers community participation to be a significant aspect of solid waste management because solid waste management is a constant maintenance system, community participation is always required.

Table 9 Problems Encountered on Solid Waste Disposal Management as to Implementation.

Indicator	Mean	Descriptive Interpretation
Insufficient recycling facility and storage areas.	3.14	Sometimes
Lack of support demonstrated by the local government official.	2.79	Sometimes
Available disposal facility is not effectively operating.	2.61	Rarely
Presence of street sweepers.	2.90	Sometimes
Brgy. Officials are imposing fines for improper segregation of solid waste.	3.18	Sometimes
Anti-burning law is not being observed.	2.65	Rarely
The barangay officials fail to inform the residents when garbage is to be collected.	2.62	Rarely
<b>Overall Weighted Mean</b>	<b>2.84</b>	<b>Sometimes</b>

Legend	Rating	Range Value	Description
	5	5.00- 4.25	Always
	4	4.24- 3.49	Often
	3	3.48- 2.73	Sometimes
	2	2.72- 1.97	Rarely
	1	1.96- 1.00	Never

This table 7 shows the problem encountered by the residents in segregating their solid waste as to implementation. With an overall weighted mean of 2.84 and falls under the descriptive interpretation of sometimes. Their respondents have unanimous response to the questionnaires given to them and the highest weighted mean of this table was 3.18 with a descriptive interpretation of sometimes and the indicator was *Brgy. Officials are imposing fines for improper segregation of solid waste*. Residents who do not separate their waste properly may face fines from their barangays. The lowest weighted mean was 2.61 with descriptive interpretation of rarely and this was *available disposal facility is not effectively operating*. The barangay officials have a problem in terms of the implementing ordinances regarding disposing their solid waste.

Trash disposal is an essential component of the local solid waste management system. It is essential for efficiency, data collection, and citizen participation. People's engagement is difficult since they play such a difficult role in achieving effective garbage reduction (Anderson and Stage, 2018; IbaezFores et al., 2018).

Developed countries generate a lot of garbage, but underdeveloped countries constantly have challenges with management system implementation (Harra & Goel, 2009). This includes inefficient policy implementation, ineffective enforcement, and a lack of technology (Agamathu et al, 2009).



➤ Proposed Project

Table 10 Proposed Project

Project	Rationale	Objectives	Strategies	Time Framed frequency	Proposed Budget
"Basura mo Palihan ko"	The Basura Mo, Palihan Ko Program is a type of program that initiate the action of cooperation from the residents regarding solid waste problems within the barangay by means of trading solid waste into goods or either cash, this would be a good measure to improve their initiative in helping the barangay officials to combat unwanted disposal of wastes, it motivates them to collect their waste and as a result, reduction of scattered solid waste will be maximized.	<ol style="list-style-type: none"> <li>To help the concerned barangay control the increasing quantity of solid waste within their place, it will also enhance the cooperativeness of its constituents and consequently they will be inculcated with the correct practices of solid waste disposal.</li> <li>To maintain cleanliness and hygienic surroundings by decreasing solid wastes volume in the barangay.</li> <li>To protect the residents of possible health hazards from accumulated wastes.</li> </ol>	<ol style="list-style-type: none"> <li>In implementing this program, there is a need to have not less than P1,000 pesos as a minimum starting fund. The barangay will have at least once a month collection/trading of solid waste in which the residents will personally trade their usefull/recyclable waste at the barangay hall, the trading will be based on the proportion of each solid waste and as to the continuous fund, like plastic, bottle and others will be gathered and sell to the collectors and buyers to have another fund in buying or trading residents solid waste.</li> <li>The barangay will categorize the trading system depending on the probable value of each waste.</li> <li>As to plastic and bottle, in the absence of weighing scale the barangay should make a price of 3 pesos per 5 pieces of plastic and 5 pesos per 3 pieces of bottle.</li> <li>As to scrap metals, a weighing scale should be use in buying such.</li> <li>For large plastics like basin, the barangay should make an estimation by providing prices according to sizes.</li> </ol>	<p>Every last Saturday of the month</p> <p>1 weekly every Saturday of the month</p>	Minimum of Php 1,000.00

- *Rationale*

The Basura Mo, Palitan Ko Program is a type of program that initiates the action of cooperation from the residents regarding solid waste problems within the barangay by means of trading solid wastes into goods or cash, this would be a good measure to improve their initiative in helping the barangay officials to combat unwanted disposal of wastes, it motivates them to collect their waste and as a result, reduction of scattered solid waste will be maximized.

- *Objectives*

To help the concerned barangay control the increasing quantity of solid waste within their place, it will also enhance the cooperativeness of its constituents and consequently they will be inculcated with the correct practices of solid waste disposal.

To maintain cleanliness and hygienic surroundings by decreasing solid wastes volume in the barangay.

To protect the residents of possible health hazards from accumulated wastes

- *Strategies*

In implementing this program, there is a need to have not less than P 1,000 pesos as a minimum starting fund. The barangay will have at least once a month collection/trading of solid waste in which the residents will personally trade their useful/recyclable wastes at the barangay hall, the trading will be based on the proportion of each solid waste and as to the continuous fund, the collected wastes like plastic, bottle and others will be gathered and sell to the collectors and buyers to have another fund in buying or trading residents solid waste.

The barangay will categorize the trading system depending on the probable value of each waste.

As to plastic and bottle, in the absence of weighing scale the barangay should make a price of 3 pesos per 5 pieces of plastic and 5 pesos per 3 pieces of bottle.

As to scrap metals, a weighing scale should be used in buying such.

For large plastics like basin, the barangay should make an estimation by providing prices according to sizes.



# BASURA MO, PALITAN KO

## STEP 1



Provide separate waste bins: Establish a system of separate waste bins for different types of waste such as: Reuse, Reduce and Recycle.

## STEP 2

Bring the solid waste disposal you collected into the barangay hall to receive a reward.



## STEP 3



The barangay officials trade the waste that has been gathered to a junkshop in order to raise money for a project that will use that money to assist them maintain order and reduce waste in the community.

## STEP 4

Continuously improve the waste management system based on practices that emerge. Stay updated with the latest waste management trends and practices to enhance the efficiency and effectiveness of waste segregation and disposal.



Fig 2 Basura Mo, Palitan Ko

## CHAPTER FIVE

### SUMMARY OF THE FINDINGS CONCLUSIONS AND RECOMMENDATION

Based on the study's findings, this chapter gives a summary, conclusions, and recommendations.

#### ➤ *Summary of Findings*

Most respondents are between the ages of 16 and 20, with a frequency of 103 or 34%. Most respondents (56% are female) and most of them had graduated from high school.

The respondents have unanimous response to the questionnaires given to them. The overall weighted mean of 2.98 which indicator was using disposable spoon and fork and falls under the descriptive interpretation of sometimes. The lowest weighted mean which the indicator was old tires as barricade. While in Reduce the overall weighted mean of 3.23 and falls under the descriptive interpretation of sometimes. The highest weighted mean which indicator was Residence participating in clean up drive. And as to Recycle the overall weighted mean of 2.90 and falls under the descriptive interpretation of sometimes. The lowest weighted mean which is the indicator was all kinds of plastic can be burned to make a chair.

Concerning the problems encountered with solid waste disposal management, individuals in the barangays demonstrated a lack of information about the consequences of solid waste disposal management practices on their health and the environment. And as for the inhabitants' behaviors, they have their own that they usually used the lowest weighted mean which indicated was the plastic wastes are burned to reduce household trash. Finally, in terms of implementation, the Brgy. Officials are experiencing difficulties in enforcing solid waste disposal rules.

#### ➤ *Conclusions*

Based on the findings presented above, the following conclusions were obtained:

- The Respondents have their own methods and practices in segregating their wastes, some were having own compost pit to properly manage their garbage.
- While others were doing proper segregation, there were still problems encountered by them, and for some reasons it caused by animals looking for food, or other residents that do not practice proper segregation.
- Most of the respondents practice segregation and proper disposal, while some respondents do not practice waste segregation.
- Most of the respondents know how to value waste materials that are reusable, recyclable, and acceptable at the junk shop.
- Most of the respondents are aware that burning of garbage nor throwing into the bodies of water are not allowed.

#### ➤ *Recommendations*

Based on the findings, the researchers have made the following recommendations.

- The Barangay Officials may conduct a monthly assembly with at least one member of every household to monitor the status of their immediate place regarding solid wastes and to know their problems and needs.
- The Barangay Officials may adopt the proposed project of the researchers which is the “Basura Mo, Palitan Ko” Program that intends to collect recyclable materials or solid wastes brought by residents to motivated them in collecting wastes that could be trade to something useful.
- The monthly assembly may be also coinciding with the collection/trading of recyclable solid wastes from the residents to drive them to attend the said assembly.

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APPENDICES

APPENDIX “A”



DATA CENTER COLLEGE OF THE PHILIPPINES  
COLLEGE OF CRIMINAL JUSTICE EDUCATION  
LAOAG CITY



LETTER TO CONDUCT STUDY

September 29, 2022

**MELVYN S. SANTOS**  
Barangay Captain  
Brgy. 1, San Lorenzo, Laoag City  
Ilocos Norte

Dear Sir:

Greetings with love and peace!

The undersigned 4<sup>th</sup> year students who presently enrolled at Criminal Justice Education of Data Center College of the Philippines, Laoag City, are currently conducting a research study entitled **“THE PROPER SOLID WASTE DISPOSAL MANAGEMENT IN LAOAG CITY”**. This aims to determine the methods used by the residents on solid waste disposal management, to know the problems encountered in managing solid waste disposal management by the barangay officials and the residents of the barangay.

In this regard, the researchers are humbly asking permission from your good office to intend to conduct the study in your respective barangay. The researchers would like to know the list or number of the total residents in your respective barangay. The researchers will use the list or number of residents in your barangay to help us compute the total number of our respondents.

Rest assured that all the information obtained will observe strict confidentiality, that the researchers and the adviser will have the direct access of the data as it is used for research purposes only. Looking forward that our request would merit your positive response.

Respectfully yours,

*[Signature]*  
**AGUETE, JOHN LESTER F.**

*[Signature]*  
**BAGARRA, ALDREIH M.**

*[Signature]*  
**BUTAY, JENNY ANNE B.**

*[Signature]*  
**DUYAO, JEROME B**

*[Signature]*  
**JUAN, REY ADRIAN L.**

Researchers

*[Signature]*  
**MAGAYANO, CHRIS CHARLZ L.**

*[Signature]*  
**SACRAMENTO, JEROME M.**

*[Signature]*  
**SAGUIMO, IZZA G.**

*[Signature]*  
**VERGARA, ERICA R.**

Noted by:

*[Signature]*  
**JAY-LYNNE S. ESCALONA**  
Research Adviser

Received By:  
*[Signature]*  
Checked: \_\_\_\_\_  
Date: \_\_\_\_\_



**DATA CENTER COLLEGE OF THE PHILIPPINES  
COLLEGE OF CRIMINAL JUSTICE EDUCATION  
LAOAG CITY**



**LETTER TO CONDUCT STUDY**

October 03, 2022

**DIONICIO T. GUILLERMO JR.**  
Barangay Captain  
Brgy. 6, San Agustin, Laoag City  
Ilocos Norte

Dear Sir:

Greetings with love and peace!

The undersigned 4<sup>th</sup> year students who presently enrolled at Criminal Justice Education of Data Center College of the Philippines, Laoag City, are currently conducting a research study entitled **“THE PROPER SOLID WASTE DISPOSAL MANAGEMENT IN LAOAG CITY”**. This aims to determine the methods used by the residents on solid waste disposal management, to know the problems encountered in managing solid waste disposal management by the barangay officials and the residents of the barangay.

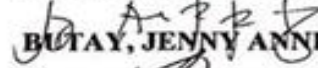
In this regard, the researchers are humbly asking permission from your good office to intend to conduct the study in your respective barangay. The researchers would like to know the list or number of the total residents in your respective barangay. The researchers will use the list or number of residents in your barangay to help us compute the total number of our respondents.

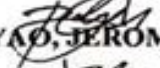
Rest assured that all the information obtained will observe strict confidentiality, that the researchers and the adviser will have the direct access of the data as it is used for research purposes only. Looking forward that our request would merit your positive response.

Respectfully yours,

  
AGUETE, JOHN LESTER F.


  
BAGARRA, ALDREIH M.

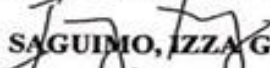
  
BUTAY, JENNY ANNE B.

  
DUYAO, JEROME B.

  
JUAN REY ADRIAN L.  
Researchers


  
MAGAYANO, CHRIS CHARLZ L.


  
SACRAMENTO, JEROME M.

  
SAGUIMO, IZZA G.

  
VERGARA, ERICA R.

Noted by:

  
JAY-LYNNE S. ESCALONA  
Research Adviser

  
DIONICIO T. GUILLERMO JR.  
PUNONG BARANGAY  
10/07/22



**DATA CENTER COLLEGE OF THE PHILIPPINES  
COLLEGE OF CRIMINAL JUSTICE EDUCATION  
LAOAG CITY**



**LETTER TO CONDUCT STUDY**

September 29, 2022

**ROGELITO E. COLLADO**  
Barangay Captain  
Brgy. 16, San Jacinto, Laoag City  
Ilocos Norte

received by:  
*[Signature]*  
JEROME M. SACRAMENTO  
Brgy. TRINIDAD, San JACINTO

Dear Sir:

Greetings with love and peace!

The undersigned 4<sup>th</sup> year students who presently enrolled at Criminal Justice Education of Data Center College of the Philippines, Laoag City, are currently conducting a research study entitled **“THE PROPER SOLID WASTE DISPOSAL MANAGEMENT IN LAOAG CITY”**. This aims to determine the methods used by the residents on solid waste disposal management, to know the problems encountered in managing solid waste disposal management by the barangay officials and the residents of the barangay.

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Respectfully yours,

*[Signature]*  
**AGUETE, JOHN LESTER F.**

*[Signature]*  
**MAGAYANO, CHRIS CHARLZ L.**

*[Signature]*  
**BAGARRA, ALDREIH M.**

*[Signature]*  
**SACRAMENTO, JEROME M.**

*[Signature]*  
**BUTAY, JENNY ANNE B.**

*[Signature]*  
**SAGUIMO, IZZA G.**

*[Signature]*  
**DUYAO, JEROME B**

*[Signature]*  
**VERGARA, ERICA R.**

*[Signature]*  
**JUAN, REY ADRIAN L.**  
Researchers

Noted by:

*[Signature]*  
**JAY-LYNNE S. ESCALONA**  
Research Adviser





**DATA CENTER COLLEGE OF THE PHILIPPINES  
COLLEGE OF CRIMINAL JUSTICE EDUCATION  
LAOAG CITY**



**LETTER TO CONDUCT STUDY**

September 29, 2022

**ELMAR R. SIAZON**  
Barangay Captain  
Brgy. 28, San Bernardo, Laoag City  
Ilocos Norte

Dear Sir:

Greetings with love and peace!

The undersigned 4<sup>th</sup> year students who presently enrolled at Criminal Justice Education of Data Center College of the Philippines, Laoag City, are currently conducting a research study entitled **“THE PROPER SOLID WASTE DISPOSAL MANAGEMENT IN LAOAG CITY”**. This aims to determine the methods used by the residents on solid waste disposal management, to know the problems encountered in managing solid waste disposal management by the barangay officials and the residents of the barangay.

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Respectfully yours,

*[Signature]*  
**AGUETE, JOHN LESTER F.**

*[Signature]*  
**BAGARRA, ALDREIH M.**

*[Signature]*  
**BUTAY, JENNY ANNE B.**

*[Signature]*  
**DUYAO, JEROME B**

*[Signature]*  
**JUAN, REY ADRIAN L.**

Researchers

*[Signature]*  
**MAGAYANO, CHRIS CHARLZ L.**

*[Signature]*  
**SACRAMENTO, JEROME M.**

*[Signature]*  
**SAGUIMO, IZZA G.**

*[Signature]*  
**VERGARA, ERICA R.**

**PB ELMAR R. SIAZON**

Noted by:

*[Signature]*  
**JAY-LYNNE S. ESCALONA**  
Research Adviser





**DATA CENTER COLLEGE OF THE PHILIPPINES  
COLLEGE OF CRIMINAL JUSTICE EDUCATION  
LAOAG CITY**



**LETTER TO CONDUCT STUDY**

September 29, 2022

**GIL C. RAMOS**  
Barangay Captain  
Brgy. 35, Gabu Sur ,Laoag City  
Ilocos Norte

Dear Sir:

Greetings with love and peace!

The undersigned 4<sup>th</sup> year students who presently enrolled at Criminal Justice Education of Data Center College of the Philippines, Laoag City, are currently conducting a research study entitled **“THE PROPER SOLID WASTE DISPOSAL MANAGEMENT IN LAOAG CITY”**. This aims to determine the methods used by the residents on solid waste disposal management, to know the problems encountered in managing solid waste disposal management by the barangay officials and the residents of the barangay.

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Respectfully yours,

**AGUETE, JOHN LESTER F.**

**BAGARRA, ALDREIH M.**

**BUTAY, JENNY ANNE B.**

**DUYAO, JEROME B**

**JUAN, REY ADRIAN L.**

Researchers

**MAGAYANO, CHRIS CHARLZ L.**

**SACRAMENTO, JEROME M.**

**SAGUIMO, IZZA G.**

**VERGARA, ERICA R.**

Noted by:

**JAY-LYNNE S. ESCALONA**

Research Adviser

Received by:  
**Kay. CESAR L. ESTEBAN**

**APPENDIX “B”**



**DATA CENTER COLLEGE OF THE PHILIPPINES  
COLLEGE OF CRIMINAL JUSTICE EDUCATION  
LAOAG CITY**



**LETTER TO THE RESPONDENT**

October 03, 2022

Dear Respondent:

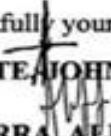
Greetings with love and peace!

The undersigned 4<sup>th</sup> year students who presently enrolled at Criminal Justice Education of Data Center College of the Philippines, Laoag City, are currently conducting a research study entitled **“THE PROPER SOLID WASTE DISPOSAL MANAGEMENT IN LAOAG CITY”**. This aims to determine the methods used by the residents on solid waste disposal management, to know the problems encountered in managing solid waste disposal management by the barangay officials and the residents of the barangay.

In this regard, the researchers are humbly asking permission to accomplish the attached questionnaire wholeheartedly and truthfully. Your answer will greatly contribute to the completion of this research. Rest assured that the data gathered as well as your personal information will be kept confidential and shall be used for research purposes only.

Thank you very much and Godbless!

Respectfully yours,

  
**AGUETE, JOHN LESTER F.**

  
**BAGARRA, ALDREIH M.**

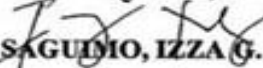
  
**BUTAY, JENNY ANNE B.**

  
**DUYAO, JEROME B**

  
**JUAN, REY ADRIAN L.**

  
**MAGAYANO, CHRIS CHARLZ L.**

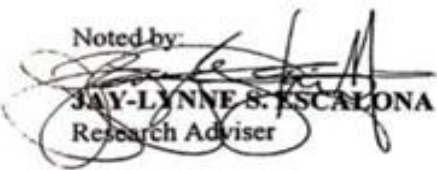
  
**SACRAMENTO, JEROME M.**

  
**SAGUNIO, IZZA G.**

  
**VERGARA, ERICA R.**

Researchers

Noted by:

  
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**APPENDIX “C”**



**DATA CENTER COLLEGE OF THE PHILIPPINES  
COLLEGE OF CRIMINAL JUSTICE EDUCATION  
LAOAG CITY**



**Survey Questionnaire  
THE SOLID WASTE DISPOSAL MANAGEMENT IN LAOAG CITY**

One of the major issues that today's developing cities face is providing effective and sustainable waste management as well as adequate sanitation. This study includes a complete description of waste formation and characterization, waste reduction and recycling, waste collection, and waste disposal.

**Respondent No.** \_\_\_\_\_

**Direction:** Please answer all the questions below to the best of your ability. To indicate your response, place a check mark ( ) in the appropriate box.

<b>Rating</b>	<b>Descriptive Interpretation</b>
5 -	Always
4 -	Often
3 -	Sometimes
2 -	Rarely
1 -	Never

**Part I. Demographic Profile of the Respondents**

**Direction:** Kindly fill out all the information needed, and rest assure that any personal data shared with us will be guarded with utmost confidentiality and for educational purposes only.

**Name (Optional)** \_\_\_\_\_ **Age:** \_\_\_\_\_

**Address:** \_\_\_\_\_ **Sex:** \_\_\_\_\_

**Educational Attainment**

- College Graduate
- High School Graduate
- Elementary Graduate
- Undergraduate

**Part II. The method used on Solid Waste Disposal Management.**

**Direction:** Please answer all the questions below to the best of your ability. To indicate your response, place a check mark ( ) in the appropriate box.

<b>Rating</b>	<b>Descriptive Interpretation</b>
5 -	Always
4 -	Often
3 -	Sometimes
2 -	Rarely
1 -	Never

Table 11 The method used on Solid Waste Disposal Management.

	Rating				
	5	4	3	2	1
<b>REUSE</b>					
Using disposable spoon and fork.					
Plastic bottles used as container of liquid ingredients and dishwashing.					
Old clothes as rag.					
Old clothes as potholder.					
Plastic bottles used as pencil container.					
Plastic tub used as a food storage.					
Old newspaper used for wrapping gifts.					
Old tires as barricade.					
Broken pail used as trash bins.					
Paint container used as a pail.					
<b>REDUCE</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Residence participating in clean up drive.					
Daily collection of accumulated solid waste.					
Burning of plastics.					
Selling cartoons into junk shop.					
Selling cans, plastic bottles to the junk shop.					
Donating old clothes to any charity.					
Burying garbage at the backyard.					
Limiting using any plastic materials.					
<b>RECYCLE</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Disposable spoon and fork to form decoration.					
Plastic bottles into eco bricks					
Plastic bottles to make a flower vase.					
Plastic bottles to make lanterns.					
Plastic bottles as dipper.					
Plastic bottles into water sprinkler.					
Cans as a planting vase.					
Straw as bag and mat.					
Plastic wrappers of junks foods to a pillow.					
Scratch paper into DIY scrapbook.					
All kind of plastic can be burned to make a chair.					
Vegetable and fruit peels used as land fertilizer.					
Egg shells used as plant decoration.					
Dead leaves and flowers converted to manure.					

Table 12 Problems encountered on Solid Waste Disposal Management.

BEHAVIOR	Rating				
	5	4	3	2	1
People are unaware of the negative effects of solid waste disposal techniques on their health and the environment.					
Households are not willing to take action for change/transformation.					
People's disinterested in segregating solid waste disposal.					
Segregation of waste adds up to more responsibilities.					
Fail to segregate due to a belief that it is the job of waste collectors.					
The "Arubuyak Dalusak" ignored.					
The Clean-up Drive Program is being avoided.					
Most resident do not care even if there are disposed wasted scattered on the ground.					
Resident who are disposing improperly are often ignored due to lack of care though others are aware of it.					
Avoiding the segregation of non-biodegradable and biodegradable solid waste due to unappropriated and disgusting smell.					
People perceive that waste segregation is a burden which ads-up to their household chores.					
Due to laziness residents thrown their waste in the river instead of putting in the disposal area.					
<b>PRACTICES</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Designated trash bins are used in the disposal of waste.					
A schedule is followed in the disposal waste.					
Leftovers are thrown into separate garbage container.					
Leftovers foods are fed to household pets, such as dog or cats.					
Bottles, plastics, cans, and other scraps are sold to junk shops.					
Water bottles are used as decorations.					
Old newspapers, modules, notebooks were used a curtain.					
Household wastes are combined for incoming garbage collector.					
Broken glasses and diapers are properly wrapped.					
Waste materials are thrown into bodies of water or a vacant lot.					
Household garbage is disposed through open burning.					
Plastic wastes are burned to reduce household waste.					
Household wastes are buried to the ground.					
Residents are not followed the schedule for collecting waste products.					
Signage like "Bawal magtapon ng basura" are being followed.					
<b>IMPLEMENTATION</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Insufficient recycling facility and storage areas.					
Lack of support demonstrated by the local government official.					
Available disposal facility is not effectively operating.					
Presence of street sweepers.					
Brgy. Officials are imposing fines for improper segregation of solid waste.					
Anti-burning law is not being observed.					
The barangay officials fail to inform the residents when garbage is to be collected.					



### APPENDIX “D”

➤ Documentation on the distributions of the questionnaires to the residents of the Barangay 1, San Lorenzo, Laoag City, Ilocos Norte.



• *Description:*

The researchers presented and explained the research questionnaire which has a title of “The Solid Waste Disposal Management in Laoag City” to the residents of Barangay 1, San Lorenzo, Laoag City, Ilocos Norte.

➤ *Documentation on the distributions of the questionnaires to the residents of the Barangay 6, San Agustin, Laoag City, Ilocos Norte.*



• *Description:*

The researchers presented and explained the research questionnaire which has a title of “The Solid Waste Disposal Management in Laoag City” to the residents of Barangay 6, San Agustin, Laoag City, Ilocos Norte.



➤ Documentation on the distributions of the questionnaires to the residents of the Barangay 16, San Jacinto, Laoag City, Ilocos Norte.



• *Description:*

The researchers presented and explained the research questionnaire which has a title of “The Solid Waste Disposal Management in Laoag City” to the residents of Barangay 16, San Jacinto, Laoag City, Ilocos Norte.



➤ *Documentation on the distributions of the questionnaires to the residents of the Barangay 28, San Bernardo, Laoag City, Ilocos Norte.*



• *Description:*

The researchers presented and explained the research questionnaire which has a title of “The Solid Waste Disposal Management in Laoag City” to the residents of Barangay 28, San Bernardo, Laoag City, Ilocos Norte.



➤ *Documentation on the distributions of the questionnaires to the residents of the Barangay 35, Gabu Sur, Laoag City, Ilocos Norte.*



• *Description:*

The researchers presented and explained the research questionnaire which has a title of “The Solid Waste Disposal Management in Laoag City” to the residents of Barangay 35, Gabu Sur, Laoag City, Ilocos Norte.