

Environmental Practices of Batanguenos as Input to Model Development

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Abstract – *The study is conducted to determine environmental practices of Batangueños as an input for a model. Specifically, it determined the different practices of Batangueños in terms of protection, environmental programs implemented by government officials, identified factors affecting compliance, and lastly proposed a model framework that will aid the compliance of Batangueños to environmental laws and programs. This utilized descriptive research design involving two hundred fifteen respondents from ten municipalities in Batangas. A self-made questionnaire that underwent content validity was used to collect data and analyze using ranking and weighted mean. Results revealed that Batangueños protect the environment through practicing 5s; solid waste management; reduce, reuse and recycle; coastal clean-up and abiding to anti-plastic ordinance. Factors that hinder compliance are the Batangueños inadequate information on different environmental laws and programs as well as motivation and resistance among the Batangueños are the factors that hinder the compliance. Government officials did not strictly monitor the implemented programs and laws, neither the punishment among non-complaints. Lastly, a model framework that will enhance compliance has been proposed.*

Keywords – *Environmental Practices, Batangueños, Environmental Practice Model*

INTRODUCTION

Humans constantly interact with the environment. They are able to develop such practices that may either protect or destroy the environment. They are given the capability to develop such laws, practices and activities that modified almost every part of the environment. With the current situation of the environment today, there is a need to carry out our responsibility as it is our second home. Compliance with each practice is not only for the benefit and enhancement of the environment but to sustain it for future generations as well.

There are different environmental laws and practices that have been implemented in different areas of

Batangas. These include the anti-plastic ordinance, 5S, coastal clean-up, solid waste management and reduce reuse and recycle. These are practices that enable us to protect our environment. Considering that these practices have been implemented, still there are individuals who do not comply to these practices. Compliance is when an individual changes his or her behavior in response to a clear or implicit request made by people with the authority to do so [1]. There is a big challenge for every individual to follow these practices such as proper disposal of waste products, right segregation of trash, minimizing the use of energy consumption, correct organizing of things and the like. High compliance to these is the key to attain an environment beneficial to all individual.

Lawas, et al. [2] mentioned that in any community-based natural resources, management of activities, programs and active participation is essential. It means adapting to environmental laws, regulations and standards. The goal of implementing an effective compliance program is to facilitate consistency to develop practices for environmental protection. Thus, compliance with these policies and procedures should be an integral part of the daily living. In addition, government officials should play their roles in carrying out their duties and responsibilities in promoting good environmental programs in a way that it can educate and influence the community people with the goal of achieving enhance compliance to environmental laws and programs.

Furthermore, Efstathiou, et al. [3] cited that there are significant factors that affect the compliance of an individual to follow laws and practices regarding the protection of our environment. These factors greatly affect the compliance of Batangueños as they play a big part in the assertiveness of an individual to change his or her behavior to comply with such practices. Moreover, this has a similarity to the status of Batangas wherein there have been implemented environmental laws and practices by government officials but still there are non-complaints.

In relation to this, Silang [4] noted that compliance to environmental protection is a vital role when it comes to participation of every individual in the community. It is a key foundation for good outcome evaluation. Participation could be either voluntary or mandatory. Participation of the people in the different programs needs to be informed and organized. This means that proper information dissemination is also a must to increase the participation of the community people. A model will aid in this matter, thus there is a necessity for a sustainable model that will aid community people in complying with the different environmental laws and practices to achieve and support the objectives of environmental compliance.

With the current environmental status of Batangas, there is an increasing need to modify the behavior of the people to comply with the environmental laws and programs. The researchers wanted to identify the reason why there are still people who do not comply to the different environmental laws and programs despite its full implementation.

OBJECTIVES OF THE STUDY

This study aimed to determine the environmental practices of Batangueños and contribute to the enhancement of compliance to laws and practices. Specifically, it identified the different environmental practices of Batangueños in terms of compliance to environmental laws and policies; determined the programs of the local office; identified factors affecting compliance, and lastly, developed a model framework that will aid in the compliance of Batangueños to environmental laws and programs.

Theoretical Framework

This research is anchored on the theory of Lawrence W. Green, PRECEDE – PROCEED Model [5]. This model is a framework for the process of systematic development and evaluation of health education programs underlying this model is health education that is dependent on voluntary cooperation and participation of the client in a process which allows personal determination of behavioral practices. The degree of change in knowledge and health practice is directly related to the degree of active participation of the client. PROCEED was added to the framework in recognition of the emergence of and need for health promotion interventions that go beyond traditional educational approaches to changing unhealthy behaviors, thus the purpose of this model is to direct initial attention to outcomes rather than inputs. This forces planners to begin the planning from the outcome point of view.

This Precede/Proceed model has a deep connection in this study because after having a thorough understanding of the concept and the results of study, the researchers will be able to identify the needs of the community people in terms of good environmental practices.

Theoretical Paradigm

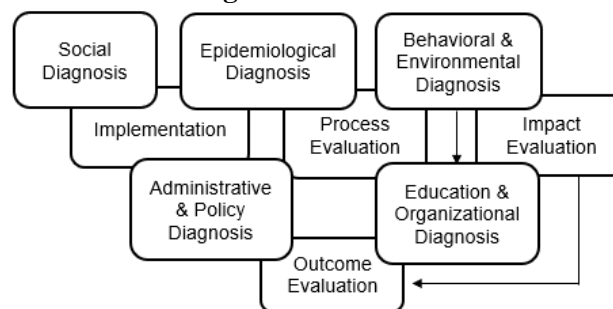


Figure 1. Precede-Proceed Model

Conceptual Framework

Environmental practices in terms of protection and degradation are very important in maintaining our surrounding clean, well ventilated and healthy because it can either contribute in contaminating and destructing our environment or it can also help in maintaining our environment healthy. There are different environmental practices such as waste segregation, prohibition of the use of plastics, recycling programs, 5s program, etc. These practices are very helpful in maintaining our environment healthy. In contrary, improper waste management such as burning waste, littering, practices that could contaminate and cause destruction to the environment. The effect of environmental practices depends on how the individual do their roles and their compliance to the environmental programs and laws in maintaining the environment healthy. The effects of improper environmental practices are global warming, pollution, typhoons, floods, and ozone depletion. If not given proper attention, despite all the programs that have been proposed, continuous contamination and destruction of the environment can occur.

The purpose of the study is to identify the different environmental practices of Batangueños and to know the different environmental laws and programs that are being implemented by the government to determine the compliance of Batangueños, and therefore help increase and enhance their compliance to the laws and programs for the environment. The researchers would like to determine and assess the different environmental practices of Batangueños and how it affects the environment. Furthermore, the researchers would also like to propose a model framework or module that will aid in the compliance of Batangueños to the

environmental laws and programs. The researchers also believe that by doing this, it can contribute in a way of helping the community in achieving a healthy environment that can make the people life better and enhance their health status for a brighter future. Everyone has the capability of doing the change they want to see.

Conceptual Paradigm

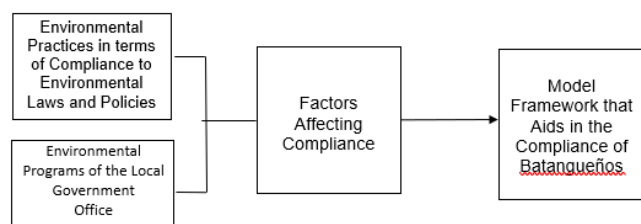


Figure 2. Environmental Practices and Factors Affecting Compliance

Figure 2 shows the objectives of this study and the expected outcome. First and foremost, this study aimed to identify the different environmental practices in terms of compliance to environmental laws and policies. During the assessment of this practices, the researchers could consider the environmental programs being implemented by the local government office, thus the factors affecting their compliance could also be identified. After the thorough assessment, a model framework will be developed to increase the compliance of the Batangueños.

METHODS

Design

The researchers used descriptive design. Kowalczyk [6], defined descriptive research as a study designed to depict the participants in an accurate way, descriptive research is all about describing people who take part in the study. It is very much similar in what the researches need because the study focused on the environmental practices of Batanguenos. In addition to that, the researchers were also able to determine the environmental programs implemented by government officials. Using this research design, also enabled the researches to identify the different factors that hinders the compliance of the people in the programs in Batangas.

Participants

This research involved 215 respondents from ten chosen municipalities of Batangas namely: Batangas City, Bauan, Calaca, Lemery, Tanauan, Balayan, San Nicolas, Malvar, Agoncillo and Cuenca. The chosen municipalities were given by the provincial environmental resource office because according to the

officials, there is a need to increase the compliance of the respondents to the environmental laws. Respondents are chosen with criteria of male or female, 18 years old and above and a resident of any municipalities mentioned above. The researchers used purposive and judgment sampling, wherein the people who are fit in the criteria and are knowledgeable enough to answer the questionnaire provided with different programs were chosen as participants. The researchers also utilized the help of local government implementers to answer the questionnaire designated for them.

Instruments

The researchers utilized self-made questionnaire, which is the product of review of literature. Items or questions under the main variables were formulated, which were grouped into four parts, namely; environmental practices in terms of compliance to environmental laws and policies; environmental programs implemented by the local government officials, and lastly, the factors affecting compliance. The formulated instrument underwent content validation by the experts in the field. After which, a revision was made by incorporating the suggestions and recommendations prior its administration.

Procedures

Upon review of literature, the researchers formulated a title and objectives regarding the chosen matter, which are the environmental practices of Batanguenos, and have undergone validation of the experts and upon approval, proceeded in making self-made questionnaires. A letter of permission was made to conduct the research and sent it to the Dean and to the Barangay Chairman of different barangays under the chosen municipalities of Batangas. The self-made questionnaire that contains the different environmental programs in terms of Protection and Degradation and the Factors that hinder compliance undergone validation of the Clinical Instructor, Panelist, Grammarian, Statistician and of the Dean by reviewing each question thoroughly and checking the internal and external validity of the questionnaire's content because it might affect the results. The instrument was distributed to the chosen participants in the ten municipalities of Batangas. Orientation was rendered for the respondents to acquire knowledge and for them to verbalize any question towards the researchers.

Analysis

The data gathered were analyzed using descriptive statistics. Descriptive statistics was used to tell about, describe and synthesize data. To describe a set of data,

the researchers used percentage and ranking for frequency distribution to determine the highest and lowest value. To interpret the practices, implementation and compliance of community people, weighted mean was utilized.

RESULTS AND DISCUSSION

This part presents the data gathered, analysis and interpretation of the environmental practices of Batangueños in terms of protection.

Table 1. Environmental Practices of Batangueños in terms of Anti-Plastic Ordinance

Indicators	WM	VI	Rank
1. Using paper bag (brown bag) instead of plastic bags	3.31	Practiced	2
2. Using paper cups instead of plastic cups as beverage containers	3.09	Practiced	5
3. Bringing eco-bags as grocery containers	3.41	Practiced	1
4. Storing used paper bags for the next use	3.20	Practiced	3
5. Proper disposal of plastic wastes to prevent clogging of drainage and maintaining the cleanliness of the environment	3.19	Practiced	4
Composite Mean	3.24	Practiced	

Legend: 3.50 – 4.00 – Highly Practiced (HP); 3.49 – 2.50 – Practiced (P); 2.49 – 1.50 – Less Practiced (LP); 1.00 – 1.49 – Not Practiced (NP)

Table 1 shows the environmental practices of Batangueños in terms of anti-plastic ordinance, with a composite mean of 3.24, and verbally interpreted as practiced. This means that community people are following the rules in the anti-plastic ordinance implemented by the government officials.

The use of eco-friendly bags rather than using plastics as containers is practiced by the community people, and first among the items as it obtained the highest weighted mean of 3.41. It is evident that the old practice of using plastic cups as disposable containers is no longer practiced, instead of using such containers, community people rather use paper cups or reusable containers to not only save money but to make the environment more conducive for the next generations.

This finding is like what People for the Ethical Treatment of Animals once said that using your own bags means that more plastic bags will not end up in a landfill or other places where wildlife can become entangled in them or eat them. It also saves money because many grocery stores offer a discount when you take your own bags. In addition to that, eco-bags are a sturdy transport

for your precious cargo because cloth totes are much sturdier and less likely to cave under pressure than plastic or paper bags. So, no more panicking that your plastic bag might split and shatter.

The use of paper bag (brown bag) instead of plastic bag is practiced, with a weighted mean of 3.31. This proves that the respondents of the study are following the Environmental Code of Batangas City because they have the fear of paying for the fine if they were caught using plastic bags or any plastic at all.

It is clearly written in the Environmental Code of Batangas City, Ordinance No. 16, Series of 2010, that “The use of plastic bags as packaging materials for dry goods is prohibited. All business establishments shall pack dry good products in biodegradable materials such as recycled product carton boxes and paper bags. No business establishment shall offer or sell plastic bags to be used as secondary packaging material or as primary packaging on dry goods.” Dry goods maybe packed in plastic bags or non-biodegradable packing materials if such packing materials were supplied by the costumers and it also means that old practice of asking saleslady to wrap all the grocery items in a plastic bag was no longer practiced because instead of asking, the community people now provide eco-bag for the saleslady to wrap their goods in.

Storing used paper bags for the next use was found out to be practiced by the Batanguenos. This means that the respondents of the study are practicing the Environmental Code of Batangas City by using of eco-bags when going to the supermarket, using of brown bags instead of paper bags and by storing used eco bags for the next use. The respondents of the study also stated that it can practically save money and lessen the pollution in the environment.

On the other hand, least practiced is the use of paper cups instead of plastic cups as beverage container. It was obtained in the interview that the community people do practice this but is in the least of their priorities because utilizing paper cups is only occasional and they do not have too many occasions to celebrate. And besides, some of the community people prefer the use of glass instead of paper cups. Most of them have said that utilization of plastic containers will add more harm to the environment but some of them admitted that they still use reusable plastic cups thinking that it will help them save money and some stated that they recycle it for later use.

Proper disposal of plastic wastes to prevent clogging of drainage and maintaining the cleanliness of the environment came in fourth in rank and has a verbal interpretation of practiced, with a weighted mean of 3.1. It was learned through interview that the community

people are concerned with the proper disposal of plastic wastes because to them when the drainage clogs it will cause floods and would cause dirty environment.

In the journal of Patrick Ferry [7], he stated that to achieve environmental stability there is a need to work together with proper recycling and disposal of wastes. Without proper waste disposal, the environment will be greatly compromised. Sustainability in normal terms can be easily defined but when it comes to the environment it can be frightening because it is a fact that we only have one world, environment and ecological system to live in. "Keeping up or maintaining" could lead the society in a more drastic environment not conducive for living.

Table 2. Environmental Practices of Batangueños in terms of 5S Program

Indicators	WM	VI	Rank
1. Sorting papers, leftovers, plastics and recyclable waste materials	3.04	Practiced	3
2. Donating unused/old clothes	2.95	Practiced	4
3. Participating in organizing the space for waste disposal in the community	2.94	Practiced	5
4. Observing the cleanliness of the environment by following the "Tapat ko, Linis Ko" practice	3.35	Practiced	1
5. Arranging necessary items in a neat and orderly manner so that they can be easily retrieved for use	3.17	Practiced	2
Composite Mean	3.09	Practiced	

Legend: 3.50 – 4.00 – Highly Practiced (HP); 3.49 – 2.50 – Practiced (P); 2.49 – 1.50 – Less Practiced (LP); 1.00 – 1.49 – Not Practiced (NP)

Table 2 shows that Batanguenos practiced the 5s program as evident by a composite mean of 3.09. It is evident that they are organized and systematic as they make sure that their environment is free from liters and other wastes.

It can be gleaned from the table that respondents practiced "Tapat ko, Linis ko", with a weighted mean of 3.35. Batanguenos are known to be disciplined as they follow the slogan "Eto Batangueno, Disiplinado". Making their environment tidy is one of their priorities. They perceived that it is their responsibility to make their own environment clean and nice to look at even though some of them have small houses and surroundings.

Arranging necessary items in a neat and orderly manner so that they can be easily retrieved for use has a weighted mean of 3.17 and has a verbal interpretation of practiced. This practice was observed during the surprise

visit by the researchers to the community people and upon assessment and interview, they have said that keeping things arranged not only keeps the environment clean, but it mainly saves time when they are in a rush and they need to do some packing.

In the study done by Adarlo, et al. [8], they mentioned that 5S program creates a cleaner, safer and more organized work environment. For continuity of quality improvement, there is a need for involvement, accountability and sustainability for achieving an enhance efficiency of work environment in relation with the 5S program.

Sorting papers, leftovers, plastics and recyclable waste materials is also practiced, with a composite mean of 3.04 and has a verbal interpretation of Practiced. The respondents of the study show that they are observing cleanliness within the community and organizing their things as well as sorting waste products for the orderliness of the environment.

In addition to that, they also said that, 5S is the only way keep the environment clean and to promote the efficiency and safety of the working environment [8].

On the other hand, donating of unused or old clothes was found out to be practiced but is in the least of their priorities. Because some of the respondents verbalized that it is indeed good to share things with the needy but donating of unused clothes is not a practice that they can do on a day to day basis because it is not practical. Although participating in organizing the space for waste disposal in the community ranked lowest, with a composite mean of 2.94 it is still being practiced. The respondents of the study are aware of doing such practices to help maintain the cleanliness of the environment, but these were included in their least prioritized things to do because some of the respondents stated that they do not have the time, energy and initiative to participate in the said programs.

Table 3. Environmental Practices of Batangueños in terms of Coastal Environment Program

Indicators	WM	VI	Rank
1. Participating in the yearly coastal clean-up activity in the community	2.78	Practiced	3
2. Participating in tree planting activities	2.62	Practiced	5
3. Utilizing the recycle bins near the coastal area	2.68	Practiced	4
4. Not littering or throwing waste products near the coastal area	3.01	Practiced	2
5. Maintaining the cleanliness of the coastal environment	3.06	Practiced	1
Composite Mean	2.83	Practiced	

Legend: 3.50 – 4.00 – Highly Practiced (HP); 3.49 – 2.50 – Practiced (P); 2.49 – 1.50 – Less Practiced (LP); 1.00 – 1.49 – Not Practiced (NP)

Table 3 shows that Batanguenos practiced the Coastal Environmental Program as evidenced by the total composite mean of 2.83. It means that Batanguenos participate in coastal clean-up activities regularly. In fact, as early as grade 1, the different schools (public and private), encouraged their students to actively participate in the said program. They organized an organization that support the program. This practices shows a good attitude towards the coastal areas in Batangas City and as evidenced by during coastal clean-up, a lot of waste is being recovered from different places. Respondents verbalized that 4Ps' members are required to participate in the coastal clean-up activity annually as it is one of the projects of the government that will help in protecting the environment.

Lopez [9] passed the DENR Administrative Order No. 2016-26 dated October 17, 2016, which defined CMEMP as a "national program which aims to comprehensively manage, address and effectively reduce the driver and threats of degradation of the coastal and marine ecosystems to achieve and promote sustainability of ecosystems, food security and climate change resiliency for the benefit of the present and future generations".

Respondents practiced maintenance of cleanliness of the coastal environment, with a weighted mean of 3.06. In the nearby coastal areas, the researchers noticed a lot of signage regarding the reduction of waste like "Bawal Magtapon Dito", Magtapon sa Tamang Basurahan" and "Bawal Magkalat, May Multang P 1,000". It is a must to every individual to preserve the coastal areas as it represents our country. The respondents verbalized that they are required to follow the rules given or informed by their barangay officials.

This finding is like what Payne [10] stated that due to our increasing population, our coastal areas were under increasing pressure. A lot of people lived in the coastal areas that caused our coastal areas be put under pressure. Different coastal environment programs are implemented to reduce the destruction and prevent further damage to our natural resources. Its focus is on the coastal areas protection, conservation and management. This Act strives "to balance the conservation and development of the nation's coastal, marine and ocean resources". Its mission is to, "sustain coastal communities, sustain coastal ecosystems and improve government efficiency".

Disposing of waste to the proper containers instead of littering near the coastal areas is practiced by Batangueños. Batangueños enjoy what the coastal environment must offer, thus, some people avoid destruction of our surroundings and the water.

Respondents stated that they are instructed by the barangay officials to lessen the waste or do not litter in the ocean, or near the coastal areas as it is part of the policy. Also, they said that they are using the water near the lakes and rivers when they wash their clothes and they even get water from it that is why they take care of the coastal areas.

Mecha, et al. [11] stated that the respondent main common practices are the utilization of the recycle bins in the near coastal areas to dispose their waste or they throw it at compost pit. While the least practiced by the respondents is their noncompliance to the policies and the least common were "I do not follow the rules and regulation of the barangays regarding waste disposal", "I throw my waste in the sea" and "I throw my waste anywhere especially when nobody is around". The practices with highest result had the positive effect, while those with the lowest result had the negative effect.

Participation in the yearly coastal clean-up activity in the community is practiced by the residents. Some of the students in different schools are required to take part in the clean-up program. Respondent verbalized willingness to participate in the activity and those formed groups that protect our coastal areas are actively participating. A lot of people still care about our environment and wanted to preserve what is left for our future generations.

Furthermore, Ganzon stated that the Verde Island located in Batangas City is known to be the "center of the center" of marine wildlife but it is also endangered. Therefore, community people in Mabini and Batangas City gathered to join in the Coastal Clean Up last 2009, led by Ocean Conservatory. This activity encouraged people to help in reducing the waste or removing waste from the ocean and it will have increased the awareness of the people to the waste that has been polluting the water. 1.3 million waste was collected all over the country last year from 15 provinces that had participated and Batangas has the highest number of collected waste. Among the 37,000 volunteers last year Vanessa Sta. Ana, a professional diver was one of them. She stated that she did not expect to see "diapers, shoes and clothes" underwater. 50 percent out of the 1.3 million waste collected were plastic bags.

On the other hand, tree planting activities is least practiced. As verbalized by some of the respondents, there is a requirement from the barangay officials, as this is one of the projects. It also helps in making the surroundings beautiful, reduce flood and most importantly, it reduces pollution. Respondents stated that it is one of the simple things to help in saving Mother Earth. As you can notice, in some houses, there are a lot

of different plants and trees that give beautiful shade to the surroundings and it is the most important aspect that helps filter the polluted air.

Similarly, James [12] pointed out that planting trees and shrubs around the landscape of someone's home help with the electricity. It helps through reducing the heat inside the house and the use of air-conditioning will be limited and if there were shrubs outside it will also require less energy to produce cool wind, not only do they help in electricity of an individual it also helps reduce heat cost when a home is in windbreak and helps in good ventilation. Individual trees and shrubs have their own values; they just differentiate from the size, species, condition and function. Trees have a very big help in us because they have a direct and indirect effect to the community people. Trees can change the setup of the community environment through improving ventilation, providing shades, preventing too much heat, conserving water and providing wildlife habitat.

Utilization of recycle bins in the coastal area is practiced by the residents with a weighted mean of 2.68. Other officials are required to provide recycle bins in the coastal areas. It is noticed that a lot of people follow the rules as there are signage posted near the beaches and based on our observation, there is less waste in the water that could prevent pollution. Batanguenos are disciplined, they are good followers.

There are important simple practices for us to follow and be our guide in preserving our coastal areas. Here are some of the suggested tips, first, do not throw waste such as food, plastic, papers, cigarette butts, and if possible take it from the shore and throw it in the proper receptacle or recycle bins, retrieve any waste that you may see in the water, use reusable product, avoid bringing packaged food or foods with plastic packaging and canned goods and keep your things on the deck, for it not to fall off in the water for it can also harm the sea creatures.

Table 4 shows that Batanguenos practiced Solid Waste Management Environment program evident by a total composite mean of 2.78. Solid waste management program is very influential in the life of Batanguenos as it is still being implemented and is kept monitored in every community.

Respondents practiced the use of biodegradable and non-biodegradable containers for recycling and reducing garbage in the community, with a weighted mean of 3.01. Batanguenos are known to be disciplined when it comes to segregating their waste through the provision of biodegradable and non-biodegradable containers because they need to comply to the policy implemented by the government. Respondents agreed regarding this

matter, that they provided different trash bins, because they are also tasked and obliged to separate their waste before collection. Noncompliance to proper segregation of waste will result to non-collection of garbage.

Table 4. Environmental Practices of Batanguenos in terms of Solid Waste Management Environment Program

Indicators	WM	VI	Rank
1. Attending seminars and talks to widen knowledge about solid waste management	2.67	Practiced	4
2. Ensuring proper segregation and disposal of solid waste products	2.92	Practiced	2
3. Using biodegradable and non-biodegradable containers for recycling and reducing garbage in the community	3.01	Practiced	1
4. Using alternatives ways in waste disposal such as burying and decaying instead of burning waste	2.58	Practiced	5
5. Utilizing environmental resources such as the Material Recovery Facility (MRF) in the community	2.71	Practiced	3
Composite Mean	2.78	Practiced	

Legend: 3.50 – 4.00 – Highly Practiced (HP); 3.49 – 2.50 – Practiced (P); 2.49 – 1.50 – Less Practiced (LP); 1.00 – 1.49 – Not Practiced (NP)

Similar to this, ensuring proper segregation and disposal of solid waste products is being practiced by Batanguenos as evidenced by a weighted mean of 2.92. This only means that people prioritize or still practiced the proper segregation which also benefits them and the environment. Batanguenos can now see the changes of our environment, first is our weather changes, that's why a lot of people nowadays, follow such simple practices to prevent further damage and help in reduction of pollution.

It is like the study of Bajet, et al. [13], which stated that segregation of the collected waste, recyclable wastes or compostable waste was utilized. Products done from the recycling was very useful for other people, most especially the poor farmers who were given free organic fertilizers. Uy [14], trash disposal is the process of gathering all the garbage together and sorting them out in their proper receptacles. This is done by separating waste and putting it in the right container. To reduce human error, the color coding of containers was made. One color for each trash bin is assigned to identify the difference and it's the obligation of the person to identify which is which, so it is separated correctly. Ferry [7] stated that to achieve environmental stability there is a need to work together with proper recycling and disposal of waste. Without proper disposal, our environment will be greatly compromised.

Third in rank is the utilization of environmental resources such as the Material Recovery Facility (MRF) in the community evident by a weighted mean of 2.71. Community people practiced used of MRF to reduce their plastic waste and help in pollution prevention. Material Recovery Facility is provided in each barangay by their barangay officials in which it is for the sorting the non-biodegradable, biodegradable and recyclable materials. The availability of the material recovery facility helped a lot in reducing their waste.

Similarly, Grate [15] stated that in the community, barangay officials provided Material Recovery facility as it can help in reducing waste materials and plastics is recycled. Mother Earth Foundation [15] stated that they established 1,000 Material Recovery Facility (MRF) in the country for 12 years. They have achieved it through non-stop conduction of workshops and seminars to hundreds of people from school, government agencies and municipalities, organizations and private businesses. Also, they have conducted workshops to over “2,500 barangays, 100 cities and municipalities and more than 130,000 people” led by the higher officials, and schools even the participation of the students and housewives were not missed.

The least practiced by the respondents is the use of alternative ways in waste disposal such as burying and decaying instead of burning waste, with a weighted mean of 2.58. Respondents verbalized that they are prohibited to burn their waste as it is already banned by the government, but most of the respondents still practice the burning of garbage. Respondents are unaware of the effects of burning of their waste, even though it is now strictly implemented that burning of waste is prohibited.

Similarly, Reyes & Furto [16] stated that respondents still moderately practice burning of garbage as they do not care what will happen to their surroundings, while burying of waste underground is slightly practiced. It is either they are not aware of its cause to the Earth or they just do not care. They have found out that improper waste disposal is one of the main causes of global warming together with burning of garbage specially the plastics because they emit an excessive amount of carbon dioxide in the environment. And this causes for the ozone layer to become thin and trap the heat inside of the Earth’s atmosphere.

On the other hand, attending seminars and talks to widen knowledge about solid waste management is least practiced. In Batangas City solid waste management is strictly implemented but most of the community people verbalized that they are too lazy to attend the seminar. It is not the top priority among the residents, but it can contribute a lot to the waste reduction and pollution.

This finding is supported by Dela Cruz [17], in which he stated that National Solid Waste Management Commission (NSWMC) must consider guiding the municipalities in providing seminars and training programs regarding solid waste management and to join forces with other non-government organizations to initiate the activity. Benefits of the SWM programs implemented in the municipalities must be elaborated to the community people. As Municipalities begin the implementation of environmental programs, it is important to calculate possible economic savings they could get from this program and take this result as a key to request a helping hand from the community people. The saved money or any financial resources could be used for other services in the community such as in health, education and recreation activities.

Table 5. Environmental Practices of Batangueños in terms of Reduce, Reuse, Recycle

Indicators	WM	VI	Rank
1. Turning off lights when not in use	3.57	Highly Practiced	1.5
2. Saving water by turning off the faucet when not in use	3.57	Highly Practiced	1.5
3. Reusing old things and making them useful instead of throwing them into the garbage bins	3.31	Practiced	3
4. Recycling goods, cans, paper, plastic, wood, and other recyclable materials	3.17	Practiced	4
5. Buying environmental friendly materials instead of other products that may cause environmental pollution	3.08	Practiced	5
Composite Mean	3.34	Practiced	

Legend: 3.50 – 4.00 – Highly Practiced (HP); 3.49 – 2.50 – Practiced (P); 2.49 – 1.50 – Less Practiced (LP); 1.00 – 1.49 – Not Practiced (NP)

Table 5 shows that Batanguenos practiced reduce, reuse, recycle program (3R’s) evident by a total composite mean is 3.34. Reduce, reuse, recycle program is very common among the Batanguenos as it is one of the factors in that contributes in reducing our waste and pollution prevention.

Like what Sanchez [18] mentioned that reduce, reuse and recycle is a practical way to reduce pollution and keep our surroundings clean. It helps in reducing harmful chemicals and non-biodegradable waste such as plastics and Styrofoam and reusing of paper equipment and recycling of bottles and drinking containers it will help our environment greatly.

Respondents highly practiced turning off lights when not in use, with a weighted mean of 3.57. Based on the interview, the respondents have verbalized that they are very thrifty when it comes to 3R’s usage because it can

increase their electricity bill which cost them too much. So, community people practiced turning off lights as it is the very simple and practical way to save energy.

Energy Saving Trust [19], stated a simple way that we can help our nature is by turning off the lights when not in use. We can not only save energy and reduce our bill but we can also help our nature. Tenorio [20] also stated that young generations have a very important role when it comes to preserving the environment because it is for their own sake and young person's easily absorb new learnings. One of the students named Franco Galope, a Grade 4 student, said that he turns of all the lights when not in use.

Turning off faucet when not in use to save water is also highly practiced, with a weighted mean of 3.57. Most of the respondents verbalized that they are very practical in conserving water and energy which helps to lower their bills and specially to save our mother earth and even a slightest drop of water is very important. They also said when they wash their clothes, the water with soap or used water can still be used for cleaning the floors, rugs and comfort rooms to reduce their water usage.

Individuals do not realize that usage of water contributes many factors that affect the environment. Simply by reducing water use, we can help in our environment, like reduce energy use, reduce water bill, and reduce emission of carbon dioxide, which is one of the major causes of greenhouse effect [19].

Reusing old things and making them useful instead of throwing them into the garbage bins is ranked third, with a weighted mean of 3.31. It is the easiest way for the people to help in reducing waste and pollution, which is reusing old things and making them useful. Most of the respondents verbalized that there are lots of old things and wastes that are stocked that they do not throw immediately but instead they try to recycle it and turn it to useful things.

Sanchez [18] mentioned that by reducing the use of harmful chemicals and containers such as plastics and styrofoams, reusing of paper equipment's and recycling of bottles and drinking containers it will help our environment greatly and reduce the impact to it. Also, by using eco-friendly and biodegradable materials, the pollution will be lessened, and it can be cleaner place for us humans and as we continue to use such materials it will improve our future generations.

Buying environmentally friendly materials instead of other products that may cause environmental pollution is being practiced as evidenced by a weighted mean of 3.08. Most people buy eco-friendly materials such as bag appliances and other materials. Based upon the

interview, most of the respondents recycle plastics, paperbags that can still be used as containers, wrapper and other materials that can be made.

The present finding is further supported by Smith [21] in which he stated that planet earth is now facing a very critical condition because of what we have done to it. The plastics that were made by human caused great damage to the surroundings, most especially to the ozone layer. We people need to improve our self-sustainability and self-sufficiency to save the planet. we can also use co-friendly products, such as paper bags, any recycled materials, fuel less generators, hybrid cars, solar power generator, eco-friendly air conditioners etc. It will not change on your use or productivity, but it will be more efficient and effective. It is the basis of conservation of the environment for a better change.

Respondents least practiced the recycling of goods, cans, paper, plastic, wood and other recyclable materials, with a weighted mean of 3.17. Most of the respondents stated that they only recycle the paper bags and plastics that come from the grocery for the next time they would buy grocery. But they mostly have no idea what could be recycle in other things such as cans, wood and other things and it's just a very small part of the process we take in reducing our waste and those recycled materials are not for long term use.

Recycling Guide [22] suggested some tips on how to reuse recyclable materials or waste instead of throwing them away immediately. Items such as carrier bags can be used as trash bins while paper bags can be used as wrapping paper, twist ties and can be kept for the next use; Jars and pots can be used as containers for foods, used oil, etc.; Newspapers, cardboards, bubble wrap and old box can be used when moving house or store waste; used woods can be recycled to a shoe rack or other things and lots of other things can be made.

Table 6 shows that environmental programs that are implemented by government officials as evident by a composite mean of 2.95. It is evident that they are implementing the different programs in Batangas Province but not to the extent of full implementation. This will affect the compliance of the people to the programs and practices they implemented. Furthermore, it is evident by the different factors associated with the compliance of Batangueños to laws and policies.

Monitoring compliance of people regarding the environmental code that bans the use of plastics and Styrofoam ranked 1, and is fully implemented which has a weighted mean of 3.50. This means that the government officials strictly implement the anti-plastic ordinance within and outside the area of Batangas province.

Table 6. Environmental Programs Implemented by Government Officials

Indicators	WM	VI	Rank
1. Regulating and monitoring of small scale mining and gravel operations such as MRL Gold-Egerton Gold Phils. Inc. at Lobo, Batangas	1.20	Not Implemented	10
2. Giving technical assistance monitoring and enforcement on mineral resource management. (Eg. regulate extraction on mineral resources and promote responsible mining, mineral resources management and promotion (including geological services), mineral licensing and related permitting for exploration	2.50	Implemented	9
3. Giving technical assistance monitoring and enforcement on pollution prevention and control plan formulation	3.25	Implemented	3.5
4. Intensifying forest protection activities such as monitoring illegal loggers, establishing indigenous tree nurseries for habitat restoration, providing technical advice for the strategic locations of forest corridors and develop baseline information on biodiversity of rehabilitated sites for monitoring changes	3.25	Implemented	3.5
5. Conducting information and education campaign on solid waste management through trainings and seminars. (Ex. Basic Training Course For Pollution Control Officer (PCO), 8 Hours Environmental Training for Managing Heads, Plant / Pollution Control Facility Visit)	3.10	Implemented	7
6. Encouraging community people to build and utilize Material Recovery Facility	3.25	Implemented	3.5
7. Monitoring compliance of people with regards to the environmental code which bans the use of plastic and styrofoams, such as E-Code of Batangas City, Ordinance No. 16, Series of 2010, Section 84. Regulation on the Use of Plastic and Styrofoam Materials for Packaging and Section 85. Prohibited and Punishable Acts	3.50	Fully Implemented	1
8. Implementing and monitoring monthly clean-ups for coastal areas	3.10	Implemented	7
9. Monitoring of segregation and disposal of biodegradable, non-biodegradable and recyclable wastes	3.25	Implemented	3.5
10. Strictly implementing the penalties for people who violate the environmental laws	3.10	Implemented	7
Composite Mean	2.95	Implemented	

Legend: 3.50 – 4.00 = Fully Implemented; 2.50 – 3.49 = Implemented; 1.50 – 2.49 = Slightly Implemented; 1.00 – 1.49 = Not Implemented

They are strictly monitoring the E-Code of Batangas City which bans the use of plastic and Styrofoam and give rightful punishment to non-complaints who violate this law. The law associated with these includes that government officials should regularly monitors whether people are following this law. According to the government officials, they have officials who are in charge of daily monitoring of this law whether community people comply with this practice.

In relation to this, the Organization for Economic Cooperation and Development [23] stated that implementation of environmental laws needs a strict and absolute action guided by the principle of monitoring and regulation to ensure that the programs that were implemented are being effective and efficient as to the protection of the environment.

Furthermore, the best way of implementers to monitor the compliance of Batangueños is by having daily check-up especially to public and commercial markets who are accustomed to using plastic bags before.

Moreover, intensifying forest protection activities such as monitoring illegal loggers, starting indigenous tree nurseries for wildlife restoration, providing advice for the strategic protection of forest life and develop information on biodiversity of rehabilitated sites for monitoring changes and encouraging community people

to build and utilize material recovery facility ranked 3.5 and is implemented in the province of Batangas. Government officials frequently monitors reforestation as part of the rehabilitation and forest protection. They also encourage planting of small tree nurseries not only for the beautification of the surrounding but for wildlife habitat as well. Encouraging community people in utilizing MRF is also a way of recycling that can help in lessening the pollution and can protect our environment. Furthermore, according to the respondents it can also be a source of livelihood for the community people since they can use the recycled materials to earn a living.

In the similar study of the Philippine Biodiversity Conservation Foundation [23], there are two main focus when dealing with protection of the forest. The first one is to aid in developing an enhanced management plans for the existing protected area. Second is to make new establishments minimizing the risk for destroying small trees. Identification, survey and mapping of target forest facilitate development of the area being managed and protected. Individual training, awareness campaigns can also aid in the advocacy in promoting forest protection. They also support the development of more protected areas. In line with the management and protection of the environment, E-Code of Batangas City if waste materials shall be surrendered to their respective barangay MRF

provided that these materials must be cleaned and dried prior to its turn over to the barangay so that it can be readily used for recycling purposes and can be utilize for other purpose such as earning a money.

Additionally, conducting information and education campaign on solid waste management through trainings and seminars (ex. basic training course for pollution control officer (pco), 8 hours environmental training for managing heads, plant / pollution control facility visit); strictly implementing the penalties for people who violate the environmental laws and implementing and monitoring of monthly clean-ups for coastal areas ranked 7 are all implemented by local government officials which has weighted mean of 3.10. Respondents stated that they conduct seminars to barangay officials at least twice a year. They provide trainings to qualified officials who can disseminate information to community people. Having proper education and awareness of community people will aid in promoting proper segregation of wastes products. They will gain additional knowledge about the importance and benefits they can get by practicing activities that promote environmental protection. They also implement subjecting non-complaint to laws. They gave warning for the first two attempts and then ask for fines about the degree of laws that was violated for the third attempt. Local government officials also monitor monthly coastal clean-ups by having monthly survey to the coastal environment of their areas. They also provide signage like “Bawal Magtapon Dito” and “Iwasan ang Pagkakalat ng Basura” near the seaside. Likewise, they also provide trash can near the seaside so that people can utilize it.

Moreover, Organization for Economic Co-operation and Development [24] stated that factors originating in compliance can be associated with variety of factors. To counter these factors for non-compliance, government officials should reinforce, give additional knowledge to community people to ensure the effectiveness and efficiency of their programs. Local government officials should have strict monitoring and strict implementation of their programs. They also need to provide barangay workers adequate training and seminars so that they can allocate the knowledge they learned to community people for further enhancement of their compliance. Provision of the needs of the community people is also included so that compliance to environmental laws and programs can be enhanced. Meanwhile, implementation of punishment to violators increases compliance to different laws and policies. People have the tendency to obey these policies as to avoid the corresponding sanctions.

On the other hand, giving technical assistance, monitoring and enforcement on mineral resource management. (eg. regulate extraction on mineral resources and promote responsible mining, mineral resources management and promotion (including geological services) mineral licensing and related permitting for exploration ranked 9 is implemented in the province with a weighted mean of 2.50. This indicator although has a verbal interpretation of implemented is one with the lowest ranking because not all areas in Batangas has mining operations. Having said this, although Batangas City has no ongoing mining operations, they implement monitoring and enforcement on different mineral resource management if there are available in places of Batangas city. Included in power and function of DENR are undertaking of exploration, assessment, classification and inventory of the natural resources, using standard surveys and utilization of complementary technologies.

Lastly, the indicator with the lowest ranking is regulating and monitoring of small-scale mining and gravel operations such as MRL Gold-Egerton Gold Phils. Inc. in Lobo, Batangas, ranked tenth with a composite mean of 1.20, with a verbal interpretation of not implemented. This is the least indicator and has the lowest score because as per the environmental and natural resources office of Lobo, Batangas the mining industry stopped the operations due to the influence of Ms. Gina Lopez and therefore they do not have the need to implement the said practice. In relation to this, if another mining industry will operate in the future, they will have the responsibility to monitor its operations. Furthermore, Macdonald, et al. [25] cited in their study that mining industries are strictly regulated, and these industries are required to implement or apply the laws and procedures to reduce the damage to the environment.

Table 7 presents factors affecting the compliance to environmental laws and programs. It can be gleaned from the table that it is verbally interpreted as agree and has a weighted mean of 3.25. These factors are evident of the extent of implementation of the different laws and practices by the local government officials in Batangas province that greatly affect their compliance to laws and practices.

Batangueños agreed that lack of knowledge in different environmental laws and programs affect their compliance ranked first, which has a weighted mean of 3.34. Inadequate knowledge is the biggest factor that contributes to non-compliance of the people with the reason that some of them are not aware of the implemented programs in the province. The respondents stated that there are inadequate seminars to community

people by the local government officials to enhance their knowledge and their orientation with the practices and laws. Thus, inadequate knowledge results from neglecting the practices and non-compliance of community people to it because they do not know its content and how to practice it. People are not well oriented with what is prohibited by the government. In this perspective, environmental enforcer and the authorities need to increase their effectiveness, efficiency and be more transparent so that community people can have proper dissemination of information.

Table 7. Factors Affecting the Compliance to Environmental Laws and Programs

Indicators	WM	VI	Rank
1. Lack of knowledge in different environmental programs such as (<i>Anti-plastic ordinance, 3R's, 5's, Solid Waste Management, Coastal Clean-up</i>)	3.34	Agree	1
2. Resistance of some residents in supporting the different environmental programs	3.27	Agree	3
3. Lack of motivation and encouragement from public officials in initiating in complying with the environmental practices	3.17	Agree	4
4. Extent of Implementation of the environmental program such as Anti-plastic ordinance (<i>In some Batangas locale, environmental practice such as anti-plastic ordinance is not fully implemented</i>)	3.29	Agree	2
5. Non-punishment of law breakers (<i>government officials are not strict enough to give punishment to identified law breakers</i>)	3.16	Agree	5
Overall Composite Mean	3.25	Agree	

Legend: 3.50 – 4.00 – Strongly Agree (SA); 3.49 – 2.50 – Agree (A); 2.49 – 1.50 – Disagree (D); 1.00 – 1.49 – strongly Disagree (SD)

In relation to this, Lopez [9] has stated the vital role of awareness and education as part of the RA 9512 or the “National Environmental Awareness and Education Act of 2008”. The organization reiterates the responsibility of the government officials to protect a balanced and healthful environment. This also recognized the importance part of the youth in advocating environmental awareness and the role of education in nurturing to provide a progressive human freedom and development. In addition, giving implementers a sense of

responsibility for promoting good environmental performance can be taken as an advantage in the sense of educating or influencing the community people towards improved environmental behaviour and practice [2].

Extent of implementation of the environmental programs such as the anti-plastic ordinance ranked 2nd and is also a factor that affects the behavior of the people towards compliance to the program that garnered a weighted mean of 3.29. In some area of the province, these laws are not fully implemented. There are places within the locale that still uses plastic materials instead of utilizing brown bags or usage of eco-bags. Some of the respondents stated that although there are officials who monitor this law, there is no frequent monitoring. Furthermore, there are still respondents who prefer to use plastic bags instead of eco-bags with the reason that it is more convenient for them.

Accordingly, Lawas et al. [2] cited in their study that in any community-based natural resources management activity or program, active participation is essential. These facilitates enhance compliance with the environmental laws and practices. If the extent of implementation is fully implemented, people will have no other option but to follow these practices. They will eventually abide to these laws so that they can avoid violating these laws and prevent sanctions.

Consequently, they also agreed that resistance of some residents in supporting the different environmental programs ranked third and is also an indicator that affects their compliance that obtained a weighted mean of 3.27. The respondents stated that some of them do not comply with the programs implemented in the province with the reason there is inadequate monitoring of local officials to areas barangay that some of the practice are inconvenient for them like for example, use of brown bags instead of plastic bags. Although local officials provide trash bins, there is inadequacy of utilities that's why people occasionally throws or litters. Additionally, they say that there is no strict monitoring of government officials in their area or in the different barangay thus their compliance decreases.

This is evidenced by the study of Binag [26], which cited that belief systems have a considerable effect on environmental attitudes and can, therefore, play a major role in ecological conservation practices. What people believe in makes them think that what they are doing is right when in fact it is the other way around. Furthermore, strict monitoring of government officials should be reinforced in such a way that community people will obey the laws and practices and will enhance their compliance to these.

Moreover, another factor that contributes to the non-compliance of the people is lack of motivation from public officials in initiating in complying with the environmental practices ranked 4th which has a weighted mean of 3.17. Respondents also agree that the lack of motivation by the public officials is a hindrance in practicing environmental laws because the effort of strictly implementing certain laws is not highly practiced. Encouragement from public officials is a contributor to enhance the compliance of the people. They served as the role model as well as leaders that people follow. If lack of encouragement is present, there will be absence of drive for people to participate, thus non-compliance results.

In relation to this, Kar, et. al. [27] noted that compliance with environmental regulations is important in protecting public health and the environment. It encourages observance of the law through outreach program, environmental education and other promotional activities. These activities are designed to improve compliance by explaining how to comply with legal and regulatory requirements. Compliance incentives are a set of policies and programs that provide concrete benefits to different organizations that meet certain compliance objectives. These further reduce or waive penalties for facilities that voluntarily discover, promptly disclose, correct non-compliance, and prevent future environmental violations.

Lastly, the least factor that affects the compliance of the people is non-punishment of law breakers ranked fifth and obtained a weighted mean of 3.16. Non-punishment to law breakers is another factor that affects their compliance due to the way government officials monitors their programs. Strict monitoring is needed to sustain environmental protection and enhance compliance of the people. Respondents agreed that punishment to non-complaint must be strict enough on the first attempt so that another attempt can be prevented.

These findings are in line with the study of Shimchack & Ward [28], which stated that inspections and sanctions are associated with improved compliance to environmental laws and programs. Recent outcome-based studies also indicate that credible enforcement may increase compliance behavior and reduce the number of non-complaints. Transparency of government officials needs to be clear so that people will avoid violating environmental laws and programs.

This model framework has been developed to enhance the compliance of Batanguenos with different environmental laws and programs in Batangas. It presents the five different factors that affect the compliance of Batanguenos to laws and programs. Each

factor provided an approach for action plan to the enhancement of their compliance. This framework allows also a better collaboration and coordination of each government official to fully implement the environmental laws and programs.

The first item in the list of plans of action to increase the compliance of community people with the inadequate knowledge regarding the different environmental programs is to use Instruction Education and Communication (IEC) manuals like for example handing out pamphlets and putting up posters so that the community people will be able to increase their knowledge and therefore enhance the compliance toward the laws and programs being implemented. It is also necessary to conduct seminars to re-orient the community about the existing programs.

While the second item is about the extent of implementation of government officials, based on the data gathered, the programs are all implemented but not to the extent of full implementation. Therefore, there is a need to increase the level of implementation and to obtain that, there is a need for evaluation of the knowledge, skills and attitude of implementers and continuity of implementing the programs.

It was found out that there is a resistance on the part of community people because they are not being strictly monitored and therefore there is a need for continuous monitoring from the government and recognition for the obedient people is necessary, so they can keep up the good work. The last part is the non-punishment to law breakers; it was found out that the community often neglects the laws and programs because they have nothing to be afraid because there is no one that monitors them if they do littering. Therefore, there is a need to conduct house to house monitoring to know if there are law breakers and to also provide the appropriate sanctions to whoever will be caught. It will not only increase their initiative to follow the rules but also increase their compliance.

CONCLUSIONS AND RECOMMENDATIONS

The practices of Batangueños that protect the environment are 5s program; solid waste management; reduce, reuse and recycle; coastal environment program and anti-plastic ordinance. Batangueños comply with the different environmental laws and programs that have been implemented by local government officials but they do not highly comply with these due to different factors. Government officials implement the different environmental programs through proper regulation; monitoring and evaluation but not the extent of full implementation.

Inadequate information on different environmental laws and programs, as well as motivation and resistance among the Batangueños are the factors that hinder the compliance.

The model framework that aids in compliance of Batangueños to environmental laws and programs may be utilized. The government officials should review different environmental laws and programs implemented in Batangas to align with the perceived needs of the Batangueños with the current trends in environmental protection studies. Trainings and seminars should be conducted by local government units to enhance compliance of Batangueños with different environmental laws and programs. Further studies are recommended to future researchers for continuous evaluation of the compliance of Batangueños with regard to different environmental laws and programs. They may focus on the content indicated in each practice.

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