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## Impact of Project Helping Our environment by Making useful Ecobricks (H.O.M.E) in Kasiglahan Village National High School

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**Abstract:** The Project Helping Our Environment by Making Useful Ecobricks (H.O.M.E.) aimed to improve the cleanliness and orderliness of Kasiglahan Village National High School in solid waste through the use of Ecobricks. An Ecobrick is a plastic bottle packed to a set density with used, clean, and dry plastics to achieve a building block that can be used over and over again. Ecobrick is one of the solutions to plastic pollution all over the world. Ecobricks aims to teach people, not only students, how to refuse single-use plastic and to recycle those that are already used. The researchers got the idea of making Ecobricks to help segregate single-use plastics that are used in schools and the community. All Science Teachers asked the students to make one Ecobrick (500 ml plastic bottle and 250 g to 350 g of used cleaned plastics). The quantitative method of research was used to gather relevant data which can be used for the project. The completed project was utilized in the construction of the school's MRF (Materials Recovery Facility), with 576 pieces of 1.5 L (Coke and Sprite) and 614 pieces of 500 mL (Nature's Spring) Ecobricks bottles, which were used to segregate solid wastes. The result of the project helped the students to be aware of the effects of single-use plastics in the environment and it helped the school to thrive in cleanliness and orderliness of solid waste management. 1,599 pieces of Ecobricks with 686.4 Kg were logged at GoBrik.com.

**Keywords:** Ecobricks, Materials Recovery Facilities (MRF), single-use plastic, and solid waste

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### 1.1 Introduction

The YES (Ynares Eco System) To Green Program is a flagship program of Governor Rebecca “Nini” A. Ynares, Governor of Rizal Province, Philippines. This program was launched last 2013 at the Ynares Center, Antipolo City. It aims to address environmental issues of waste management, clogged water tributaries, deforested mountains and watersheds, and declining livelihood opportunities.

The said project has three components namely: GREENING the environment, CLEANING the environment, and RECYCLING.

In line with this, the Kasiglahan Village National High School came up with project L.I.N.K (Littering Is Not OK) under C.I. (Continuous Improvement in Schools) last February of 2015. The said project aimed to change students’ psyche about waste disposal and enhance the provision of needed facilities for proper disposal of waste in the school. The project was implemented from 2016 – 2017. The C.I Core Team sought the help of various departments to come up with different activities (SLOGAN/POSTER Making contest, Dance Contest, or Movie Presentation) that will encourage students to properly dispose of their garbage. As a result, in the school year 2017 – 2018, there was an implementation of “Basura Mo, Iuwi Mo” that was agreed upon by all teachers.

In School Year 2018 – 2019, the Youth for Environment in Schools Organization (YES-O) of Kasiglahan Village National High School came up with another project that was related with waste management/segregation awareness, the Project H.O.M.E or Helping Our environment by Making useful Ecobricks. This project is still being implemented up to this present school year 2023-2024.

An Ecobrick is a plastic bottle packed to a set density with used, clean and dry plastic to achieve a building block that can be used over and over again. It started last 2013 when Russell Maier, a professional Artist from Paris, who visited Philippines and became one of the residents in Northern Mountain Province for 4 years. He observed that the indigenous people from the place burn the plastics and throw them to the rivers where children are swimming and fishing, so he came up with the idea where he inserted the used plastics in the plastic bottle and the rest was history.

Ecobricks is a solution to plastic pollution all over the world. Its main purpose is to lessen the plastic that is being dumped everywhere. It is only by refusing to buy products that are non-biodegradable, non-recyclable and eventually poisonous, that we can shift our living into harmony with the circles of life.

In line with this, Kasiglahan Village National High School, Youth for Environment in Schools Organization (YES-O) adapted the idea of making Ecobricks to help segregate plastics that are used in schools and in the community. The said organization thru Project H.O.M.E (Helping Our environment by Making useful Ecobricks), aims to teach the students/community: (1.) To pack and set a density with cleaned and dried, used plastics to make a reusable building block in a clean and dry plastic bottle; (2.) To enable anyone, anywhere to take personal responsibility for their plastic; and (3.) To make modular furniture, garden space, walls and even full-scale buildings.

Ecobricking is simple, but it’s important to start right. This is a long-term habit that we and our community are embarking on.



## 1.2 Statement of the Problem

What is the profile of the participants in terms of

age,  
sex, and  
position?

What is the impact of the Project HOME in terms of

cleanliness,  
recycling,  
creativity and usefulness, and  
proper disposal?

What is the overall recommendation of the project HOME towards the environment?

## 2.1 Methodology And Research Design

The project employed the quantitative method research design. It assumed that students taught to make Ecobricks would be aware of environmental issues of waste management and clogged water tributaries, particularly in single-use plastic which is the main issue around the world right now.

The project was conducted at Kasiglahan Village National High School. It is located in Barangay San Jose, Rodriguez, Rizal, one of the schools in Rodriguez District II, Division of Rizal where most of the students are relocated to different cities in Manila. Eventually, the project became wider as it was implemented in all Public Junior High Schools in Rodriguez District II.

Below is the list of high-quality Ecobricks from GoBrick.com

Plastic Bottle Size	Minimum Ecobrick Weight
500 ml	175 grams
1 000 ml or 1 liter	350 grams
1 500 ml or 1.5 liters	525 grams
1 750 ml or 1.75 liters	613 grams

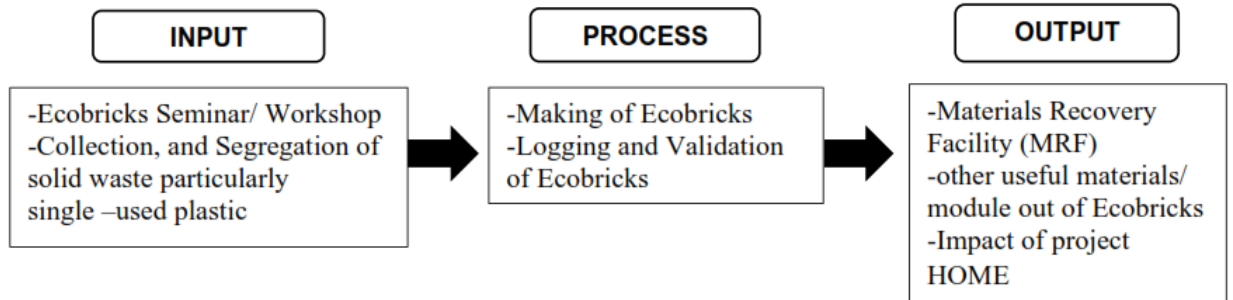
*For the validity of the content, the list of High-Quality Ecobricks was validated through [www.GoBrik.com](http://www.GoBrik.com).*

The conceptual framework of the study adopted the IPO (Input-Process-Output) model which is made up of Input, Process, and Output. Figure 1 below shows the paradigm of the study with three diagrams aligned and connected by arrows. The first box was Input which includes the Ecobricks seminar/workshop, and Collection and Segregation of solid waste particularly single-use plastic.

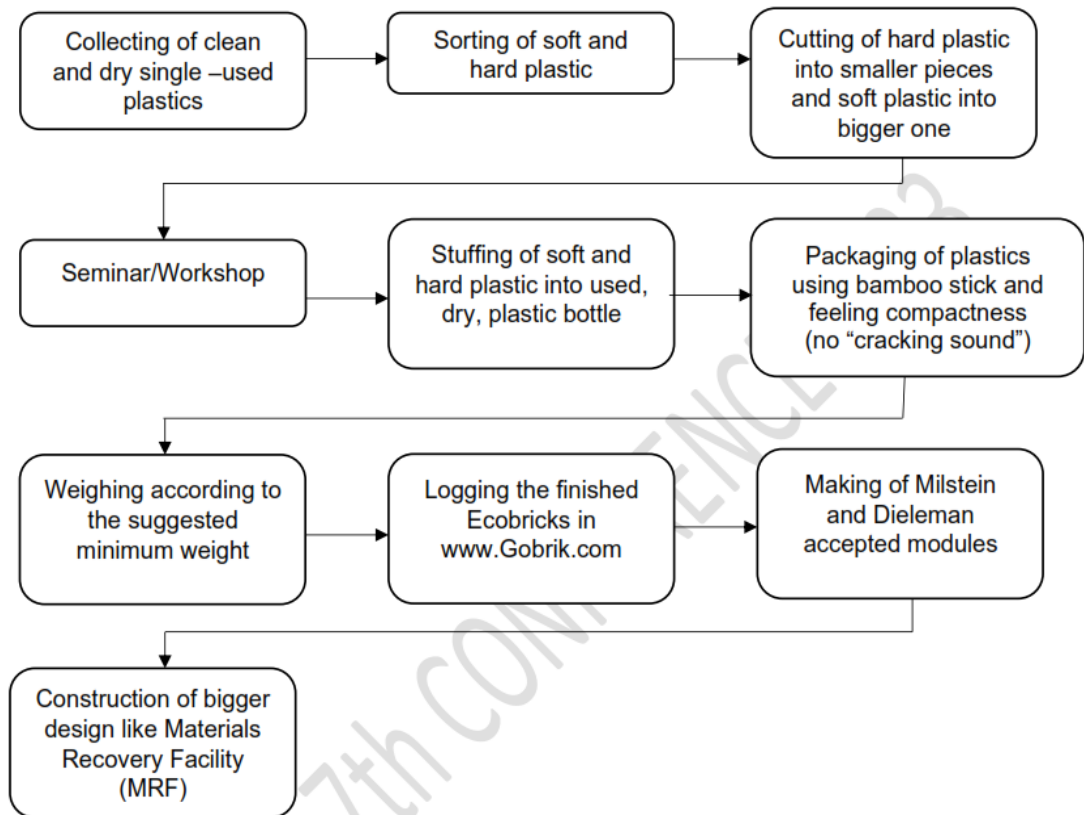
The second box is the Process of proper making and logging of Ecobricks in [www.GoBrik.com](http://www.GoBrik.com) for validation.

The third box represents the Output, which in this project are the useful materials/modules and structures and the Materials Recovery Facility (MRF) out of Ecobricks, improvement of the solid waste management in schools and community, and the empathy and care for the environment from parents, guardians, teachers and especially for the students.

**Figure 1**  
Conceptual Framework of the Study



**Figure 2**  
The Flow Chart Showing How the Project was Conceptualize



**2.2 Presentation, Analysis, and Interpretation of Data**

This part includes the presentation, analysis, and interpretation of data that aim to assess the impact of Project HOME (Helping Our Environment in Making Useful Ecobrick) in Kasiglahan Village National High School.



### Demographic Profile of the Respondents

The following statistical tools were used to analyze and interpret the data collected:

Frequency Distribution and Percentage. It was used to present and analyze the profile of the respondents.

Weighted Mean. It was used to interpret and analyze the impact of Project HOME. The following scale was used:

Scale	Interval	Qualitative Description
4	3.50 – 4.0:	Highly Acceptable/ Recommended
3	3.00 – 3.49:	Acceptable/ Recommended
2	2.00 – 2.99:	Moderately Acceptable/ Recommended
1	1.00- 1.99:	Least Acceptable/ Recommended

T-Test and Analysis of Variance (ANOVA). They were used to determine if there was a significant difference by the respondent when grouped according to their profile.

Table 1. presents the frequency and percentage distribution of the respondents' profiles.

Profile	Gender	Frequency	Percentage
	Male	28	29.78
	Female	66	70.21
	<b>Age</b>	Frequency	Percentage
	10-20	58	61.70
	21-30	10	10.63
	31-40	12	12.77
	41-50	14	14.89
	51 and above	0	0
	<b>Position</b>		
	Students	62	65.96
	Teacher	32	34.04
	<b>Total</b>	<b>94</b>	<b>100</b>

Based on the table, the distribution between females (F=66 or 70.21%) is higher than males (M=28 or 29.78%) or 94 of the total number in distribution. Most of the respondents are within the acceptable age of 10-20 (58 or 61.70%) years old. The data revealed that most of the respondents are students.

Table 2  
Comparison of Respondents' Profile in Terms of Gender

Gender			
Indicator	P-Value	Decision	Remark
Cleanliness	0.55	Accept Ho	Not Significant Not Significant
Recycling	0.26	Accept Ho	Not Significant
Creativeness	0.26	Accept Ho	Not Significant
Proper Disposal	0.30	Accept Ho	Not Significant

*Legend: Significant at  $P < 0.05$*

Table 2. presents the comparison of respondents' profile of the Impact of Project HOME in terms of age. Concerning cleanliness, since the computed P-value of 0.55 is greater than the 0.05 level of significance, thus, the null hypothesis is accepted. Therefore, there is no significant difference in the impact of Project HOME among the respondents as to cleanliness when gender is considered.

Similarly, concerning Recycling, since the computed P-value of 0.26 is greater than 0.05 level of significance, thus, the null hypothesis is accepted. Therefore, there is no significant difference in the recycling of the Impact of the Project HOME among the respondents as to recycling when gender is considered.

Likewise, about usefulness, since the computed P-value of 0.480 is greater than the 0.05 level of Creativeness and usefulness, thus, the null hypothesis is accepted. Therefore, there is no significant difference in the Impact of the Project HOME among the respondents as to creativeness and usefulness when age is considered.

Finally, with regard to proper disposal, since the computed P-value of 0.261 is greater than the 0.05 level of significance, thus, the null hypothesis is accepted. Therefore, there is no significant difference in the impact of the project HOME among the respondents as to proper disposal when age is considered.

Table 2.1  
Comparison of Respondents' Profile in Terms of Age

Indicator	P-Value	Decision	Remark
Cleanliness	0.726	Accept Ho	Not Significant Not Significant
Recycling	0.727	Accept Ho	Not Significant
Creativeness	0.521	Accept Ho	Not Significant
Proper Disposal	0.523	Accept Ho	Not Significant

*Legend: Significant at  $P < 0.05$*

Table 2.1. presents the comparison of respondents' profile of the Impact of Project HOME in terms of occupation. Concerning cleanliness, since the computed P-value of 0.726 is greater than the 0.05 level of significance, thus, the null hypothesis is accepted. Therefore, there is no significant difference in the impact of Project HOME among the respondents as to cleanliness when occupation is considered.

Similarly, about creativeness and usefulness, since the computed P-value of 0.521 is greater than the 0.05 level of significance, thus, the null hypothesis is accepted. Therefore, there is no significant difference in the creativeness and usefulness of the Impact of Project HOME among the respondents as to recycling when occupation is considered.

Likewise, with regard to creativeness and usefulness, since the computed P-value of 0.521 is greater than the 0.05 level of Creativeness and usefulness, thus, the null hypothesis is accepted. Therefore, there is no significant difference in the Impact of the Project HOME among the respondents as to creativeness and usefulness when occupation is considered.

Finally, concerning proper disposal, since the computed P-value of 0.523 is greater than 0.05 level of significance, thus, the null hypothesis is accepted. Therefore, there is no significant difference in the impact of the project HOME among the respondents as to proper disposal when occupation is considered.

Table 2.2.  
Comparison of Respondents' Profile in Terms of Position

Indicator	P-Value	Decision	Remark
Cleanliness	0.199	Accept Ho	Not Significant
Recycling	0.200	Accept Ho	Not Significant
Creativeness	0.262	Accept Ho	Not Significant
Proper Disposal	0.199	Accept Ho	Not Significant

*Legend: Significant at  $P < 0.05$*

Table 2. presents the comparison of respondents' profile of the Impact of Project HOME in terms of position. Concerning cleanliness, since the computed P-value of 0.199 is greater than the 0.05 level of significance, thus, the null hypothesis is accepted. Therefore, there is no significant difference in the impact of Project HOME among the respondents as to cleanliness when position is considered.

Similarly, concerning Recycling, since the computed P-value of 0.200 is greater than the 0.05 level of significance, thus, the null hypothesis is accepted. Therefore, there is no significant difference in the recycling of the Impact of the Project HOME among the respondents as to recycling when position is considered.

Likewise, with regard to usefulness, since the computed P-value of 0.262 is greater than the 0.05 level of Creativeness and usefulness, thus, the null hypothesis is accepted. Therefore, there is no significant difference in the Impact of the Project HOME among the respondents as to creativeness and usefulness when position is considered.



Finally, about proper disposal, since the computed P-value of 0.199 is greater than the 0.05 level of significance, thus, the null hypothesis is accepted. Therefore, there is no significant difference in the impact of the project HOME among the respondents as to proper disposal when position is considered.

Table 1.1  
Summary of Comparison the Respondent's Profile

Profile	P-Value	Decision	Remark
Gender	0.57	Accept Ho	Not significant
Age	0.79	Accept Ho	Not Significant
Position	0.08	Accept Ho	Not Significant

*Legend: Significant at  $P < 0.05$*

Table 3

Summary of the Impact of the Project HOME in terms of Cleanliness, Recycling, Creativeness and Proper Disposal as Assessed by the Respondents

Indicator	Average Weighted Mean	Qualitative Description
Cleanliness	3.51	Highly Acceptable
Recycling	3.53	Highly Accepted
Creativeness	3.47	Acceptable
Proper Disposal	3.65	Highly Acceptable

**Overall Recommendation 3.54 Highly Acceptable**

*Legend: 1.00-1.49 Least Acceptable (LA), 1.50-2.49 Moderately Acceptable (MA), 2.50-3.49 Acceptable (A), 3.50-4.00 Highly Acceptable (HA)*

Table 2. presents the summary of the Impact of Project H.O.M.E. in terms of cleanliness, recycling, creativity and proper disposal as assessed by respondents. The table reveals that all the indicators as to cleanliness (AWM= 3.51), recycling (AWM= 3.43), creativeness (AWM= 3.37), and Proper disposal (AWM= 3.65), are rated as "highly acceptable. Furthermore, a grand weighted mean of 3.54 was obtained which strengthens the claim that the impact of the Project HOME is "Highly acceptable" by the respondents.

Thus, the results imply that the Impact of the Project HOME may be accepted and sustain in the community.

Table 4  
The Top 10 Countries on GoBrik by Authenticated Plastic

Country Name	Ecobrickers	Cities	Plastic
England	21,787	1830	5046kg
Philippines	6,764	314	3461kg
Indonesia	3,264	233	1018kg
South Africa	1,337	314	3461kg
Scotland	1,559	220	231kg
Wales	1,233	190	155kg
Unites States	916	332	44kg
India	148	41	30kg
Costa Rica	25	9	10kg
Australia	247	29	9kg

Table 4.1  
The Top 10 Cities on GoBrik by Authenticated Plastic

City	Country	Ecobricks	Briks	Plastic
Rodriguez	Philippines	84	2817	1,027.7.kg
Vallehermoso	Philippines	1	1960	397.0kg
Kota Tanjungpinang	Indonesia	123	859	307.0kg
Cadiz	Philippines	2	463	260.3 kg
Dumaguete City	Philippines	63	1520	161.7kg
Busuanga	Philippines	3	288	154.8kg
Stroud	England	92	508	145.1kg
East London	South Africa	83	660	1373kg
Manila	Philippines	1379	1208	133.0kg
Samarang	Indonesia	535	727	107.3kg

Table 4.2

The Top 10 Communities on GoBrik by Authenticated Plastic

Community	Location	Plastic
Kasiglahan Village National High School	Rodriguez Rizal Philippines	686.4kg
Vallehermoso National High School	Vallehermoso, Negros Oriental Philippines	397.0kg
Land Bank of the Philippines	Manila, Metro Manila Philippines	373.2 kg
Bank Sampah Tanjungpinang Kepri	Kota Tanjungpinang Kepulauan, Indonesia	340.7kg
Montalban Heights National High School	Rodriguez, Rizal, Philippines	335.2kg
New Forest Aquaponics	Hampshire, England	299.2kg
Club Paradise Palawan	Palawan, Philippines	277.3kg
City ENRO-Cadiz	Cadiz City, Negros Occidental, Phil	260.3kg
Cittadini EcoGuardians	Dumagete City, Negros Oriental, Phil	161.3kg
The Earth Community	City of Manila, Philippines	149.9kg

Table 4.3  
The Top 10 Ecobrickers on GoBrik

Ecobricker	Community	Location	Plastic
Lizel Labo	Kasiglahan Village NHS	Rodriguez Rizal Philippines	490.3kg
Maricar Limpot	Vallehermoso NHS	Vallehermoso, Negros, Philippines	325.3kg
Elmerlyn Dionisio	Montalban Heights NHS	Rodriguez, Rizal Philippines	325.3kg
Camille Bayot	Club Paradise Palawan	Busuanga, Palawan, Philippines	2773.kg
Rian Trinidad	City ENRO- Cadiz	Cadiz, Western Visayas, Philippines	260.3kg
Mary Jane Bayaton	Kasiglahan Village NHS	Rodriguez, Rizal Philippines	146.7kg
Nolan Delos Santos	DSBrick	Boracay Island, Philippines	93.7kg
Lucie Mann	New Forest Aquaponics	Hythe, Hampshire, England	93.5kg
Hindra Atmaja Kom	Bank Sampah, Kepri	Kota, Riau, Indonesia	86.9kg
Jericho Von Miranda	Land Bank of The Phil	Metro Manila Philippines	707.kg

### 3.1 Results And Discussion

The data were presented with the aid of this appropriate statistics tool and findings were given implications to strengthen the concepts. Figure 3, Table 4, and Table 4.1 - 4.3 present the top 10 countries, cities, and communities that logged and were authenticated by www.Gobrik.com by Ecobrickers.

As revealed by Figure 3 on the result of the logging of different countries, the Philippines ranked 2 in the top 10 countries, Rodriguez ranked 1 for the top 10 cities, Kasiglahan Village National High School ranked 1 for the top 10 communities and Lizel Labo ranked 1, while Mary Jane Bayaton ranked 6 for top 10 Ecobrickers all from Rodriguez District II teachers with the help of students Ecobrickers. The findings indicated that eco-bricking helps lessen the solid waste in the schools and community, it also helps the students, parents, guardians, and teachers be concerned for our environment.

### 4.1 Conclusion

Based on the results, the following conclusions were decided:

- There is no significant difference in the impact of Project HOME in terms of the respondents' profile.
- There is the improvement of solid waste management in schools and communities.
- There is empathy and care for the environment from parents, guardians, teachers, and especially for the students.

### 4.2 Recommendations

Based on the findings and conclusions drawn in this project, the following recommendations are hereby presented.

- The Project H.O.M.E (Helping Our Environment by Making Useful Ecobricks) may be used in different schools and communities within the Division of Rizal to improve solid waste management, particularly with single-use plastics.
- Environmental awareness should be developed among students, parents, guardians, and teachers, making them more sensitive and responsible for Mother Earth.
- There is a need of continuously gather, document, validate, and update data for integration of the curricula for the Project H.O.M.E. Good relationships within the schools and communities must be maintained.
- Additional projects to be proposed that are parallel with other projects relating to the environment.

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- YNARES ECO SYSTEM or YES TO GREEN PROGRAM  
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Deped Order No. 72 series of 2003 Establishment of Youth for Environment in Schools Organization  
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Glenda Damias (Facilitator of Ecobricks Philippines)  
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