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**THE ROLE PLAYED BY THE BUSINESS ESTABLISHMENT OWNERS IN
SOLID WASTE MANAGEMENT OUTSIDETHE MARKET OF BARANGAY SAN
CARLOS, 2015**

A Research Study
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Chapter 1

THE PROBLEM AND ITS BACKGROUND

INTRODUCTION

Solid waste management is the systematic administration of activities that provide the collection, source separation, storage, transportation, transfer, processing, treatment, and disposal of solid waste (H. Lanier Hickman jr, 2003). The objectives of solid waste management are to control, collect, utilize, process and dispose solid wastes in the most economical way consistent with national legislations and ordinances (Gia Golda D. Dela Corte, 2005). Municipal Solid Waste (MSW), in general, consists of domestic wastes from households, both biodegradable and non-biodegradable. These include paper, Plastic, scrap metals, organic and non-organic matter, glass, and rubber materials. In the Philippines, solid waste generation, particularly in urban areas became alarming due to the limited areas by which these waste could be safely disposed (G. Dela Corte, 2005). In compliance to the Ecological Solid Waste Management Act of 2000 or R.A. 9003, a sanitary landfill was proposed together With a wastewater treatment. Solid waste generation has become a big concern for most



industrialized and developing countries in the world. The Philippines, for one, faces this kind of problem especially now that the population is getting larger, thus, producing more solid wastes (G. Dela Corte, 2005). Every person is a possible generator of waste and thus a contributor to the problem, Furthermore.

Waste is generated by and from different sectors; domestic, commercial Industrial and others, Waste from these sources are highly heterogeneous in nature and have variable physical characteristics. The heterogeneity of the generated waste is a major setback in its utilization as a raw material.. Source sorting and separation of waste is one of the traditional fractionation methods and fundamental steps in an integrated waste management system with the potential to provide data on waste generation and the quality of the fractions. However, the success of any designed waste segregation system will depend largely on the active participation of the waste generators in the various communities and how they comply with the principles of sorting and separation of the waste (Valkenburg et al., 2008).

Just like in Barangay San Carlos, Located at the Municipality of Mariveles in the province of Bataan. The lack of Barangay Participation in solid waste management and improper solid waste disposal is one of the problems of barangay San Carlos. The sources of solid Waste materials from this barangay are the following; the public market, Business establishment, schools and the residents.



This study were revived but no one had actively studied about solid waste management.

Background of the Study

Barangay San Carlos is one of the barangay in Municipality of Mariveles. Barangay San Carlos had one thousand three hundred fifty-three (1,353) residents its divided into ten (10) streets such as Claro Paguio, Jose Surreal, Antonio Mendoza, Valentine Semilla, San Nicolas, Gomez, Basillio Road, Rodriguez (DonyaCeilyn), Rodriguez (HBC) and Macatual. Barangay San Carlos surrounded by many establishments like Public Market, Food chain, Groceries, Drugstores and Schools.

Around 2000-2010 barangay San Carlos only had a few business Establishment and the population is smaller that's why during 2000-2010, the solid waste generated in barangay San Carlos is smaller than during 2015. Because of the booming of Mariveles and development of FAB (Freeport Area of Bataan) from year 2010 to present, the people in Mariveles seeing an opportunity to established business and many people migrate to Mariveles particularly in barangay San Carlos to seek job opportunity inside FAB (Freeport Area Bataan). And because of continuous expansion and development of Barangay San Carlos the volume of solid waste generated becomes larger.

Hence further who concern to this problem need to participate together with the authorities for better results and improvement of barangay San Carlos.



Theoretical Framework

Waste mismanagement has serious environmental effects making the passage of the Republic Act (RA) 9003 or the Ecological Solid Waste Management Act of 2000 a landmark environmental legislation in the Philippines. The law was crafted in response to the looming garbage problems in the country. RA 9003 declares the policy of the state in adopting a systematic, comprehensive and ecological solid waste management program that ensures the protection of public health and the environment and the proper segregation, collection, transport, storage, treatment and disposal of solid waste through the formulation and adoption of best environmental practices. Moreover, it illustrates the potentials and benefits of recycling not only in addressing waste management problems but also in alleviating poverty.

RA 9003 describes solid waste management as a discipline associated with the control of generation, storage, collection, transfer and transport, processing, and disposal of solid wastes. The manner by which these activities are conducted shall be in accord with the best principles of public health, economics, engineering, conservation, aesthetics, and other environmental considerations, and public attitudes. The Act provides for a comprehensive ecological solid waste management program by creating the necessary



Institutional mechanisms and incentives, appropriating funds, declaring certain acts prohibited, and providing penalties.

Conceptual Framework

The first presents the input of the study which is; role of public, Residents need segregating of their waste, Business owners need to put up trash can or container, the authority or barangay officials need come up programs. The second presents the process of the study which is; survey, interview, questionnaire and the third presents output of the study which is; easy to collect solid waste, discipline in proper disposal of solid waste; improve knowledge about solid waste management.

Figure 1: Shows that the conceptual framework of the study

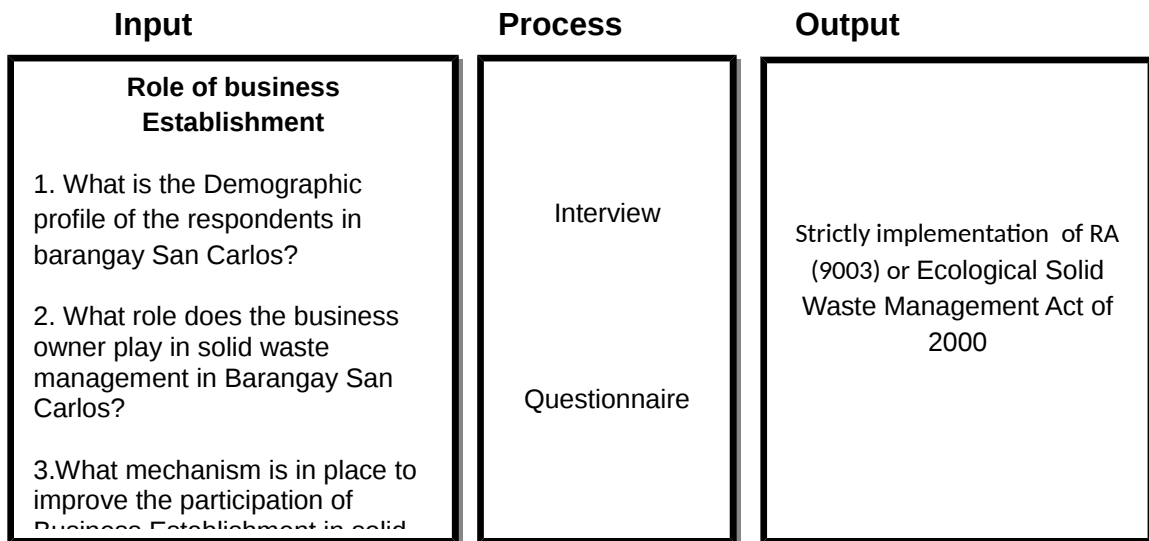


Figure 1

Conceptual framework THE ROLE PLAYED BY THE BUSINESS ESTABLISHMENT OWNERS IN SOLID WASTE MANAGEMENT OUTSIDE THE MARKET OF BARANGAY SAN CARLOS, 2015



Statement of the Problem

The main purpose of this study is to determine and analyze the role played by the business establishment owners in solid waste management outside the market of barangay San Carlos.

1. What is the Demographic profile of the respondents in barangay San Carlos?
 - 1.1 As to Gender; and
 - 1.2 As to Educational attainment.
2. What role does the business owner play in solid waste management in Barangay San Carlos?
 - 2.1 As to containers;
 - 2.2 As to sorting of waste;
 - 2.3 As to Reusing of waste;
 - 2.4 As to Waste items which can be reuse but not reusing;
 - 2.5 As to Sorting of waste before disposing it;
 - 2.6 As to Reducing the amount of waste;
 - 2.7 As to Items should be sorted for recycling;
 - 2.8 As to Times in a week waste taken for disposal; and
 - 2.9 As to Waste found outside their home.
3. What mechanism is in place to improve the participation of Business Establishment in solid waste management?
 - 3.1 As to number of sacks that they can fill for the disposal; and
 - 3.2 As to times of attending seminars and programs.

Scope and Limitation



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This study was focused in the role and participation of business establishment owners outside the market of Barangay San Carlos, the implementation of ecological Solid Waste Management Act of 2000 or RA 9003.

This research was focused only in one barangay which is barangay San Carlos consist of 10 streets such as; Claro Paguio, Jose Sarreal, Antonio Mendoza, Valentine semilla, San Nicolas, Gomez, Basillo Road, Rodriguez (DonyaCeilyn), Rodriguez (HBC) and Macatual. Barangay San Carlos had one thousand eight hundred twenty five (1,825) populations and two hundred twenty-five (225) business establishment according to their barangay of officials (year 2015)

The data collected is limited only in barangay San Carlos.

Significance of the Study

Solid waste management is very important and interesting to discuss and to know about it. It would help many people when it comes to healthy life and to avoid them from sickness and diseases that cause by waste.



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Our study was benefited to the group of people in barangay San Carlos, Especially to the following respondents.

1. To the respondents/business establishment, it help them to know what different way are of proper handling of the solid waste in their barangay and would come up with better way of handling waste materials.
2. To the barangay officials, it would help them to know what the practices of the residence in solid waste management and to know what are the action can do for the better way in collecting solid waste management of the community.
3. To the researcher, it would help to his/her studies and the researcher can contribute information about solid waste management to their barangay. The researcher would also know what the practices in solid waste management on their community.

Definition of Terms

Terms here are conceptual and operational and operational defined for better understanding of the readers



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Solid Waste Management – refers to the collection, transportation, treatment, final disposal and recycling of solid waste materials.

Business establishment is defined as a location where business is conducted, goods are made or stored or processed or where services are rendered.

Implementation- is the carrying out, execution, or practice of a plan, a method, or any design, idea, model, specification, standard or policy for doing something. As such, implementation is the action that must follow any preliminary thinking in order for something to actually happen.

Planning- is the process of thinking about and organizing the activities required to achieve a desired goal. It involves the creation and maintenance of a plan, such as psychological aspects that require conceptual skills. There are even a couple of tests to measure someone's capability of planning well. As such, planning is a fundamental property of intelligent behavior.

Monitoring – Observe and check the progress or quality of (something) over a period of time; keep under systematic review.

Evaluation – concern with the actual impact of the policy on Society.

Republic act no. 9003 - an act providing for an ecological solid waste management program, creating the necessary institutional mechanisms and



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incentives, declaring certain acts prohibited and providing penalties, appropriating funds therefore, and for other purposes.



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Chapter 2

REVIEW OF RELATED LITERATURE AND STUDIES

This chapter presents a review of related literature and studies both local and foreign about the solid waste management. It aims to know the level of participation and to assess the principle of solid waste management such as planning, implementation, monitoring and evaluation. This studies and Literature will serve as instruments for us to know more regarding our topic.

RELATED LITERATURE

Foreign literature

According to John A Connolly; Sandra E Stainback. The Solid Waste Disposal Act of 1965 (Public Law 89-272, Title II) and its amending legislation, the Resource Recovery Act of 1970 (Public Law 91-512, Title I), authorize collection, storage, and retrieval of information relevant to all aspects of solid-waste management. As part of this effort, the U.S. Environmental Protection Agency's solid-waste management program is updating the "Refuse Collection and Disposal Annotated Bibliography" series, initiated during the early Federal efforts in the 1940's. The present bibliography has been abstracted and is

arranged in categories corresponding to the various administration, engineering, and operational phases of solid-waste management. Indices include subject,



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corporate author, author, and geographical location cited. Addresses of periodical sources are provided in an index. The literature represented does not include all the solid-waste literature published in 1964; 107 periodical and 109 nonperiodical titles covering both foreign and domestic literature were screened for inclusion. No effort was made to separate strictly technical material from that which is more general. (JP)

Local literature

According to Senator Loren Legarda, principal author and sponsor of RA 9003 and Chair of the Senate Committee on Environment and Natural Resources Solid waste shall refer to all discarded household, commercial waste, non-hazardous institutional and industrial waste, street sweepings, construction debris, agricultural waste, and other non-hazardous/non-toxic solid waste.

Solid waste management shall refer to the discipline associated with the control of generation, storage, collection, transfer and transport, processing, and disposal of solid wastes in a manner that is in accord with the best principles of public health, economics, engineering, conservation, aesthetics, and other environmental considerations, and that is also responsive to public attitudes.

Ecological solid waste management shall refer to the systematic administration of activities which provide for segregation at source, segregated transportation,



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storage, transfer, processing, treatment, and disposal of solid waste and all other waste management activities which do not harm the environment.

Article 4 Recycling Program Section 26 of R.A 9003 Inventory of Existing Markets for Recyclable Materials. The DTI shall within six (6) months from the effectivity of this Act and in cooperation with the Department, the DILG and other concerned agencies and sectors, publish a study of existing markets for processing and purchasing recyclable materials and the potential steps necessary to expand these markets. Such study shall include, but not be limited to, an inventory of existing markets for recyclable materials, product standards for recyclable and recycled materials, and a proposal, developed in conjunction with the appropriate agencies, to stimulate the demand for the production of products containing post-consumer and recovered materials. Disposal shall refer to the discharge, deposit, dumping, spilling, leaking or placing of any solid waste into or in a land.

Section 25 of R.A 9003. Guidelines for Transfer Stations. Transfer stations shall be designed and operated for efficient waste handling capacity and in compliance with environmental standards and guidelines set pursuant to this

Act and other regulations: Provided, that no waste shall be stored in such station beyond twenty-four (24) hours. The siting of the transfer station shall consider the



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land use plan, proximity to collection area, and accessibility of haul routes to disposal facility. The design shall give primary consideration to size and space sufficiency in order to accommodate the waste for storage and vehicles for loading and unloading of wastes.

RELATED STUDIES

Foreign studies

This study reveals that the present system of MSWM in Mysore City a city in India is not satisfactory based on Municipal Solid Waste Management & Handling Rules 2000 (Chandra, et al., 2009). A detailed investigation was made regarding the methods of practices associated with sources, quantity generated, collection, transportation, storage, treatment and disposal of Municipal solid waste in Mysore City. The data concerning to SWM in Mysore was obtained through questionnaire, individual field visit, interacting with people and authentic record of municipal corporation. Photographic evidences were also made about generation, storage, collection, transportation, treatment and disposal of MSW.

Another case study across North America conducted by Holistic

Environmental Consulting (WEC, 2007), yard and food waste make up over a quarter of all the ordinary garbage we throw away. That's 25% by weight. In the



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U.S., that 25% is almost equally divided between yard waste (32.6 million tons, or 12.8% of all MSW) and food scraps (31.7 million tons, or 12.5%). And then there's all the other organic stuff that could be composted: all the clothing, towels, and bedding made of organic fibers, plus wood, old furniture and sawdust. Then there's paper, which at 83 million tons accounts for another 30% of municipal solid waste. As of 2006, the latest year for which figures are available, over 64% of the yard waste we throw away was recovered and composted, as was 54.5% of the paper and cardboard. Only 2.6% of food waste reached a compost heap.

Local studies

The study was conducted in Bacolod City, Philippines in 2007. The findings of this study served as basis in developing a handbook on solid waste management (Ballados, 2010).The experiences and practices of household waste management of people in a barangay (village) in Manila, Philippines are documented. The data were gathered through an interview with household members using open-ended questions. Interviews were also conducted with garbage collectors as well as scavengers. Results showed that the households generated an average of 3.2 kg of solid waste per day, or 0.50 kg/capita/day. The types of wastes commonly generated are food/kitchen wastes, papers, PET bottles, metals, and cans, boxes/cartons, glass bottles, cellophane/plastics, and yard/garden wastes. The respondents segregate their wastes into PET bottles,



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glass bottles, and other waste (mixed wastes). No respondents perform composting. It is worth noting, however, that burning of waste is not done by the respondents. The households rely on garbage collection by the government. Collection is done twice daily, except Sundays, and household members bring their garbage when the garbage truck arrives. However, there are those who dump their garbage in non-designated pick-up points, usually in a corner of the street. The dumped garbage becomes a breeding ground for disease-causing organisms. Some household respondents said that it is possible that the dumping in certain areas caused the dengue fever suffered by some of their family members. Mothers and household helpers are responsible for household waste management. Scavengers generally look for recyclable items in the dumped garbage. All of them said that it is their only source of income, which is generally not enough for their meals. Most of the respondents said that garbage collection and disposal is the responsibility of the government. The results of the study showed that RA 9003, also known as the Ecological Solid Waste Management Act of 2000, is not fully implemented in Metro Manila (Bernardo, 2008).

This study highlights the results of the study that was conducted to analyze the solid waste management practices of the waste generators, and the extent of their compliance with the Republic Act 9003, otherwise known as the Ecological Solid Waste Management Act of 2000.



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The Motiong town government in Samar has vowed to intensify the implementation of its Solid Waste Management Program after barangay chairmen here took at one-day seminar-workshop on the program. The activity was held at the Legislative Building here last Wednesday, August 29. Motiong Mayor Francisco M. Langi Sr. said 30 barangay chairmen of his municipality attended said seminar-workshop sponsored by the town government conducted Municipal Planning and Development Officer, Engr. Nicasio Permejo. Langi said all the barangay chairmen were educated on the provisions of the Solid Waste Management Act of 2003 so that they would be acquainted with and help implement the law in their respective barangay's and propagate environmental preservation. He said the town government will strictly implement the "no segregation, no collection policy" in all of Motiong's barangays and urged the barangay officials to put up a Materials Recovery Facility (MRF) where they can segregate bio-degradable and non-biodegradable waste materials. Such materials can be turned into a livelihood as, according to Langi, "there is money in junk" (Abrematea, 2012).



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Synthesis of reviewed related literature and studies

The aim of this study is to compare our related literature local and foreign studies if they are having the same idea about how solid waste management really important not only in one barangay's but also in developing countries, when you compare all of the studies it has the same conclusion that waste coming from different units ,the residential , industrial commercial, construction and demolition, municipal service, manufacturing products and other establishments ,for further information; Solid waste shall refer to all discarded household commercial waste and industrial waste, agricultural ,and some non-hazardous /toxic waste, but in all of this explanation the process on how solid waste can be dispose properly has being the same ,for example in our legal bases it has the article Four recycling program section of R.A 9003 that explain also by our related literature the three R's of solid waste management ,the reuse ,reduce ,and recycle .What is recycling program? This is the inventory of existing market for inventory, for further analysis: Disposal is being characterize by our legal bases Disposal, shall refer to discharge, deposit, dumping, spilling and placing of any solid waste into section 24,RA 9003 Guidelines for transfer station.



Chapter 3

RESEARCH METHODOLOGY

This chapter presents the methodologies doing this research. It includes the methods of research, the research instrument, the data gathering Procedure and the statistical treatment.

Research method used

This study used the descriptive research design. Its Purpose is to identify the role played by the business establishment owners in solid waste management outside the market of Barangay San Carlos, FY 2015.

Subject

The research subjects are the business establishment outside the market of Barangay San Carlos like (10) computer shops;(2) cooperatives; (1) photo studio; (10) medical clinics; (20) parlor/salon; (5) drugstore; (3) groceries; (2) hardware; (3) tailoring shop; (32) sari sari store; (18) rentable area; (25) apartments; (51) dry goods; (24) eatery;(11) pawnshop; (5) pharmacy; (3) water.



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Population and Sample Size

Business establishments in Barangay San Carlos are abundant, it's have 225 in total business establishments breakdown into 154 for the sampling size of population.

Table 1

Computation Frequency and Percentage Distributions of the Respondents According to its category

Categories	Total	Sample Size	Private	Percentage	Tenant	Percentage
Computer shop	10	8	4	3.25	4	12.90
Cooperative	2	4	4	3.25	0	0
Photo Studio	1	1	1	0.81	0	0
Medical Clinic	10	6	6	4.88	0	0
Parlors, Salon	20	12	9	7.32	3	9.68
Drugstore	5	4	4	3.25	0	0
Groceries	3	3	3	2.44	0	0
Hardware's	2	2	2	1.63	0	0
Tailoring Shop	3	3	3	2.44	0	0
Sari Sari Store	32	27	15	12.20	12	38.71
Rentable Area	18	11	11	8.94	0	0
Apartments	25	9	9	7.32	0	0
Dry goods	51	32	32	20.10	0	0
Eatery	24	19	12	9.76	7	22.58
Pawnshop	11	7	3	2.44	4	12.90
Pharmacy	5	5	4	3.25	1	3.23
Water Station	3	3	1	0.81	0	0
Total	225	154	123	100	31	100

Table shows two hundred twenty – five (225) respondents composed of seventeen (17) different categories; ten (10) or 4.44 computer shops; two (2) or 0.89 cooperatives; one (1) 0.44 photo studio; ten (10) or 4.44 medical clinics; two (20) or 8.89 parlor/salon; five (5) or 2.22 drugstore; three (3) or 1.33 groceries;



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two (2) or 0.89 hardware; three (3) or 1.33 tailoring shop; thirty two (32) or 14.22 sari sari store; eighteen (18) or 8 rentable area; twenty five (25) or 11.11 apartments; fifty one (51) or 22.67 dry goods; twenty four (24) or 10.67 eatery; eleven (11) or 4.89 pawnshop; five (5) or 4.22 pharmacy; three (3) or 1.33 water

Research Instruments

The researcher used a structured questionnaire that answered the roles of Business Establishments in solid waste management and the status of level of Participation in Barangay San Carlos.

The group researchers used structured questionnaire divided into the first parts the demographic profile and the second part the role played by the business owners in solid waste management and, the third part the mechanism are in place to improve The participation of Business Establishment in solid waste management.

Data gathering procedure

The researcher distributed a set of questionnaire that be given and personally answer by the business owners or staff. The researcher Focus and guided the respondents to assure that all item and question in their questionnaire was filled up and answered



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Statistical treatment of data

The data collected were organized and classified based on the research method and the problems formulated. The data were encoded, tallied, and tabulated to simplify the presentation and interpretation of the results using the following:

Frequency and Percentage Distributions

The data collected were organized and classified based on the researcher method and the problem formulated. The data were coded, tallied and tabulated to facilitate the presentation and interpretation of the results using frequency and percentage distribution

Frequency and percentage distribution was used to classify the Principles of solid waste management as perceived by the respondents. The Frequency also presented the actual response of the respondents to a specific Question item in the questionnaires.

On the other hand, the percentage of that item is computed by dividing with the sample total of respondents who participated in the survey. The formula used in the application of this technique is:

$$\% = (f/n) \times 100$$

Where % = Percentage

F = frequency

N = Number of cases or total sample



Chapter 4

PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

This chapter presents the findings drawn from the data gathered and the interpretation of such findings. For order and clarity, the discussion follows the same sequence of the specific questions of the research problem.

1. Demographic Profile

1.1 Gender

Table 2

Frequency and Percentage Distribution
of Respondents as to gender

Gender	Frequency	Percentage
Male	109	70.77
Female	45	29.33
Total	154	100

Table 2 shows that one hundred nine (109) or 70.77% are male and forty - five (45) or 29.33 % are female.

According to Ethan Mollick Gender differences and inequalities can affect various aspects of waste disposal. If you look overall at the chance of



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someone starting a company, it turns out that gender is a really strong predictor of whether or not they will become an entrepreneur. Women are less likely to be entrepreneurs than men, and this has been a big puzzle, because women are as innovative as men and companies run by women are as successful.

1.2 Educational attainment

Table 3
Frequency and Percentage Distribution of Respondents
as to educational attainment

Educational attainment	Frequency	Percentage
Elementary	12	7.79
High School	45	29.22
College	98	63.63
TOTAL	154	100

Table 4 shows that out of 154 business establishment owners, 98 or 63.63 per cent were College graduate, 45 or 29.22 per cent were High school graduate, 12 or 7.79 per cent were Elementary graduate.

According to the National Center for Education Statistics, Business is still the most common major about a fifth (20.5%) of the 1.79 million bachelor's degrees conferred in 2011-12 were in business. Business has been the single most common major since 1980-81; before that, education led the way. The least common bachelor's degrees, according to the NCES, were in library science (95



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conferred in 2011-12), military technologies and applied sciences (86) and precision production (37).

2. The Role played by Business establishment owner in solid waste management.

2.1. With waste Containers

Table 4

Frequency and Percentage Distribution of Respondents as to the Business owners with waste containers in their shop.

	Frequency	Percentage
With Containers	102	66.23
Without Containers	52	33.74
Total	154	100

Table 4 show that one hundred two (102) or 66.63 per cent respondents having own waste containers on their home/shop and fifty – two (52) or 33.74 per cent of respondent have no waste containers.

According to Administrative Officer Richard Sanches every business generates trash and garbage that require attention on a regular basis to maintain cleanliness, safety and health in the workplace or home. Having the proper equipment applies to waste management just as it does to other areas of successful business operations. When a business supplies its employees and



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customers with easy access to waste containers, overall maintenance of the building is made easier and buildings stay cleaner and neater. Nothing says sloppy like overflowing trash cans or garbage cans inside or outside of a building. It is important to purchase not only the right size cans and bins, but also an adequate amount of such containers

2.2. Sorting of Waste Generated

Table 5

Frequency and Percentage Distribution of Respondents according to the Business owners who sorted their generated waste

	Frequency	Percentage
Who Sorted their generated waste	132	85.71
Who did not Sort their generated waste	22	14.29
Total	154	100

Table 5 shows that one hundred fifty six (156) or 69.33 per cent of the respondents sorted their generated waste and sixty nine (69) or 30.67 per cent of the respondent didn't sort their generated waste.

According to Claudine Capel effective recycling relies on effective sorting, European citizens will not have failed to notice that the sorting of waste,



particularly at a household level, is becoming increasingly important. While the various EU countries currently take different stances on how and which waste to separate, the trend will be to separate as much useful waste as possible and deal with it in the most appropriate manner.

2.3. Reusing of waste to become useful

Table 6

**Frequency and Percentage Distribution of Respondents
As to reuse waste materials to
become useful**

	Frequency	Percentage
Reusing of waste materials	95	61.68
Not reusing waste materials	59	38.31
Total	154	100

Table 6 show that ninety five (95) or 61.68 per cent of the respondents did reuse some materials to convert into other useful things and fifty nine (59) or 38.31 per cent of the residents didn't reuse their waste.

According to Amanda Kumar Program Director of Green Plus reusing resources can help a business save money while decreasing its ecological footprint. It increases the lifespan of investments and spares a business the cost of buying new products. Reuse can also impact the community. Businesses can



donate old materials and products to schools, creative art centers, or any number of reuse organizations. This benefits the community and avoids wasting good materials.

2.4. Some items that can be reuse but they did not reusing

Table 7

Frequency and Percentage Distribution of Respondents as to waste items which can be reuse but they are not reusing

	Frequency	Percentage
Items they can reuse	94	61.03
Items they can't reuse	60	38.96
Total	154	100

Table 7 show that ninety four (94) or 61.03 % of the respondents they think that some waste items can be reuse but they are not reusing, sixty (60) or 38.96% of respondents didn't know that there are some items can be reused.

According to Mrs. Durdana Sultan Founder of Redo Reuse Means Value-Added Reusing an item means that it continues to be a valuable, useful, productive item, and replaces new items that would utilize more water, energy, timber, petroleum, and other limited natural resources in their manufacture. Businesses can save significant dollars in disposal by reselling or donating items that are no longer needed. Many chemicals and solvents that are no longer useful to one organization, can be used in other applications by other organizations. This method of "materials exchange" results in



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disposal savings by the generating company, and saving in the purchase of the material by the recipient organization. Reuse adds value!

2.5. Sorting of waste before disposal

Table 8

**Frequency and Percentage Distribution of Respondents
as to sorting of waste before
disposal.**

	Frequency	Percentage
Sorting of waste before disposal	135	87.66
Not sorting of waste before disposal	19	12.34
Total	154	100

Table 8 show that one hundred thirty five (135) or 87.66 per cent of the business owners thinks that it helps to sort waste before disposing it off and nineteen (19) or 12.34 per cent thinks that it can't help to sort waste before disposal.

According to Mrs, Durdana Sultan Founder of ReDo many reuse programs have evolved from local solid waste reduction goals because reuse requires fewer resources, less energy, and less labor, compared to recycling, disposal,



or the manufacture of new products from virgin materials. Reuse provides an excellent, environmentally-preferred alternative to other waste management methods, because it reduces air, water and land pollution, limits the need for new natural resources, such as timber, petroleum, fibers and other materials. The US Environmental Protection Agency has recently identified waste reduction as an important method of reducing greenhouse gas emissions, a contributing factor to global warming.

2.6. Reducing amount of waste

Table 9

**Frequency and Percentage Distribution of Respondents
as to reducing the amount of waste**

	Frequency	Percentage
Can reduce the waste generated	87	56.50
Cannot reduce the generated waste	67	43.50
Total	154	100



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Table 9 show that eighty seven (87) or 56.50 per cent say that they can reduce waste they generated and sixty seven (67) or 43.50 per cent says that they can't reduce waste.

According to Mrs. Rose Naseef of Go Green La Grange there are ways to reduce waste we can reduce the amount of garbage we produce by becoming aware of how much we discard and by changing our consumption habits. You can remind yourself that there is no “away” and practice the **3 Rs: Reduce, Reuse, and Recycle.**

2.7. Waste items they should be sorted for recycling

Table 10

**Frequency and Percentage Distribution of Respondents
as to items sorted waste for recycling**

Waste items	Frequency	Percentage
Hard plastic	9	5.84
Polythene	12	7.80
Glass	4	2.60
Paper	60	39
Metal	40	25.98
I dont know	24	15.59
Total	154	100%



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Table 10 show that nine (9) or 5.84 % of the respondents think hard plastics should be sorted for recycling ,twelve (12) or 7.80% of the respondent think polythene should be sorted for recycling, four (4) or 2.60% of the respondent think glass should be sorted for recycling, sixty (60) 39 % they think that paper should be sorted for recycling, forty (40) or 25.98 % they think that metal should be sorted for recycling, twenty four (24) or 15.59 %of the respondent don't know the possible items should be sorted for recycling.

According to Andrew Schrage graduate at Brown University you can sort almost all of your garbage. Some experts estimate that 90% of the items going in a landfill should be sorted, if only we had the resources in all areas, and made the effort. If you live near an urban center, there is probably a sorting of waste program available in your area. Even without curbside pickup service, a recycling drop-off facility may be close by.

2.8. Times of collecting waste for disposal

Table 11

**Frequency and Percentage Distribution of Respondents
as to times in week for waste disposal**

Time when the waste Takes	Frequency	Percentage
Once	12	7.80



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Twice	34	20.07
More than twice but not daily	85	55.19
Daily	23	14.93
Total	154	100

Table 11 shows that twelve (12) or 7.80 per cent of the respondents said that once in a week waste was taken, thirty four (34) or 20.07 per cent said that twice a week is waste take, eighty five (85) or 55.19 per cent said that more than twice in a week the waste was taken, twenty three (23) or 14.93 per cent the respondents said that daily in a week the waste taken from their home / shop.

According to Nick Collins many local authorities provide a weekly collection service, but others only empty bins fortnightly Local Authorities in England are also obliged to collect at least two types of recyclable waste separate from general household waste. They can insist that certain types of rubbish are put in specified bins or bags, and set their own rules on where the occupier should leave bins to be emptied. Under amendments to refuse collection laws made by Labor in 2008, councils can refuse to collect waste from anyone who fails to comply with their requirements and issue fines. The local authorities can set their own rules on what constitutes a “breach” of their waste collection policy.



2.9. What they do if they found waste

Table 12

**Frequency and Percentage Distribution of Respondents
as to waste found outside their shop/stall**

Action they do	Frequency	Percentage
Pick it and put in a container	97	62.99
Ignore	57	47.01
Total	154	100%

Table 12 shows that ninety seven (97) or 62.990 per cent of the respondents said that they pick the waste and put it in a waste container and fifty seven (57) or 47.01 of the respondents said that they move on if they found a piece of waste outside their house /shop.

According Shirley Escalante, Author of the book " I Collect and Sell " Some other people pick waste on the public place and sell it, they gathered enough money to buy their needs for the entire whole day. They say directly to me when I have the opportunities to interview some people "Because I earn more, my family eats three meals a day. And I am able to send my five children to school.



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3. Business owner mechanism to improve participation in waste management

3.1. Number of sacks used for waste

Table 13

**Frequency and percentage Distribution of Respondents
as to number of sacks used for waste**

Number of sacks	Frequency	Percentage
One	22	14.29
Two	35	22.72
Three	60	38.97
Four and above	34	22.07
Total	154	100

Table show that twenty two (22) or 14.29 per cent of business establishment can fill up to one sack of solid waste in every day, thirty five (35) or 22.72 per cent of business establishment can fill two sacks of garbage sacks in every day, sixty (60) or 38.97 of respondents can fill three sacks of garbage every day and thirty four (34) or 22.07 per cent of respondents can fill up to four and above of garbage bag in every day.

According to Every business generates trash and garbage that require attention on a regular basis to maintain cleanliness, safety and health in



the workplace or home. Having the proper equipment applies to waste management just as it does to other areas of successful business operations. When a business supplies its employees and customers with easy access to waste containers, overall maintenance of the building is made easier and buildings stay cleaner and neater. Nothing says sloppy like overflowing trash cans or garbage cans inside or outside of a building. It is important to purchase not only the right size cans and bins, but also an adequate amount of such containers.

3.2. Participation in Seminar/Programs to solid waste management.

Table 14

**Frequency and percentage Distribution of Respondents
as to participation in Seminar/Programs**

Numbers of Participation in Seminar/Programs	Frequency	Percentage
One	103	66.89
Two	27	17.53
Three	14	9.09
Four and above	9	5.84
Total	154	100

Table shows that one hundred three (103) or 66.89 per cent of the respondents participate in seminars and programs once a week only, twenty seven (27) or 17.53 per cent of the respondents participate in programs twice a



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week, fourteen (14) or 9.09 per cent of the respondents participates in programs and seminars three time a week, nine (9) or 5.84 per cent of the respondents participate in the seminars and programs up to four times and above in a week.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS



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The main focus of this study was to identify and analyze **“THE ROLE OF BUSINESS ESTABLISHMENT OWNER IN SOLID WASTE MANAGEMENT OUTSIDE THE MARKET OF BARANGAY SAN CARLOS, 2015.”** And its variables.

Specifically, in the study sought to answer the following questions;

- 1 Demographic profile of the respondents in barangay San Carlos.
- 2 What role does the business owner play in solid waste management in Barangay San Carlos?
4. What mechanism is in place to improve the participation of Business Establishment in solid waste management?

The instrument was used to gather data were structured type of questionnaire which contain the respondent’s demographic profile and the role of respondents. Statistical procedures included the computation of the frequency distribution, and percentage.

The variable used on this study was as follows:

1. Demographic profile

1.1 As to Gender

1.2As to Educational attainment

2. Role does the business owner play in solid waste management

2.1As to containers

2.2As to sorting of waste

2.3As to Reusing of waste

2.4As to Waste items which can be reuse but not reusing

2.5As to Sorting of waste before disposing it

2.6As to Reducing the amount of waste



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- 2.7As to Items should be sorted for recycling
- 2.8As to Times in a week waste taken for disposal
- 2.9As to Waste found outside their home

3. What mechanism is in place to improve the participation of Business

Establishment in solid waste management?

- 3.1 As to number of sacks that they can fill for the disposal
- 3.2As to times of attending seminars and programs

The questionnaire was distributed on 123 private owner and 31 tenant business establishment.

Summary of Findings

The following were the salient and significant findings drawn by the researcher to provide answer to the three research questions:

1 What is the demographic profile of respondents?

- 1 **As to Gender** - 109 or 70.77 per cent of the respondents were male while 45 or 29.33 per cent of the respondents were female.

- 2 **As to Educational attainment** - 12 or 7.79 per cent of the respondents are elementary graduate; 45 or 29.22 per cent of The respondents are high school graduate; 98 or 63.63 per cent of the respondents are college graduate.

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2 The role played by the business owner in solid waste management.

- 1 **As to containers** - 102 or 66.23 per cent of the respondents have waste container; 52 or 33.74



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per cent of the respondents have no waste container in their home.

- 2 **As to sorting of waste** - 132 or 85.71 per cent of the respondents sort their waste; 22 or 14.29 per cent of respondents didn't sort their waste.
- 3 **As to Reusing of waste** - 95 or 61.68 per cent of the respondents reused their waste item; 59 or 38.31 per cent of the respondents did not reuse their waste item.
- 4 **As to Waste items which can be reuse but not reusing** - 94 or 61.03 per cent of the respondents think that there some items that can be reused ; 60 or 38.96 per cent of the respondents don't know if there are some items that can be reused.
- 5 **As to Sorting of waste ^{viii} before disposing it**– 135 or 87.66 Per cent of the respondents think that sorting waste can help before disposing it; 19 or 12.34 per cent of the respondents don't know if sorting waste can be of help.
- 6 **As to Reducing the amount of waste** – 87 or 56.50 per cent of the respondents said that they can reduce the amount of waste they generate; 67 or 43.50 per cent of the respondents said that they can't reduce the waste they have been generated.
- 7 **As to Items should be sorted for recycling** - 9 or 5.84 per cent of respondents chose the hard plastic to be sorted for recycling ; 12 or 7.80 per cent of the respondents chose the polythene to be sorted before recycling ; 4 or 2.60 per cent of respondents chose glass to be sorted before recycling ; 60 or 39 per cent of the respondents chose the paper to be sorted before recycling ; 40 or



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25.98 per cent of the respondents chose metals to be sorted before recycling; 24 or 15.59 per cent of the respondents don't know what items can be sorted.

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8 **As to Times in a week waste taken for disposal** – 12 or 7.80 per cent of the respondents has taken their waste for disposal once in a week; 34 or 20.07 per cent of the

respondents taken their waste for disposal twice a week ; 85 or 55.19 per cent of the respondents taken their waste for disposal more than twice but not daily; 23 or 14.93 per cent of the respondents taken their waste daily for disposal.

9 **As to Waste found outside their home**– 97 or 62.99 per cent of the respondents pick the waste they see outside their home ; 57 or 47.01 per cent just ignore it.

3 **What mechanism are in place to improve the participation of Business Establishment in solid waste management**

3.1 **As to number of sacks that they use for waste for disposal -**

22 or 14.29 per cent of the respondents has one sack only;

35 or 22.72 per cent says that they have two sacks only;

60 or 38.97 per cent says that they have three sacks only;

34 or 22.07 per cent says that they have four sacks and above in their shops or stalls.

x

3.2 **As to times of attending seminars and programs-103**



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or 66.89 per cent said that they attended the seminar one only ; 27 or 17.53 per cent said that they attended the seminar twice; 14 or 9.09 per cent said that they attended the seminar thrice; 9 or 5.84 per cent said that they attended four and above of seminars and programs.

Conclusions

In the light of these findings of, the following conclusions were drawn.

1. Generally, the respondents were private owner, female, collage graduate.
2. The role played by the business owner in solid waste management were as follows ; with waste container, sorting their waste, reusing their waste, waste items which can be reused but not reusing, Reducing the amount of waste, Items should be sorted for recycling, times of collecting waste for disposal, Waste found outside their home.
3. The participation of Business Establishment in solid waste management with sacks, and often times attending seminars.

Recommendation

In the light of the conclusions drawn above, the following recommendations were drawn;



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1. Proper collection and disposition of waste in every business establishment in Barangay San Carlos.
2. There should be an intensive training or seminar that educates the respondents about the proper disposal of waste they generated.
3. Holding of a contest or activities related to solid waste management.
4. The Barangay Council should check regularly the waste disposal of the business establishment.

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Appendix 1

Sample Letter asking permission from the Barangay Captain of Barangay San Carlos (to distribute questionnaire to residents)



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Appendix 2

EXAMPLE OF QUESTIONNAIRE

PART 1 DEMOGRAPHIC PROFILE

1. PREMISE OWNER SHIP

- Private Owner
 Tenant

GENDER

- Male
 Female

EDUCATIONAL ATTINMENT

- Elementary
 High School
 College

2. The role played by the resident/business owner in solid waste management.

2.1 Did you have waste container on your shop/stall

We have	
We don't have	

2.2 Did you sort the waste that you generated

We sort	
We don't sort	

**2.3 Did you reuse waste material to make it useful**

We reuse	
We don't reuse	

2.4 Do you think that there some waste materials that can be reuse but they are not reusing.

There some items	
There no item can be reused	

2.5 Do you think it helps to sort waste before disposing it.

It helps	
It could not help	

2.6 Do you think if you can reduce the amount of waste that you generated?

We can reduce	
We cannot reduce	

2.7 Which items do you think should be sorted for recycling?

Waste items	
Hard plastic	
polythene	
Glass	
Paper	
Metal	



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I don't know

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2.8 How many times in a week you waste was taken for disposal

Times in a week	
Once	
Twice	
More than twice but not daily	
Daily	
Total	

2.9 What did you do if you found a piece of waste outside of your stall / shop?

Action to do	
Pick it and put in a container	
Move on	
total	

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3. The participation of Business Establishment in solid waste management

3.1 How many sacks can you fill in for the disposal of your waste in every day

Number of sacks	
One	
Two	
Three	
Four and above	
Total	



3.2 How many times did you attend in seminars and programs regarding to solid waste management in your barangay ?

Times of Participation	
One	
Two	
Three	
Four and above	
Total	



Appendix 4

CURRICULUM VITAE

JOY R. NERY

#210 Narra dorm Barangay Maligaya, Mariveles, Bataan

Contact No. 09073491275

Email: joy.nery@yahoo.com

Objective

I am seeking employment with a company where I can use my talents and skills to grow and expand the company.

Personal Information

Date of Birth : March 16, 1997
Place of Birth : Mariveles, Bataan
Age : 18
Gender : Male
Religion : Catholic
Civil Status : Single
Name of Father : Roy Nery
Name of mother : Janeth Nery

Educational Back ground

Primary	Renato L. Cayetano Memorial School
Secondary	MNHS-Malaya



POLYTECHNIC UNIVERSITY OF THE PHILIPPINES

Tertiary

Bachelor of Science in Business Administration Major in Human resource Management (HRM) Polytechnic University of the Philippines (**Bataan Branch**)

50

Skills

- Computer literate especially in Microsoft word, Power Point, Access, Excel.
- Easy to adopt new things.

Seminars Attended

- Marketing Communication Brand Management and Product Concept

Character Reference

Name : Ms. Leonila Generales

Position : Campus Director

Contact No. (047)-935-7019

I hereby declare that all above information are correct and true and that I will be liable to any alteration inserted herewith.

Joy R. Nery



CURRICULUM VITAE

JOHN PAUL NARAVAL

#052 Lavander St. Alasasin, Mariveles, Bataan

Contact No# 0908385634

Email: johnpaulnaraval@yahoo.com

Objective

□ I am seeking a competitive and challenging environment where I can serve your organization and establish an enjoyable career for myself.

Personal Information

Date of Birth	:	March 04, 1997
Place of Birth	:	Mariveles, Bataan
Age	:	18
Gender	:	Male
Religion	:	Catholic
Civil Status	:	Single
Name of Father	:	Dionisio Naraval
Name of mother	:	Violeta Naraval



POLYTECHNIC UNIVERSITY OF THE PHILIPPINES

Educational Back ground

Primary	Alasasin Elementary School	
Secondary	MNHS-Cabcaben	
Tertiary	Bachelor of Science in Business Administration Major in Human resource Management (HRM) Polytechnic University of the Philippines (Bataan Branch)	52

Skills

- Computer literate especially in Microsoft word, Power Point, Access, Excel.
- Easy to adopt new things.

Seminars Attended

- Marketing Communication Brand Management and Product Concept

Character Reference

Name : Ms. Leonila Generales
Position : Campus Director
Contact No. (047)-935-7019

I hereby declare that all above information are correct and true and that I will be liable to any alteration inserted herewith.

John Paul Naraval



CURRICULUM VITAE

JADE MARTINEZ

Barangay Malaya

Contact # 09156471010

Email: jademartines18@yahoo.com

Objective

□ I want a highly rewarding career where I can use my skills and knowledge to help the company and my coworkers be successful.

Personal Information

Date of Birth	:	June 10, 1996
Place of Birth	:	Infanta, Pangasinan
Age	:	19
Gender	:	Male
Religion	:	LDS
Civil Status	:	Single
Name of Father	:	Jerson Martinez
Name of mother	:	Elsa Martinez



POLYTECHNIC UNIVERSITY OF THE PHILIPPINES

Educational Back ground

Primary	Bamban Sur Elementary School
Secondary	PSU Laboratory High School Infanta Campus
Tertiary	Bachelor of Science in Business Administration Major in Human resource Management (HRM) Polytechnic University of the Philippines (Bataan Branch)

54

Skills

- Computer literate especially in Microsoft word, Power Point, Access, Excel.
- Easy to adopt new things.

Seminars Attended

- Marketing Communication Brand Management and Product Concept

Character Reference

Name : Ms. Leonila Generales
Position : Campus Director
Contact No. (047)-935-7019

I hereby declare that all above information are correct and true and that I will be liable to any alteration inserted herewith.

Jade Martinez



CURRICULUM VITAE

HESON GONZALES

Barangay Malaya

Contact # 09079893872

Email: gonzales_heson@yahoo.com

Objective

□ I want to be part of the success in an environment of growth and excellence.

Personal Information

Date of Birth	:	October 19, 1995
Place of Birth	:	Mariveles, Bataan
Age	:	20
Gender	:	Male
Religion	:	Catholic
Civil Status	:	Single
Name of Father	:	Amando Gonzales
Name of mother	:	Nenita Gonzales



POLYTECHNIC UNIVERSITY OF THE PHILIPPINES

Educational Back ground

Primary	BEPZ Elementary School
Secondary	Rosario Integrated School (RIS)
Tertiary	Bachelor of Science in Business Administration Major in Human resource Management (HRM) Polytechnic University of the Philippines (Bataan Branch)

56

Skills

- Computer literate especially in Microsoft word, Power Point, Access, Excel.
- Easy to adopt new things.

Seminars Attended

- Marketing Communication Brand Management and Product Concept

Character Reference

Name : Ms. Leonila Generales
Position : Campus Director
Contact No. (047)-935-7019

I hereby declare that all above information are correct and true and that I will be liable to any alteration inserted herewith.

Heson Gonzales



CURRICULUM VITAE

JOHN KEITH GARCIA

Barangay Balon

Contact # 09158043949

Email: gkeith29@yahoo.com

Objective

I am seeking a company where I can use my experience and education to help the company meet and surpass its goals.

Personal Information

Date of Birth : April 28, 1997
Place of Birth : Gapan, Nueva Ecija
Age : 18
Gender : Male
Religion : Catholic
Civil Status : Single
Name of Father : Emilio Garcia
Name of mother : Marilyn Garcia

Educational Back ground

Primary	Balon Elementary School
Secondary	Llamas Memorial Institute



POLYTECHNIC UNIVERSITY OF THE PHILIPPINES

Tertiary

Bachelor of Science in Business Administration Major in Human resource Management (HRM) Polytechnic University of the Philippines (**Bataan Branch**)

58

Skills

- Computer literate specially in Microsoft word , Power Point, Access, Excel.
- Easy to adopt new things.

Seminars Attended

- Marketing Communication Brand Management and Product Concept

Character Reference

Name : Ms. Leonila Generales
Position : Campus Director
Contact No. (047)-935-7019

I hereby declare that all above information are correct and true and that I will be liable to any alteration inserted herewith.

Garcia John Keith



CURRICULUM VITAE

JERWINNACO

Barangay Malaya
Contact # 09078725690
Email: naco_j@yahoo.com

Objective

□ I am seeking a competitive and challenging environment where I can serve your organization and establish an enjoyable career for myself.

Personal Information

Date of Birth	:	December 27, 1996
Place of Birth	:	Mariveles, Bataan
Age	:	19
Gender	:	Male
Religion	:	Catholic
Civil Status	:	Single
Name of Father	:	Ricardo Naco Jr.
Name of mother	:	Violeta Naco

Educational Back ground

Primary	BEPZ Elementary School
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POLYTECHNIC UNIVERSITY OF THE PHILIPPINES

Secondary	MNHS - Malaya	
Tertiary	Bachelor of Science in Business Administration Major in Human resource Management (HRM) Polytechnic University of the Philippines (Bataan Branch)	60

Skills

- Computer literate specially in Microsoft word, Power Point, Access, Excel.
- Easy to adopt new things.

Seminars Attended

- Marketing Communication Brand Management and Product Concept

Character Reference

Name : Ms. Leonila Generales
Position : Campus Director
Contact No. (047)-935-7019

I hereby declare that all above information are correct and true and that I will be liable to any alteration inserted herewith.

JerwinNaco



CURRICULUM VITAE

CHRISTIANLACAMBRA

Barangay Sisiman

Contact # 09207194871

Email: gonzales_heson@yahoo.com

Objective

To become part of progressive, team oriented company where I can properly expose myself to the working world. To be able to share my knowledge not only to my co-worker but also to other people I might meet in this job. To able to go professionally and enhance my knowledge with regards to working to your company.

Personal Information

Date of Birth : April 23, 1996
Place of Birth : Mariveles Bataan
Age : 19
Gender : Male
Religion : Catholic
Civil Status : Single
Name of Father : Genaru Lacambra
Name of mother : Araceli Lacambra

Educational Back ground

Primary	Sisiman Elementary School
Secondary	MNHS Poblacion



POLYTECHNIC UNIVERSITY OF THE PHILIPPINES

Tertiary

Bachelor of Science in Business Administration Major in Human resource Management (HRM) Polytechnic University of the Philippines (**Bataan Branch**)

62

Skills

- Computer literate especially in Microsoft word, Power Point, Access, Excel.
- Easy to adopt new things.

Seminars Attended

- Marketing Communication Brand Management and Product Concept

Character Reference

Name : Ms. Leonila Generales
Position : Campus Director
Contact No. (047)-935-7019

I hereby declare that all above information are correct and true and that I will be liable to any alteration inserted herewith.

Christian Lacambra



Appendix 5

Frequency and Percentage Distributions of the Respondents According to its category

Categories	Total	Sample Size	Private	Percentage	Tenant	Percentage
Computer shop	10	8	4	3.25	4	12.90
Cooperative	2	4	4	3.25	0	0
Photo Studio	1	1	1	0.81	0	0
Medical Clinic	10	6	6	4.88	0	0
Parlors, Salon	20	12	9	7.32	3	9.68
Drugstore	5	4	4	3.25	0	0
Groceries	3	3	3	2.44	0	0
Hardware's	2	2	2	1.63	0	0
Tailoring Shop	3	3	3	2.44	0	0
Sari Sari Store	32	27	15	12.20	12	38.71
Rentable Area	18	11	11	8.94	0	0
Apartments	25	9	9	7.32	0	0
Dry goods	51	32	32	20.10	0	0
Eatery	24	19	12	9.76	7	22.58
Pawnshop	11	7	3	2.44	4	12.90
Pharmacy	5	5	4	3.25	1	3.23
Water Station	3	3	1	0.81	0	0
Total	225	154	123	100	31	100

Table shows two hundred twenty – five (225) respondents composed of seventeen (17) different categories; ten (10) or 4.44 computer shops; two (2) or 0.89 cooperatives; one (1) 0.44 photo studio; ten (10) or 4.44 medical clinics; two (20) or 8.89 parlor/salon; five (5) or 2.22 drugstore; three (3) or 1.33 groceries; two (2) or 0.89 hardware; three (3) or 1.33 tailoring shop; thirty two (32) or 14.22 sari sari store; eighteen (18) or 8 rentable area; twenty five (25) or 11.11 apartments; fifty one (51) or 22.67 dry goods; twenty four (24) or 10.67 eatery; eleven (11) or 4.89 pawnshop; five (5) or 4.22 pharmacy; three (3) or 1.33 water



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Republic of the Philippines
POLYTECHNIC UNIVERSITY OF THE PHILIPPINES
Bataan Campus
FAB, Mariveles Bataan

CERTIFICATION OF EDITING

This to certify that the research study entitled **“THE ROLE PLAYED BY THE BUSINESS ESTABLISHMENT OWNER OWNERS IN SOLID WASTE MANAGEMENT OUTSIDE THE MARKET OF BARANGAY SAN CARLOS, 2015,”** Prepared and submitted by Joy R. Nery, John Paul Naraval, Jade Martinez, Heson Gonzales, John Keith Garcia, Jerwin Naco, Christian Lacambra has been edited by the undersigned.

The revisions were only made to ensure that the aforementioned work complies with the existing rules in grammar and writing. Furthermore, the undersigned did not make any change that will alter the content of the work.

This certification is issued on the request of the researchers for whatever purpose it may serve.

Issued 6th day of October 2016 at FAB, Mariveles, Bataan.



POLYTECHNIC UNIVERSITY OF THE PHILIPPINES

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