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KNOWLEDGE, UNDERSTANDING, AND SOCIAL ACCEPTABILITY OF GREEN COAL (BANA GRASS) AS ENERGY SOURCE AMONG RESIDENTS OF BATAAN, PHILIPPINES

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This paper prepared by **JOHN MYLES D. CANUTO** with the title: **"KNOWLEDGE, UNDERSTANDING, AND SOCIAL ACCEPTABILITY OF GREEN COAL (BANA GRASS) AS ENERGY SOURCE AMONG RESIDENTS OF BATAAN, PHILIPPINES"** is hereby accepted by the Faculty of Information and Communication Studies, U.P. Open University, in partial fulfillment of the requirements for the degree Program.

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Biographical Sketch

The author of this thesis, John Myles Dominguez Canuto, is born on February 24, 1993 at Mabatang, Abucay, Bataan and the eldest child of Juanito Laruan Canuto from Sablan, Benguet and Milagros Mercado Dominguez from Abucay, Bataan. He has four other siblings who were Jomyles D. Canuto, Josephine Mae D. Canuto, Jamille D. Canuto, and Jophet D. Canuto. He finished the elementary level at BLC Integrated School (formerly Bataan Learning Center) as the First Honorable Mention of the class in 2005. He then finished the high school level at Tomas del Rosario College as the First Honorable Mention of the batch under the Basic Education Curriculum (BEC) in 2009. He also received the Leadership Award and 2009 President Gloria Macapagal Arroyo Award of Outstanding Achievement in Campus Journalism alongside the First Honorable Mention Award in high school.

He finished his Bachelor's degree in Electronics Engineering at Polytechnic University of the Philippines – Manila in 2014. In 2021, he was able to finish his Certificate in Teaching Program (CTP) at the Philippine Normal University – Manila. He then finished his Master of Development Communication at the University of the Philippines Open University in 2024.

John Myles D. Canuto is a Licensed Electronics Technician and a Licensed Professional Teacher at the same time. He also passed the Career Service Examination – Professional Level administered by the Civil Service Commission in 2017.

Currently, he is a Full-time High School Faculty Member of Colegio de San Juan de Letran Bataan and a Part-time Faculty of Philippine Women's University-Bataan.

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Arriba to PIDABest version of yourself, Padayon!

Dedication

I would like to humbly dedicate this great achievement to God who never leaves me nor forsakes me especially in the darkest hours of my thesis journey.

I also dedicate this work to my Canuto family, my niece Celine, my Letran family, my PWU family, my college friends – Gabriel, Andrew, and Braian, and to the people around me who encouraged me to finish my thesis.

Lastly, I would like to dedicate this work to the people who are down and feels like quitting up in life. I know what you feel, and feeling alone and sad is not permanent - this too shall pass. Just have faith in Him and carry on. Life may be tiring but it's beautiful if You let God help you direct your path and goals. It's all from Him and to Him.

To God be the glory!

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Abstract

Climate change is inevitably happening and with its effects comes the action of local and international government offices to combat this phenomenon that has become one of the major threats to the daily lives of people, animals, plants, and the surroundings. On January 2023, the Provincial Government of Bataan in partnership with Mackay Negros Bana Charcoal Corporation signed a Memorandum of Understanding on the plan of establishing a green coal (bana grass) power plant in response with a greener source of energy and the worsening case of climate change. This study aims to know how the level of knowledge and understanding be related to the possible social acceptability of green coal as alternative energy source. Stratified random sampling is used in choosing the respondents wherein Bataan is subdivided into its municipalities and lone city. After the "layering" is done, random sampling is executed to choose as to which barangay will the researcher do the surveying. In this study, 298 random residents in Bataan serve as the sample size as based in a research paper published by Monroe, et al in June 2010 about the use of a Woody Biomass as a Renewable Energy Source abroad. After the validation of the research instrument, survey process and tabulation, the data were then subjected to proper management based on Data Privacy Act of 2012. Spearman rho is the statistical tool used in analyzing the gathered data where it gave a result of 6.78042E-49 for the p-value denoting a very strong, positive correlation among the involved variables, implying that as the levels of knowledge and understanding of the residents of Bataan increase, their social acceptability with the green coal (bana grass) project also increase.

Keywords: **bana grass, green coal, knowledge, understanding, social acceptability**

Chapter I

INTRODUCTION

Background of the Study

In an article written by Mhike Cigaral on January 21, 2023 for FrontPagePH, it was mentioned that a green coal plant, a kind of facility used to process Bana grass to produce “green coal” will soon be built in the province of Bataan. Bana grass is a variety of plant that grows quickly and is convenient to plant, making it a good alternative to traditional coal. By utilizing Bana grass, reduction in poisoning and pollution of the environment will be achieved as it does not need wide commercial lands and does not need chemical nutrients for it to grow. But instead, Bana grass is said to help achieve energy needs by producing “green coal” that is much safer and has significantly lower carbon emissions.

On the same report, it was stated that a Memorandum of Understanding (MOU) was signed between two parties specifically the province of Bataan and Mackay Negros Bana Charcoal Corporation that uses Bana grass in their production of “green coal”. The current governor of Bataan, Hon. Jose Enrique “Joet” Garcia III signed the MOU on behalf of the said province alongside with the Mackay Negros Bana Charcoal Corporation, represented by the company’s Chairman James Ronaldson Mackay.

Garcia said that this agreement suits with the provincial government’s advocacy of green energy, and the corporation will be a promising partner of the provincial government. He (Garcia) said the partnership will provide a source of clean and safe energy for the health of everyone, and most of all of nature and the environment.

Experts have conducted studies on the use of Bana grass and have identified that it is effective as an alternative to traditional coal possessing a lower environmental impact and lesser negative effects on public health.

The utilization of the green coal (Bana grass) as energy source of the province of Bataan is a new thing and the social acceptability of the residents of the province as to whether they will welcome or reject this technology is what the study aims to answer.

The study was be viewed based on the perspective of one of the Communication Theory, specifically the Knowledge Gap Theory. To define it, it "is the infusion of mass media information into a social system increases, higher socioeconomic status segments tend to acquire this information faster than lower socioeconomic status population segments. Hence, the gap in knowledge between the two tends to increase rather than decrease." (Knowledge Gap Theory, n.d.)

The researcher would like to know how the residents of Bataan, Philippines will socially accept the concept of using green coal (bana grass) as an alternative energy source in the province provided with the information communicated from the government based on their knowledge and understanding of the said alternative energy resource.

Statement of the Problem

This study seeks to determine the social acceptability of the residents of Bataan on the use of Bana Grass (Green Coal) as an alternative to traditional coal being used presently influenced by their knowledge, understanding, and socio-demographic profile and to identify any gap of knowledge among the residents of Bataan leading to their social acceptability of this provincial project.

Specifically, the researcher sought answer to the following questions:

1. What is the profile of the respondents in terms of
   1.1 Age
   1.2 Municipality
   1.3 Years of Residence in Bataan
   1.4 Educational Attainment
   1.5 Monthly Income
2. How can the level of knowledge correlate to the possible social acceptability of green coal as alternative energy source?
3. How can the level of understanding correlate to the possible social acceptability of green coal as alternative energy source?
4. How can the demographic profile of the respondents correlate to the social acceptability of using green coal as alternative energy source?
5. How can the gap of knowledge, if there's any proven, be relayed to the residents of Bataan to further analyze the social acceptability of green coal as alternative energy source?

Objectives of the Study

This study aims to:

1. Know the demographic profile like age, municipality, educational attainment, and years of residence of residents of Bataan included in the study;

2. Identify the level of knowledge relative to possible use of green coal as alternative energy source;

3. Identify the level of understanding relative to possible use of green coal as alternative energy source;

4. Determine if the information regarding the project of using green coal as alternative energy source has been disseminated to all levels of social classes of the residents of Bataan properly, thus leading to the social acceptability of the said provincial project.

Significance of the Study

The importance of this quantitative study primarily revolves on the social acceptability of the residents of Bataan that there is a need to consider using other source of energy that is safer not just to public health of the residents but also for the sake of the environment. Hence, the idea of bringing simple, innovative, yet impactful technology in the homes of every Bataeños to start a greener life is beneficial, economic-wise, and reasonable. Social acceptability is a great factor in making this goal into a reality because it will help the local government unit of Bataan to know if the residents of Bataan are ready and willing to accept the change in terms of the source of energy of the province.

The study can be of help to our local government officials, environmental scientists, agriculturists and development communicators to get hand in hand in introducing this new technology to the common people. Research institutions alongside the local and national government can use the study to know how to gauge the social acceptability of the people who will benefit in the project in order to implement sound economic and livelihood programs with the aim of using greener source of energy to protect and help the worsening condition of the environment due to pollution caused by the pollutants emitted by traditional coals being burned. In addition, the study itself can be used as a “guide” or “basis” for developing future studies on social acceptability and of even larger and more scientifically advanced energy management system.

Also, this study may contribute to the aim of the province of achieving sustainability as this may respond to the Sustainable Development Goals (SDG) 7 and 13. SDG 7 aims to “ensure access to affordable, reliable, sustainable, and modern energy for all” and with the objective of the said project, it may help the province achieve a greener, safer, and more affordable energy source. SDG 13 aims to “take urgent action to combat climate change and its impacts”. It is not unknown to all that traditional coal emits greenhouse gases causing global warming and eventually worsening the world’s climate status. That’s where climate change enters into the picture. Using green coal or bana grass will somehow help in the reduction in the emission of the harmful greenhouse gases like carbon dioxide into the atmosphere if the residents of Bataan will not reject but instead embrace the use of bana grass or green coal. This concept is not just beneficial to citizens but also a helpful hand to our environment in the battle against climate change.

The best important role that the study might contribute to the province as well as to the whole nation is the impact of social acceptability in helping the government know the pulse of people and for its people to express their objective decisions regarding any government projects.

Scope and Limitation of the Study

The focus of this study is on the social acceptability of the residents of Bataan on the use of Bana grass or green coal as alternative source to their energy consumption and on how the Provincial Government of Bataan informs the residents by bridging the necessary information to all the residents leading to such action to the project which is its social acceptability. This study only focuses on the residents of Bataan since they belong to the province who had planned to use green coal as

alternative power source. The researcher would want to know the perception of the Bataenos on the use of green coal but this study is only limited to the social acceptability of the said residents, its factors, its measures, and the gap in knowledge among them regarding this provincial project.

Chapter II

THEORETICAL FRAMEWORK

The Review of Related Literature revolves on the definition of social acceptability, factors influencing social acceptability like values, beliefs, and expectations, its components, importance, criteria, measures, and examples.

Definition of Social Acceptability

Social acceptability is the result of a collective judgment or collective opinion of a project, plan or policy. “Social acceptability may concern every type of project, regardless of size, including residential and industrial developments, wind farms, mines, hydrocarbon exploration activities and recreational or tourism projects, among others.” (No Author, 2023)

Also, it is a key factor that can affect the success or failure of a project. It pertains to the range to which the stakeholders and the public support or oppose a project based on its recognized benefits, impacts, and risks. (How do you incorporate social acceptability criteria into your project design and evaluation?, n.d.)

According to James Bay Cree Nation, “the absence of social acceptability could shut down a resource development project”. Social acceptability is a controversial topic in resource extraction. These days, most project authors agree that, in order for their projects to work functionally, they require a social license from the affected population along with their regulatory permit. (Shelsen, 2020)

Levels of Social Acceptability

The social acceptance of a technology can be analyzed at three levels: macro, meso, and micro. These levels likely correspond with a variety of objects of acceptance like types of energy supply technology, specific energy infrastructure proposals or installations, and on-site energy applications. (Boso, Oltra, & Upham, 2015)

In large populations, the macro level communicates conflict, peace, and violence in large populations. It is helpful for making contrast between different nations or states, and also for considering about the connections between large populations. (Laven, 2022)

Meso level comprises of groups within the branch, community, local interest groups, organization, school, village, and workplace. It is also referred to as the middle level. (Social and Cultural Literacy Flashcards Preview, n.d.)

Micro level on the other hand focuses on individuals and their daily relationships. It also concentrates on small groups and connections between small groups. (Hamilton, 2022)

Factors Influencing Social Acceptability

Social acceptability relies on the public's perception of what the site will become once the project is executed. "This perception is influenced, in particular, by the community's values, beliefs, and expectations." (Factors influencing social acceptability, n.d.)

In a study about smart grid technologies, moral values are evident. The major field connected with moral values and technologies is the ethics of technology. Moral

values are employed to make statements about the consequences of technologies in ethical and social consequences. (Milchram et al., 2018) In a journal article by Taebi (2017), he said that “a risky technology might be accepted for reasons that are morally wrong”. Moral values or simply values are important factors that influence social acceptability. If the technology is good but the values are being compromised, people might not accept it except if there are some human interventions that made the technology accepted amidst the wrong moral it advocates or promotes. But the main point is, values make a great impact for a society to accept a project or technology.

Beliefs also is a major factor in social acceptability. Just like on the study of Islahi (2022) about Non-Formal Education (NFE) in India, where around 55% only of the total respondents considered the NFE as useful in getting employed/self-employed leading to a low social acceptability for the said program in India. In another study entitled “Social Acceptability of Cisgenic Plants: Public Perception, Consumer Preferences, and Legal Regulation” by Daye et al. (2023), the social acceptability of cisgenic plants or plants that are genetically modified varied because of the different beliefs, perception, consumer acceptability, and legal regulation. With these given studies, they reflected how beliefs play a role in driving people to socially accept the products, programs or technologies being offered for them to consume.

Last factor is the expectation. In a study entitled “Social acceptability of a wind turbine blade facility in Kingston upon Hull” by Getor, Ramudhin, & Keivanpour (2022), where “In November 2016, Siemens Gamesa started construction of its £310-million, off-shore wind turbine blade assembly facility in the city of Kingston upon Hull in the UK”. The facility was built in a residential area but after a series of 3 surveys over a period of nearly 3 years, the results showed that the residents accepted the project

and considered not harmful since it met their expectations of economic opportunities and development. In fact, Demos-PwC Growth for Cities Index 2018 ranked it “the third most improved UK city to live and work”. In addition, a study entitled “Drivers of social acceptability for bivalve aquaculture in Atlantic Canadian communities” by Wood & Filgueira (2022), stated how insufficient transparency and poor communication led to poor expectation of communities having bivalve farming. This poor expectation like gaining less profit instead of more and unclear communication within the concerned community led to a lower than expected social acceptability.

Components of Social Acceptability

Seven component constructs help identify characteristics of interventions that may be improved with regard to social acceptability as based on the study entitled “Development of a theory-informed questionnaire to assess the acceptability of healthcare interventions” by Sekhon, Cartwright, & Francis (2022). These were “affective attitude, burden, ethicality, intervention coherence, opportunity costs, perceived effectiveness, and self-efficacy”.

Attitude is an affective component that relates to a person’s emotions or feelings. If a person feels more optimistic about someone or something, he is more likely to address them in a positive manner. (Components of Attitude, n.d.) A study entitled “The Influence of Affect, Attitude and Usefulness in the Acceptance of Telemedicine Systems” by Djamasbi, Fruhling, & Loiacono (2009) examined the role of positive and negative moods on the acceptance of a specialized telemedicine system for microbiology consultation and diagnostics called as telepathology. Moods can show more attitude-consistent behavior, thus, attitude is affected by the moods of the respondents in this study.

Social burden may be defined as the overall socio-economic and health burden due to disability, illness, and premature death, including the economic burden and epidemiological burden. (Social Burden Induced by Age-related Diseases, n.d.) In a study entitled “A BURDEN OF RESPONSIBILITY: THE ROLE OF SOCIAL APPROVAL AT THE ONSET OF A CRISIS” by Bundy & Pfarrer (2015), the respondents who were organizations provided “with higher and lower levels of social approval may be motivated to take less responsibility at the onset of a crisis than has been previously theorized”. It can be inferred from this study how social acceptability in the form of social approval can influence an individual or group of people to react or deal with a burden or crisis.

The third component of social acceptability is ethicality that refers to “the state or quality of being moral, in accordance with the standards of right and wrong” like it is hard to consider a company truly moral if it is only observing ethicality for reasons of self-interest. (Ethicality, n.d.) In a study entitled “The role of social acceptability and guilt in unethical consumer behavior: Following the crowd or their own moral compass?” by Mills & Groening (2021), social acceptability was examined with respect to guilt caused by unethical consumer behavior. The paper reflected how the interaction of social acceptability and guilt dictates the likelihood of unethical behavior of consumers.

Intervention coherence can be defined as “the extent to which the participant understands the intervention, and how the intervention works”. Therefore, intervention coherence constitutes the face validity of the intervention to the deliverer or recipient. (Sekhon, Cartwright, & Francis, Acceptability of healthcare interventions: an overview of reviews and development of a theoretical framework, 2017) In the same study, acknowledging ‘acceptability’ in considering the design, evaluation, and implementation of healthcare interventions must be noted. This said study aimed to “develop a multi-construct theoretical framework of acceptability of healthcare

interventions that can be applied to assess prospective (i.e., anticipated) and retrospective (i.e., experienced) acceptability from the perspective of intervention delivers and recipients".

Opportunity costs constitute "the potential benefits that an individual, investor, or business misses out on when choosing one alternative over another". (Fernando, 2023) A research paper entitled "Improving social acceptability of marine protected area networks: A method for estimating opportunity costs to multiple gear types in both fished and currently unfished areas" by Adams, Mills, Jupiter, & Pressey (2011) reflected on the differences between the current and potential opportunity costs leading to the social acceptability of fishers in Fiji Islands. Opportunity costs indeed affected the way a society "accepts" a new product, program, or technology as reflected in this study.

Perceived effectiveness refers to as "the subjective likelihood that a message will have a persuasive impact". The first step of the persuasion process is reading a message. It is unlikely to cause a persuasive impact if the recipients find it hard in reading and comprehending the message. (Suka, Yamauchi, & Yanagisawa, 2017) In a study by Finch (2020) entitled "Assessing the Perceived Effectiveness and Acceptability of Pre-Referral Intervention Team Procedures by School Teams: Continued Validation of the Pre-Referral Intervention Team", a 24-item Likert scale called the Pre-Referral Intervention Team Inventory (PRITI) was made to gauge the perceived effectiveness and acceptability of pre-referral teams (PRTs) in a school setting. Results of the study showed that "a two-factor solution was a better fit, as it explained more total variance". The analyses showed that the primary and secondary factors specifically acceptability and effectiveness were "strongly intercorrelated".

Self-efficacy refers to “an individual’s belief in his or her capacity to execute behaviors necessary to produce specific performance attainments”. (Bandura, 1977) In a study by Moghanloo, Pishvaei, Moghanloo, Bassaknezhad, & Mehri (2017) entitled “Self efficacy, social acceptance and locus control as predictors of social interest among Iranian students”, it showed that self-efficacy, social acceptance, and locus of control as predictors of social interest. The result of the study showed that “social interest had significant positive relationship with self efficacy and social acceptability and had significant negative relationship with locus of control”.

Importance of Social Acceptability

Acceptability pertains to identifying how well an intervention “will be received by the target population and the extent to which the new intervention or its components might meet the needs of the target population and organizational setting”. (Skovdal, et al., 2013)

In public health, acceptability had been referred to as “a multi-faceted construct that reflects the extent to which people delivering or receiving a healthcare intervention consider it to be appropriate, based on anticipated or experienced cognitive and emotional responses to the intervention”. (Timm, et al., 2022)

But what is the importance of social acceptability? Social acceptability is significant because it can bring an impact to the implementation, operation, and performance of a project. If a project is considered as socially unacceptable, it may face opposition, rejection, or resistance from its stakeholders and to the general public. (How do you incorporate social acceptability criteria into your project design and evaluation?, n.d.)

Measuring Social Acceptability

Social acceptability can be measured through factors such as “participants’ attitudes towards the intervention, appropriateness, suitability, convenience and perceived effectiveness of the intervention”. (Sekhon, Cartwright, & Francis, Acceptability of healthcare interventions: an overview of reviews and development of a theoretical framework, 2017)

Criteria of social acceptability can be gauged through qualitative or quantitative means, or a combination of both. Interviews, focus groups, surveys, observations, or participatory approaches are examples of qualitative methods that “collect opinions, perceptions, attitudes, or preferences of the stakeholders and the public”. (How do you incorporate social acceptability criteria into your project design and evaluation?, n.d.)

An example of a way to measure social acceptability was the Acceptability of Intervention Measure (AIM) which is a five-item scale that gauges the perception among implementation stakeholders that a given innovation, practice, service, or treatment is acceptable, agreeable, or satisfactory. (Lewis, et al., 2015)

Social Acceptability Analysis

To determine social acceptability criteria, one must do a stakeholder analysis and a social impact assessment. A stakeholder analysis is a procedure of determining and focusing the groups or individuals who have an influence or interest on the project. A social impact assessment, on the other hand, is a procedure of assessing and anticipating the potential positive and negative impacts of the project on the social

environment. (How do you incorporate social acceptability criteria into your project design and evaluation?, n.d.)

One way also to analyze the acceptability of a product, project, or technology was through the SFA Matrix that is used mostly by organizations. The SFA (Suitability, Feasibility, and Acceptability) Matrix is “a simple scoring system where you list out your potential strategic options and score each of them against Suitability, Acceptability, and Feasibility”. Using this matrix is often considered to as doing a SAF Analysis. Gerry Johnson and Kevan Scholes invented the SFA Matrix. (Guide to the SFA Matrix, n.d.)

Social Acceptability Examples

Over the years, social acceptability has been a topic of many researches from different fields like medicine, technology, agriculture, governance, and the like.

An example of social acceptability as a topic in transportation was the study by Fall (2022) about the building of an urban toll in Dakar, Senegal where the results showed “a set of significant implications in the field of transportation policies that serve as the basis for strategic decision making and to ensure an adequate level of social acceptability of the proposed toll system”.

In the field of medicine, the study of Mistry, Harris, Li, & Harris (2023) explored the feasibility and acceptability of concerning community health workers (CHWs) as bilingual community navigators (BCNs) in general practice setting, to help patients from culturally and linguistically diverse backgrounds access health and social care services in Australia.

A topic about social acceptability in the field of health was what the study of Pollard, Drakes, & Harris (2022) all about entitled “Perceptions of the Risk and Social Acceptability of Driving Under the Influence of Cannabis”. The second most commonly used substance among Canadians is the Cannabis for those individuals of 18 to 24 years old with the most prominent associaed risk of driving under the influence. The aim of the study was to know the perceptions of participants about the dangerousness and social acceptability of driving under the influence of cannabis (DUIC) compared to alcohol or while tired. The results of this study showed how demographics affect the social acceptability of the subject like “DUIC was perceived as less dangerous and more socially acceptable than driving under the influence of alcohol and impaired driving was viewed as more acceptable for females than males”.

Another topic of social acceptability in the field of health particularly Applied Behavior Analysis was the study of Langthorne & McGill (2011) about the assessment on the application of functional analyses on selected participants who were parents and teachers. “Functional analysis, which involves systematic manipulation of environmental events, is the only functional assessement method that provides an empirical demonstration of the function of problem behavior”. (G.P, B.A., & B.E., 2003)

Also in the study of Barrientos-Gutierrez, Gallegos-Carrillo, Cruz-Jimenez, & Thrasher (2022), it aimed “to evaluate the prevalance of exposure to Internet communications on and advertising of electronic cigarettes (e-cigarettes) and their association with perceptions of the social acceptability of e-cigarettes in Mexico”. In the conclusion of the said study, “being exposed to e-cigarette marketing, either online or through traditional marketing channels, is associated with perceived social acceptability of e-cigarette use, as is contact with pro-vaping sites”.Thus, regulatory

options to evade the proliferation of promotional websites masked as opinion or user sites needed to be considered.

Social acceptability can be of a concept also in addressing environmental issues like the study of Van Der Cam, Adant, & den Broeck (2023) that tackled personal carbon allowances (PCAs) that “can complement current carbon pricing policies to achieve the sharp cut in emissions needed to meet the climate targets set by the Paris Agreement”. Depending on the social acceptability of the citizens relies the crucial effectiveness and how these preferences varies within a society. The study focused at obtaining preferences for a particular PCA scheme and discovers their heterogeneity, employing a discrete choice experiment among the citizens of Belgium and analyzing “mixed logit and latent class models”.

Another one concerning the environment was the study of Souza, Gonçalves, & do Valle (2023) concerning a Community-based Solid Waste Management in Belo Horizonte, Brazil. The main idea of the analysis and discussion was how “the process of developing the social acceptability of this space with the neighborhood took place, and how this space contributes to enhancing residents’ involvement in the project”. The study also manifested that “daily care with negative externalities, the emergence of positive externalities, and the development of immaterial resources within the community, such as trust, are main factors for good social acceptability”.

Moving on to a more relevant topic in the generation today is the application of social acceptability in the field of robotics. A study by Galati, Primatesta, Grammatico, Macrì, & Rizzo (2022) discussed the navigation system for autonomous robots to ensure safety and social acceptability of robotic trajectories since humans and robots are on the rise of “sharing portions of their operational spaces, experimental evidence”

and thus, needed to assure the said variables are in place in human-populated environments.

Studies also on social acceptability of energy resources had been published like the study of Lundheim, Pellegrini-Masini, Klöckner, & Geiss (2022) that tackled the “variables influencing the acceptability of wind farms”. The huge amount of research published on the topic social acceptability of wind farms needed an effort to determine and classify variables to deliver a holistic understanding of opposition and support to wind energy. The study also provided “a theoretical framework to explain the acceptability of wind energy and show how these variables might influence both acceptance and opposition”.

The concept of using green coal (bana grass) is a new thing for the people of Bataan since the traditional energy source is from the combustion of fossil fuel. With that, this study aims to fill in the gap of as to how the residents of Bataan will give their feedback regarding this new move of the local government unit and if they will accept and somehow “embrace” the use of green coal (bana grass) as an alternative energy source of the province, not just to alleviate the intermittent source of energy causing frequent power interruptions in the whole province, but to go for a cleaner and greener way to live life with power.

Theoretical Construct

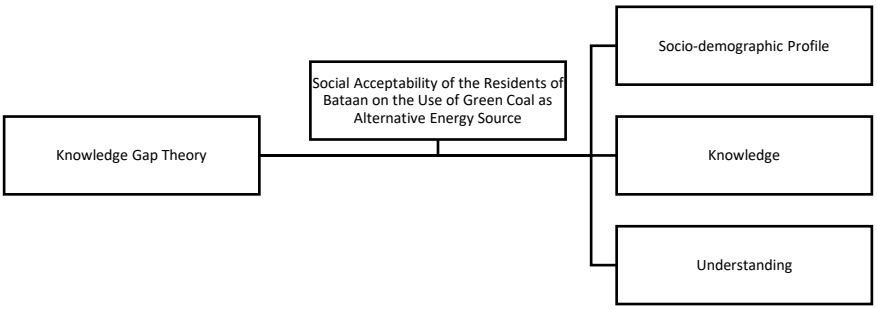
This study utilized the Knowledge Gap Theory which was first proposed by George A. Donohue, Clarice N. Olien, and Philip J. Tichenor in the year 1970, all of whom are researchers in the University of Minnesota. Based on their definition, they described the knowledge gap by stating that “as the infusion of mass media information into a social system increases, higher socioeconomic status segments tend to acquire this information faster than lower socioeconomic status population

segments. Hence, the gap in knowledge between the two tends to increase rather than decrease." (Knowledge Gap Theory, n.d.)

The aim of the study is to know if there is a gap present relative to how the government officials disseminate the information to the Bataenos from the higher and lower socioeconomic status the information regarding the upcoming project of the Provincial Government on the utilization of bana grass or "green coal" as alternative energy source leading to the social acceptability of the said project.

Conceptual Framework

Figure 1. Relation of Theoretical Construct with Variables



Hypotheses of the Study

H_{A1}: The demographic profile of the residents of Bataan from the higher and lower socioeconomic status influences their decision as to their social acceptability of the use of green coal as alternative energy source of the province.

H_{A2}: The residents of Bataan are knowledgeable of the future use of green coal (bana grass) in the province through the media leading to the social acceptability of the provincial project.

H_{A3}: The residents of Bataan understand of the future use of green coal (bana grass) in the province through the media leading to the social acceptability of the provincial project.

H_{A4}: The residents of Bataan who are knowledgeable and have understood the future use of green coal (bana grass) tend to accept the implementation of this provincial project.

Definition of Terms

Social Acceptability : It is process of either accepting or rejecting something or an action based on the beliefs, values, or expectations of a certain group of people

Knowledge : It is the amount of related information that a person has regarding a certain topic or social issue that he may use as reference in any possible needed decision-making.

Understanding : It is the comprehension of a certain person regarding a certain topic based on the data or information given to him for him to create a good judgment or insight.

Socio-demographic Profile : It simply pertains to the traits or characteristics of the population where you're about to draw out your sample size.

Chapter III

METHODOLOGY

The study executed quantitative research approach wherein a survey questionnaire was given to chosen respondents who passed the inclusion criteria via stratified random sampling. The data that were gathered were analyzed based on inferential statistics particularly spearman rho. Respondents and the given data from them were treated properly and with confidentiality in line with the Data Privacy Act of 2012.

Research Design

This study employed quantitative approach to know the social acceptability of residents of Bataan in the use of green coal (Bana grass) as alternative energy source. Quantitative research approach is the use of numbers and measurements in gathering, processing and interpreting data. This also involves the use of statistical analysis instead of thematic analysis which is usually used in qualitative research approach. One shot survey was the research design of this study. Descriptive research design was employed in gathering needed quantitative data for the study. It can be defined as a type of research approach that aims to gather information systematically to describe a phenomenon, population, or situation. “More specifically, it helps answer the what, when, where, and how questions regarding the research problem rather than why”. (Descriptive Research Design, 2021)

Locale of the Study

The study was conducted within the province of Bataan. It is a province on the Philippine Island of Luzon belonging to Region III. Balanga City is the capital city and

center of trade and education of the province. The said province has 11 municipalities namely Abucay, Bagac, Balanga, Dinalupihan, Hermosa, Limay, Mariveles, Morong, Orani, Orion, Pilar, and Samal.

The study was conducted in this province since the local government unit of the province decided to adapt a green source of energy with the use of Bana grass, thus making it appropriate as the research locale of the study.

Respondents of the Study

The residents of Bataan were the subjects of this study. The respondents from each barangay from different towns of the province were chosen after the stratified sampling was done per town. The researcher visited houses, schools, business establishments, and local public offices where he can get the needed data on the social acceptability of the residents of Bataan in the possible utilization of Bana grass as alternative energy source. The criteria of inclusion for this study will be the following:

1. Must be living in Bataan for at least less than 3 years;
2. Must be 18 yrs. old and above;
3. Must be at least a high school graduate;

The criteria were assessed and thought of to be able to respond with the need of this study. The respondents of this study were living in Bataan for at least less than three years prior to the survey to ensure that they know the condition of power supply in the province for their past years of stay. Also, the respondents were at least 18 years old since they are in the legal age and they now have the rights in thinking and awareness of their surroundings. They were at least a high school graduate since the concept of green coal or bana grass is quite technical and it requires basic knowledge on energy resources.

Sampling Method

Stratified random sampling was applied in creating the sample size of the study. Firstly, the province of Bataan was subjected to stratified sampling by breaking down the sample size into its city and towns. It is a type of sampling wherein the population is subdivided into “layers” or subgroups and members of the sample size are randomly selected from each group. The researcher did this by subdividing the people of the province by municipalities and then by barangay. Then simple random sampling was employed to each resident in the barangays. Two hundred ninety-eight respondents were chosen using stratified random sampling from the total number of households in Bataan. This sample size was based on a similar study done by a team of researchers entitled “Public Perceptions of Using Woody Biomass as a Renewable Energy Source” by Martha Monroe, Annie Oxarart, and Richard Plate in June 2010 in Alachua County, Florida, USA.

Data Gathering Procedures

This research study was pushed on the crafting of a self-made or original survey questionnaire to give further answers to the research questions. The questions consisting the research instrument was derived from the research questions found in the Statement of the Problem (SOP). The said research instrument was then submitted to a certified research validator for validation to check for its originality and validity. Having respondents who were common people, a Filipino-translated version was given for each question that was expressed originally in English. After the research instrument was approved, it was then photocopied and used by the researcher. To give further clear understanding of the questions, the researcher explained them to the respondents as for them to answer any question that was raised from them. Data gathering started by giving a consent letter together with a token to

the barangay captain and an “AGREE/DISAGREE TO PARTICIPATE” section of the paper was stated to the survey instrument given to each respondent.

Research Instrument

The research instrument that was crafted was based on the Statement of the Problem (SOP). It aimed to answer the stand of the residents of Bataan or in general, the social acceptability of the Bataan community regarding the use of green coal (Bana grass) as energy source of the province. The researcher used a self-made survey questionnaire that had undergone instrument validation before it was administered as the research instrument for this study.

Data Analysis

The demographic profile of the respondents like age, gender, municipality, educational attainment, and years of residence in Bataan were analyzed using descriptive statistical analysis to describe the frequency and percentage in this study. On the other hand, inferential statistical analysis particularly spearman rho was used to test the relationship between the involved variables in this study.

Ethical Consideration

Before the survey started in each barangay, two consent letters of the same content were given to the barangay captain – one for the barangay and one for the researcher for documentation purpose. After the approval of the barangay captain, researcher asked first the randomly chosen respondent if he/she was willing to participate in the study by answering the survey form. The researcher paid respect whenever the respondent said no to the survey. For those respondents who agreed to join the study by answering the survey form, they were informed and assured that the

data derived from them were kept secured and confidential as based on the protocol mandated by the Data Privacy Act of 2012. The respondents were also allowed to withdraw from answering the survey if they find the questions uncomfortable or too personal. The survey questionnaires were then subjected to shredding after the accomplishment of the Final Manuscript. In addition, the respondents were then to be informed of the result of the study by providing a copy of the thesis to the barangay involved. No animals were involved nor hurt in the study and protection of human rights especially of women and children were observed.

Chapter IV

RESULTS AND DISCUSSION

This study aimed on gathering the socio-demographic profile of the respondents and on measuring their knowledge and understanding regarding the future use of green coal (bana grass) in Bataan through the validated survey research instrument. The result of this data gathering led to the attainment of the study – to determine the social acceptability of the residents of Bataan, Philippines regarding the possible use of green coal (bana grass) as an alternative energy source of the province.

Tables 4.1 to 4.5 shows the result of the survey with regards to the socio-demographic profile of the respondents.

In terms of age of the respondents as shown in Table 4.1 below, residents of Bataan belonging to the age bracket of 26-44 years old comprise most of the surveyed individuals with 151 in number.

Table 4.1

Socio-demographic profile (Age)

Age Bracket*	Frequency	Percentage
18 – 25 years old	80	26%
26 – 44 years old	151	50.7%
45 – 59 years old	49	16.4%
60 years old and above	18	6%
Total	298	100%

*Source: Age brackets are based on sequential pattern

Some of them belonging to the 26-44 years old age bracket includes two customers in a car wash at Barangay Rizal, Pilar (extreme left photo below), plain housewives in Barangay Laon, Abucay (middle photo below) and in Barangay Lucanin, Mariveles (extreme right photo below).

While respondents having the least number of 18 people in particular belongs to the 60 years old and above age bracket which includes a senior citizen from Barangay Naparing in Dinalupihan (extereme left photo below), a Kagawad official from Barangay Alangan, Limay (middle photo below), and women at the basketball court in Barangay Sapa, Samal (extreme right photo).

Though the researcher was also able to survey respondents from the 18-25 years old bracket like a staff in a carinderia in Barangay Tugatog, Orani (as shown at the left photo below), Sangguniang Kabataan Officials in Barangay Tanato, Balanga City (as shown at the middle photo below), and college students taking their summer job at Barangay Tanato also in Balanga City (as shown at the extreme right photo below).

With the respondents from the towns and city of Bataan as shown in Table 4.2 below, only Abucay and Morong were allotted 24 slots each as they are the only municipalities in the province with the least barangays with Abucay consisting of 9 barangays like the women residing in Barangay Laon, Abucay in the left photo below while Barangay Binaritan in Morong with 5 barangays which includes the women in the right photo below.

Table 4.2

Socio-demographic profile (Towns and City of Bataan)

Towns/City	Frequency*	Percentage
Abucay	24	8%
Bagac	25	8.4%
Balanga City	25	8.4%
Dinalupihan	25	8.4%
Hermosa	25	8.4%
Limay	25	8.4%
Mariveles	25	8.4%
Morong	24	8%
Orani	25	8.4%
Orion	25	8.4%
Pilar	25	8.4%
Samal	25	8.4%
Total	298	100%

*Abucay and Morong were only allotted 24 respondents each since they were the barangays with the least number of barangays with 9 for Abucay and 5 for Morong.

Table 4.3 as shown below displays the socio-demographic profile of the respondents in terms of their years of residence. The said table shows that most of the respondents have stayed in Bataan for more than 5 years - 278 respondents out of 298. The researcher asked them the reason why they have stayed more than 5 years and almost all of the respondents asked told him that they had been born in Bataan.

Table 4.3

Socio-demographic profile (Years of Residence in Bataan)

Years of Residence in Bataan	Frequency	Percentage
Less than 3 years	11	3.7%
3 years	5	1.7%
4 years	1	0.3%
5 years	3	1%
More than 5 years	278	93.3%
Total	298	100%

Most of the respondents of the study had attained a high school graduate level with 158 in total number out of 298 total respondents as shown in Table 4.4 below.

Table 4.4

Socio-demographic profile (Highest Educational Attainment)

Highest Educational Attainment	Frequency	Percentage
High School Graduate	158	53.1%
College Undergraduate	56	18.8%
College Graduate	77	25.8%
Post-Graduate Degree Holder	0	0%
Master's	7	2.3%
Doctoral	0	0%
Total	298	100%

Some of them include a man from Barangay Rizal, Pilar (extreme left photo below), a housewife from Barangay Paysawan, Bagac (middle photo below), and a pizza vendor from Barangay Binaritan, Morong (extreme right photo below).

There are no respondents who had attained a doctoral degree or post-graduate degree though those who have attained master's degree (7 in total out of 298) were mostly private and public school teachers residing in Barangay Sta Elena, Orion (left photo below) and Baranga Tanato, Balanga City (right photo below).

Table 4.5 below shows that in terms of monthly income, most of the respondents came from those who earns below Php 10,957 like a tricycle driver from Barangay Sapa, Samal (extreme left photo), a furniture store staff and a pharmacy assistant both in Barangay Binaritan, Morong (middle and extreme right photo below).

Table 4.5

Socio-demographic profile (Monthly Income)

Monthly Income*	Frequency	Percentage
Below Php 10,957	213	71.5%
Php 10,957 – Php 21,914	51	17.1%
Php 21,915 – Php 43,828	30	10.1%
Php 43,829 – Php 76,669	2	0.7%
Php 76,670 – Php 131,484	1	0.3%
Php 131,485 – Php 219,140	0	0%
Php 219,141 and above	1	0.3%
Total	298	100%

**Monthly Income Brackets are based on the table provided by the Philippine Institute for Development Studies last December 15, 2023*

There are also middle wage earners like barangay officials in Barangay Tipo, Hermosa (left photo below) and in Barangay Binaritan, Morong (right photo below). The lone recorded respondent earning more than 200,000 pesos a month has a husband working abroad.

Table 4.6 below then aimed to measure the knowledge of the residents of Bataan on the use of green coal (bana grass) as an alternative energy source in the province. The survey question on this part started with the aim to measure their knowledge on the concept of climate change as it is an integral part of the research purpose which aims to respond to the needs of the sustainable development goals on a cleaner and safer energy source to reduce the worsening case of climate change

that currently affects the condition of the planet. This was then followed by questions yielding results on the knowledge of the residents of the province starting with knowing the project that was signed in a Memorandum of Understanding (MOU) in January 2023 and into knowing the project based on the information posted in different media platforms by the Provincial Government of Bataan as media plays a big role in the proper dissemination of information leading to the desired outcome of the project – either its acceptance or rejection of the residents of Bataan. A 5-point Likert scale with options from Strongly Agree to Strongly Disagree had been provided for this section. In terms of the result, this section posted that most of the respondents surveyed showed a good to strong knowledge of the green coal (bana grass) project as most of the questions had been positively answered with strongly agree or agree with minimal on the negative responses like strongly disagree or disagree, and fair number of responses on the neutral response in the survey.

Table 4.6

Knowledge on the Use of "Green Coal" as Alternative Energy Source of the Bataan Province

QUESTION	5		4		3		2		1		Total	
	f	%	f	%	f	%	f	%	f	%	f	%
1. I know that climate change is a global phenomenon which originated from the burning of traditional coal.	80	26.85	132	44.30	67	22.48	15	5.03	4	1.34	298	100
2. I know that the Provincial Government of Bataan aims for	49	16.45	153	51.34	83	27.85	11	3.69	2	0.67	298	100

sustainability most especially in the energy consumption of the province via the mass media.												
3. I know about the partnership of the Provincial Government of Bataan and the Mackay Negros Bana Charcoal Corporation regarding the use of green coal via the mass media.	40	13.42	117	39.26	109	36.58	28	9.40	4	1.34	298	100
4. I know that the province will soon use “green coal” in the province as alternative energy source through the mass media.	31	10.40	104	34.90	131	43.96	29	9.73	3	1.01	298	100
5. Based on the information shown in media outlets, I know that green coal can perform necessary changes in the Bataenos’ electric bill.	46	15.44	149	50	90	30.20	13	4.36	0	0	298	100
6. Based on the information	52	17.45	133	44.63	87	29.19	23	7.72	3	1.01	298	100

shown in media outlets, I know that using “green coal” can cause major changes in the atmosphere with respect to global warming and climate change.												
7. Based on the information shown in media outlets, I know that using “green coal” can make an impact regarding the amount of money that we can save.	45	15.10	145	48.66	87	29.19	20	6.71	1	0.34	298	100
8. Based on the information shown in media outlets, “green coal” has a different rate of growth and planting technique that can play an important role on its use as an alternative energy source.	51	17.12	128	42.95	95	31.88	24	8.05	0	0	298	100
9. Based on the information shown in media outlets, “green coal” is	44	14.77	140	46.98	88	29.53	25	8.38	1	0.34	298	100

different in terms of the safeness to the environment and its carbon emissions than traditional coal.												
10. Based on the information given in media outlets, “green coal” has something to do with the aim of the provincial government towards the use of green energy in Bataan.	49	16.44	158	53.02	72	24.16	17	5.71	2	0.67	298	100
11. Based on the information from media outlets, “green coal” has its own stand with respect to a clean and safer energy source for the health of everyone, as well as for the nature and the environment.	53	17.79	145	48.66	80	26.84	19	6.37	1	0.34	298	100
12. Based on the information from media outlets, “green coal” has an environmental impact and	47	15.77	138	46.31	88	29.53	24	8.05	1	0.34	298	100

effects on public health.	

5 = STRONGLY DISAGREE, 4 = AGREE, 3 = NEUTRAL, 2 = DISAGREE, 1 = STRONGLY DISAGREE

On the other hand, Table 4.7 below scrutinized the understanding of the chosen residents of Bataan regarding their comprehension of the green coal (bana grass) as an alternative energy source of the province. It first started with questions containing the technical content of the project like the understanding of the respondents that there might be a green coal plant to be built in the province and the possibility to replace the existing traditional coal plant that then led to the questions as they whether understand the possible implications and effects of this project to the environment, to their finances, and to the province. Again, the 5-point Likert scale used in the previous table on knowledge was used. As seen in the table below, the understanding of the surveyed residents showed a strong positive result if to be considered the number of respondents who answered strongly agree and agree on how they understand the pros and cons of the project. The neutral response still runs on a fair play while results on the negative understanding pose a weak wave as minority of the surveyed residents answered that they don't understood the purpose and possible implications of the project. The role of different media platforms was also incorporated in every question, highlighting that their understanding was also influenced by the information posted in the media about the provincial project.

Table 4.7

Understanding of the Use of "Green Coal" as Alternative Energy Source in the Bataan Province

QUESTION	5		4		3		2		1		Total	
	f	%	f	%	f	%	f	%	f	%	f	%

1. I understand that a “green coal” plant facility will soon rise in the province of Bataan based on the information from mass media platforms.	34	11.41	125	41.95	101	33.89	33	11.07	5	1.68	298	100
2. I understand that “green coal” will replace the traditional coal which is the current source of energy of the province as based on the information available from mass media platforms.	37	12.42	143	47.99	91	30.54	26	8.71	1	0.34	298	100
3. I understand that the aim of the Provincial Government in building a “green coal” plant facility is to promote green energy in the province as based on the information from mass media platforms.	54	18.12	148	49.66	70	23.49	25	8.39	1	0.34	298	100
4. I understand the repercussions and effects of green coal as	34	11.41	133	44.63	99	33.22	31	10.40	1	0.34	298	100

compared to carbon emissions due to mass media.												
5. I understand that there will come a point in time that the province of Bataan will adopt “green coal” as alternative energy source based on the information from mass media platforms.	51	17.11	133	44.63	89	29.87	24	8.05	1	0.34	298	100
6. I understand that the “green coal” project will be for all the residents of Bataan regardless of socio-economic status as based on the information available in social media platforms.	55	18.45	145	48.66	74	24.83	23	7.72	1	0.34	298	100
7. I understand that the “green coal” project will create an effect financially and environmentally to the whole province of Bataan as based on the information	47	15.77	146	48.99	83	27.85	21	7.05	1	0.34	298	100

available in social media platforms.												
8. I understand that the rising "green coal" facility is a major project of the province and may cause some unknown long-term impacts as based on the information available in the mass media platforms.	39	13.09	138	46.31	96	32.21	24	8.05	1	0.34	298	100

5 = STRONGLY DISAGREE, 4 = AGREE, 3 = NEUTRAL, 2 = DISAGREE, 1 = STRONGLY DISAGREE

The social acceptability of the green coal (bana grass) project was then measured from the respondents via the questions crafted for Table 4.8 as shown below. Questions on social acceptability of the respondents started with the questions soliciting responses on whether they will accept the provincial project given certain circumstances like concerning their finances, the possible use of provincial resources like money and land, and the use of prominent people to promote or educate the people regarding the project when shown in different media platforms. Answers from the survey were then gathered and analyzed descriptively showing that this time, positive responses regarding the acceptance of the project is higher compared to the previous two table consisting of the knowledge and understanding. Though the number of respondents who answered neutral still poses a fair value. Again, minority only of the surveyed residents said that they don't accept the project as they ticked on the strongly disagree and disagree boxes.

Table 4.8

Social Acceptability of Green Coal as Alternative Energy Source of the Province of Bataan

QUESTION	5		4		3		2		1		Total	
	f	%	f	%	f	%	f	%	f	%	f	%
1. I accept that the use of "green coal" will mean a diversion of my taxes being paid to the construction of its facility.	48	16.11	117	39.26	99	33.22	32	10.74	2	0.67	298	100
2. I accept that the use of "green coal" will cause the conversion of certain land area of the province into its facility since the plant requires a lot of space as usual biomass plant facility does.	44	14.76	132	44.29	91	30.54	30	10.07	1	0.34	298	100
3. I accept that the use of "green coal" will have a rippling effect on the employment of people, either living inside or outside the province, who supply and work for traditional coal.	40	13.42	138	46.31	93	31.21	25	8.39	2	0.67	298	100
4. I accept that the use of	41	13.76	118	39.60	111	37.25	26	8.72	2	0.67	298	100

"green coal" means purchasing some expensive equipment by the province for the establishment of its plant facility as usual biomass energy plant facility does.												
5. I accept that the use of "green coal" may somehow be inefficient at some times in terms of how much energy it takes to create electricity as what biomass energy plant facility does.	41	13.76	110	36.91	114	38.25	30	10.07	3	1.01	298	100
6. I accept that the use of "green coal" by the Bataenos depends on how it will benefit them regarding the frequent brownouts and blackouts being experienced by the province with the use of the traditional coal.	44	14.76	140	46.98	91	30.54	23	7.72	0	0	298	100
7. I accept that the use of	49	16.44	137	45.97	91	30.54	20	6.71	1	0.34	298	100

"green coal" will somehow bring a significant change on the finances of the Bataenos.												
8. I accept the fact that local and/or national mass media outlets play a role in educating Bataenos on the possible effects of the use of "green coal".	50	16.78	140	46.98	88	29.53	20	6.71	0	0	298	100
9. I believe on the role of televisions or the internet to help provide further knowledge, awareness, and understanding to people on the effects of the use of biomass energy like "green coal" leading to their acceptance or rejection of the said provincial project.	65	21.81	144	48.32	68	22.82	19	6.38	2	0.67	298	100
10. I believe that having provincial government officials or well-known/influential people can spark interest	49	16.44	136	45.64	87	29.19	25	8.39	1	0.34	298	100

and arousal of basic social concerns on the use of “green coal” in the province.												
11. I believe that having government officials or well-known/influential people can help get the information across people of different socio-economic status leading to either the social acceptance or rejection of the use of “green coal”	56	18.79	145	48.66	78	26.17	18	6.04	1	0.34	298	100
12. I believe that free and easy access on the information through media outlets regarding the use of “green coal” will fix the knowledge gap of the Bataenos that may lead to either their acceptance or rejection of the said project.	58	19.46	148	49.66	71	23.83	20	6.71	1	0.34	298	100
13. Given the information shown through media outlets, I	52	17.45	126	42.28	92	30.87	26	8.73	2	0.67	298	100

accept 100% the use of "green coal" in the province of Bataan.	

5 = STRONGLY DISAGREE, 4 = AGREE, 3 = NEUTRAL, 2 = DISAGREE, 1 = STRONGLY DISAGREE

In the data analysis done through the spearman rho to further determine how the level of knowledge and understanding affect the social acceptability of the green coal project as an alternative energy source shows a positive correlation as shown in Table 4.9 below. Positive correlation in spearman rho data analysis means that as one variable increases, the other variable tends to increase also. In this study, the strong positive response in the knowledge and understanding of the residents of Bataan regarding the utilization of green coal as shown in the previous tables tends to cause an increasing effect to the social acceptability of this said project. Thus, the more knowledgeable and the more the people understood the project, is the more they will accept the provincial project, given its benefits and downsides. Also, as a response to the research question, the way of dissemination of information across different media platforms in all levels of social classes had paved an effect to the social acceptability of the green coal (bana grass) project in Bataan, Philippines.

Table 4.9

Data Analysis using Spearman Rho

SUMMARY OUTPUT	**SPEARMAN RHO RANK CORRELATION**
Coefficient (Rs)	0.720070502
N:	298
T-Stat:	17.85350208
DF:	296
p-value	**6.78042E-49**
Interpretation:	**REJECT HO**
Significant?:	**YES**
Strength of relationship:	**VERY STRONG, POSITIVE CORRELATION**

Interpretation:	**There is sufficient evidence to say that there is a very strong, positive correlation between the ranks of the results on knowledge and understanding and social acceptability**

APPLICABILITY OF STATISTICAL TREATMENT

Assumptions:	Satisfied or not?
#1: Both variables should be ordinal, interval or ratio	**YES**
#2: Results come from paired observations.	**YES**
#3: Linearity is present.	**YES**

Chapter V

SUMMARY, CONCLUSION & RECOMMENDATIONS

After the quantitative analysis of the data gathered and tabulated, discussion had been presented with regards with the analyzed data following with the conclusion as to what has been inferred regarding the variables involved namely knowledge, understanding, and social acceptability. Recommendations then wrap up the insights and necessary things to be addressed if doing the same or similar topic.

Summary

Traditional coal has been a cause of air pollution over the years that posed a threat to human health and environment over the years. According to a research report by Suarez & Myllyvirta (2020), air pollution is the major environmental risk factor to human health in the country. Through the use of 10 GW of installed coal-fired power capacity, air pollution from coal is held responsible for 630 air pollution-related deaths and USD 165 million annually. In the coming decade, there will be a cumulative impact of 7,000 premature deaths, and an economic cost of approximately USD 2 billion without policies imposed on stronger emissions standards. This might worsen as another 9 GW of coal are currently in various stages of construction and permitting phases. The report of Air Quality and Health Impacts of Coal-fired Power in the Philippines by Suarez & Myllyvirta (2020) presents that if the proposed Coal-fired Power in the Philippines are commercialized by 2024, these new plants would be the cause in almost 26,300 premature deaths over 40 years. This is a wake up call for the Local Government units in the Philippines and as a response, provinces had made

their own ways of achieving greener, cleaner, and sustainable ways to counteract this possible action in the country.

On January 2023, the Provincial Government of Bataan in partnership with Mackay Negros Bana Charcoal Corporation signed a Memorandum of Understanding on the plan of establishing a green coal (bana grass) power plant in the province as a response for a greener source of energy and with the worsening case of climate change not just in the country but to the world. In line with the relevant information presented earlier on climate change and human health and safety, this research study then aims to know how the level of knowledge and understanding obtained by the residents of Bataan, Philippines from the information accessed through the different media platforms be related to the possible social acceptability of green coal as alternative energy source of the province and as to how it may fill any gap left between the people belonging to the lower and higher socioeconomic status in the province. This study gathered basic information like socio-demographic profile that includes age, municipality, educational attainment, and years of residence among others, and also yielded answers from the chosen residents of Bataan to identify how their levels of knowledge and understanding can affect the social acceptability of the green coal (bana grass) project, and to know also if the provincial government was able to disseminate the information to all levels of social classes that may help people know and understand well the project that might lead to their fair judgment of either accepting or rejecting the project.

One shot survey was utilized as the research design of this study while stratified random sampling is used in choosing the respondents wherein the province of Bataan is subdivided into its municipalities and lone city. In this study, 298 random residents in Bataan serve as the sample size as based in a research paper published by Monroe,

et al in June 2010 about the public perception on the use of a Woody Biomass as a Renewable Energy Source abroad particularly in Alachua County, Florida, USA. After the preparation of the research instrument via validation and the survey process and data tabulation, the analyzed data were then subjected to proper management and disposal based on Data Privacy Act of 2012. Spearman rho is the statistical tool used in analyzing the gathered data where it denoted a very strong, positive correlation among the involved variables, implying that as the levels of knowledge and understanding of the residents of Bataan increase, their social acceptability with the green coal (bana grass) project also increase. With regards with the existence of the Knowledge Gap Theory in the problem of the study, results show that even though most of the Bataenos are undecided or unsure if they have known the incoming project via different media platforms, they still will accept its implementation when pursued by the provincial government of Bataan. Thus, the knowledge gap does not change significantly between the two socio-economic classes and further leading to the social acceptability of the said provincial project.

Conclusion

From the data gathered and analyzed on this study, it was shown from the results that there is a powerful positive response from the chosen residents of Bataan where their fair to good answers regarding their knowledge of the green coal (bana grass) project heard or seen from different media platforms reflects on the strong social acceptability of the said provincial project.

Regarding the level of understanding of the residents of Bataan, most of the respondents posed a positive response that they understood well the project as what

they have comprehended from different media platforms while minority of the surveyed residents showed an insignificant number in terms of how they understood the project.

On the data gathered, the researcher then inferred that the socio-demographic profile of the respondents played a minor role on their answers regarding their social acceptability. When the researcher asked if they knew the provincial project well, they said little but they still answered that they 100% accept the project because they believe that the green coal is for their own good as a specific number of residents in Bataan especially in Limay and Mariveles are in silence grievance with the air pollution caused by coal-fired power plants in the said towns of the province into their health and environment. According to a study by Magnaye (2020) on the effect of coal plant to human health, the researchers listed down the health indicators that the residents of Calaca, Batangas were experiencing as they live near a coal plant. These includes cardiovascular diseases such as stroke, any kind of nervous breakdown from the excessive exposure to coal, Alzheimer's disease, nervous system disorders among infants and young children, and congestive heart failure among others. These listed in the said research were also the concerns of residents in Barangay Alangan in Limay and Barangay Lucanin in Mariveles. They prefer to have the green coal power plant pushed through to alleviate the effects of the traditional coal-fired power plant in their area. The researcher himself has witnessed the said facility in the barangay of Lucanin as a resident point out the coal facility located by the seaside when he went there to survey. Another reason why residents of Bataan who were surveyed still prefer to accept the project though they have a little knowledge with it and regardless of their socio-demographic background are first, if it will provide a solution to the intermittent power outage the province is experiencing for more than a year. Also, if it will save them more money especially with the current hitting of inflation, they'll go for it.

Recommendations

To the future researchers in the field of development communication, the researcher recommends to increase the sample size to reduce the sampling error though increasing the sample size also will mean a problem with the time frame as experienced by the researcher himself who took two semesters of the academic year to finish this study. The researcher also recommends to the future researchers, especially those living in Bataan, to explore other energy topics like the use of solar panels in Bataan since the provincial government is on its peak of sourcing other greener sources of energy. Topics involving the increasing number of coal-fired power plants in the province of Bataan may also be a good concern in crafting your research study as it may serve a wake-up call to local government units on the possible effects of coal-power plant to human health and safety and to the environment. The mixed method of combining the quantitative and qualitative approach may also be harnessed if given enough or a lot of time.

As mentioned earlier, the study posed a positive correlation implying that as the knowledge and understanding of the residents of Bataan, Philippines on the green coal (bana grass) project increases, there's a great tendency for its social acceptability in the province. Media plays a crucial role in the proper and sufficient dissemination of the information regarding the project as the more people are knowledgeable and have understood well the project, the possibility of social acceptability is high. During the survey, some respondents said they were able to see the news in the 1Bataan website while majority claimed that they saw posts in social media platforms like through local and provincial Facebook accounts. Lack of promotion partly emanates in this scenario where information can only be seen through the provincial website and Facebook

account. With such case, the researcher highly suggest that the provincial government must maximize their media platform in order to educate the residents of Bataan about this project by utilizing the radio, television, and printed materials like brochure to boost the promotion to educate the general public regarding the green coal (bana grass) project in the province. Also, to fix the knowledge gap is to assure the society of the free access to information available to all. Maximizing the use of different free media platforms may influence further and spark the interest of Bataenos on how they will respond to this said project given the information relayed to them.

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ANNEXES

ANNEX A

SURVEY FORM

UNIVERSITY OF THE PHILIPPINES
OPEN UNIVERSITY
MASTER OF DEVELOPMENT COMMUNICATION

SURVEY FORM
JOHN MYLES D. CANUTO – RESEARCHER

Good day Sir/Ma'am! I am John Myles D. Canuto, a graduate student pursuing Master of Development Communication from the University of the Philippines Open University and I would like to invite you to be a part of my graduate research study entitled "**KNOWLEDGE, UNDERSTANDING, AND SOCIAL ACCEPTABILITY OF GREEN COAL (BANA GRASS) AS ENERGY SOURCE AMONG RESIDENTS OF BATAAN, PHILIPPINES**". I have chosen you to become one of my respondents as you satisfy the criteria to become one.

The aims of this study are to (1) know how the demographic profile like age, municipality, educational attainment, years of residence of residents of Bataan and monthly income affect the social acceptability of the green coal as alternative energy source, (2) identify the level of knowledge/understanding relative to possible use of green coal as alternative energy source, (3) determine if the information regarding the project of using green coal as alternative energy source has been disseminated to all levels of social classes of the residents of Bataan properly, thus leading to the social acceptability of the said provincial project.

In this survey, we will be gathering some personal information like your names (optional), certain data about your family like monthly income, and your level of knowledge and understanding towards the "green coal" project of our Provincial Government. This survey is of Likert Scale type providing the questions and you may just choose your answer for each question. If you find the survey uncomfortable, you are free to withdraw anytime. Rest assured that all the data that you will be providing us will be kept and stored with utmost confidentiality and privacy based on the Data Privacy Act of 2012. There are no known risks if you decide to participate in this research study. There are no costs to you for participating in the study. The questionnaire will take about approximate amount of time to complete. The information collected may not benefit you directly, but the information learned in this study should provide more general benefits.

Before we start, we would like to know if you want to participate in our study?

____ I agree to participate in your study.
____ I disagree to participate in your study.

INSTRUCTION: If you are ready to proceed, may we start with the survey.

PART I. Socio-demographic Profile

1.1. What is your age?*

- 18 – 25 years old
- 26 – 44 years old
- 45 – 59 years old
- 60 years old and above

**Age brackets are based on sequential pattern*

1.2. Where in Bataan Province do you live?

- Abucay
- Bagac
- Balanga City
- Dinalupihan
- Hermosa
- Limay
- Mariveles
- Morong
- Orani
- Orion
- Pilar
- Samal

1.3. How many years are you living in Bataan?

- Less than 3 years
- 3 years
- 4 years
- 5 years
- More than 5 years

1.4. What is your highest educational attainment?

- High School Graduate
- College Undergraduate
- College Graduate
- Post-Graduate Degree Holder
- Master's
- Doctoral

1.5 What is your monthly income?*

- Below Php 10,957
- Php 10,957 – Php 21,914
- Php 21,914 – Php 43,828

- Php 43,828 – Php 76,669
- Php 76,669 – Php 131,484
- Php 131,484 – Php 219,140
- Php 219,140 and above

**Monthly Income Brackets are based on the table provided by the Philippine Institute for Development Studies last December 15, 2023*

PART II. Knowledge on the Use of "Green Coal" as Alternative Energy Source of the Bataan Province

Answer the following based on the level of your knowledge of the bana grass or "green coal" with 5 as Strongly Agree and 1 as Strongly Disagree.

QUESTION	5 Strongly Agree	4 Agree	3 Neutral	2 Disagree	1 Strongly Disagree
1. I know that climate change is a global phenomenon which originated from the burning of traditional coal.					
2. I know that the Provincial Government of Bataan aims for sustainability most especially in the energy consumption of the province via the mass media.					
3. I know about the partnership of the Provincial Government of Bataan and the Mackay Negros Bana Charcoal Corporation regarding the use of green coal via the mass media.					
4. I know that the province will soon use "green coal" in the province as alternative energy source through the mass media.					
5. Based on the information shown in media outlets, I know that green coal can perform necessary changes in the Bataenos' electric bill.					
6. Based on the information shown in media outlets, I know that using "green coal" can cause major changes in the atmosphere with respect to global warming and climate change.					

7. Based on the information shown in media outlets, I know that using “green coal” can make an impact regarding the amount of money that we can save.					
8. Based on the information shown in media outlets, “green coal” has a different rate of growth and planting technique that can play an important role on its use as an alternative energy source.					
9. Based on the information shown in media outlets, “green coal” is different in terms of the safeness to the environment and its carbon emissions than traditional coal.					
10. Based on the information given in media outlets, “green coal” has something to do with the aim of the provincial government towards the use of green energy in Bataan.					
11. Based on the information from media outlets, “green coal” has its own stand with respect to a clean and safer energy source for the health of everyone, as well as for the nature and the environment.					
12. Based on the information from media outlets, “green coal” has an environmental impact and effects on public health.					

PART III. Understanding of the Use of “Green Coal” as Alternative Energy Source in the Bataan Province

Answer the following based on the level of your knowledge of the bana grass or “green coal” with 5 as Strongly Agree and 1 as Strongly Disagree.

QUESTION	5 Strongly Agree	4 Agree	3 Neutral	2 Disagree	1 Strongly Disagree
1. I understand that a “green coal” plant facility will soon rise in the province of Bataan based on the					

information from mass media platforms.					
2. I understand that “green coal” will replace the traditional coal which is the current source of energy of the province as based on the information available from mass media platforms.					
3. I understand that the aim of the Provincial Government in building a “green coal” plant facility is to promote green energy in the province as based on the information from mass media platforms.					
4. I understand the repercussions and effects of green coal as compared to carbon emissions due to mass media.					
5. I understand that there will come a point in time that the province of Bataan will adopt “green coal” as alternative energy source based on the information from mass media platforms.					
6. I understand that the “green coal” project will be for all the residents of Bataan regardless of socio-economic status as based on the information available in social media platforms.					
7. I understand that the “green coal” project will create an effect financially and environmentally to the whole province of Bataan as based on the information available in social media platforms.					
8. I understand that the rising “green coal” facility is a major project of the province and may cause some unknown long-term impacts as based on the information available in the mass media platforms.					

PART IV. Social Acceptability of Green Coal as Alternative Energy Source of the Province of Bataan

QUESTION	5 Strongly Agree	4 Agree	3 Neutral	2 Disagree	1 Strongly Disagree
1. I accept that the use of “green coal” will mean a diversion of my taxes being paid to the construction of its facility.					
2. I accept that the use of “green coal” will cause the conversion of certain land area of the province into its facility since the plant requires a lot of space as usual biomass plant facility does.					
3. I accept that the use of “green coal” will have a rippling effect on the employment of people, either living inside or outside the province, who supply and work for traditional coal.					
4. I accept that the use of “green coal” means purchasing some expensive equipment by the province for the establishment of its plant facility as usual biomass energy plant facility does.					
5. I accept that the use of “green coal” may somehow be inefficient at some times in terms of how much energy it takes to create electricity as what biomass energy plant facility does.					
6. I accept that the use of “green coal” by the Bataenos depends on how it will benefit them regarding the frequent brownouts and blackouts being experienced by the province with the use of the traditional coal.					
7. I accept that the use of “green coal” will somehow bring a					

significant change on the finances of the Bataenos.					
8. I accept the fact that local and/or national mass media outlets play a role in educating Bataenos on the possible effects of the use of “green coal”.					
9. I believe on the role of televisions or the internet to help provide further knowledge, awareness, and understanding to people on the effects of the use of biomass energy like “green coal” leading to their acceptance or rejection of the said provincial project.					
10. I believe that having provincial government officials or well-known/influential people can spark interest and arousal of basic social concerns on the use of “green coal” in the province.					
11. I believe that having government officials or well-known/influential people can help get the information across people of different socio-economic status leading to either the social acceptance or rejection of the use of “green coal”					
12. I believe that free and easy access on the information through media outlets regarding the use of “green coal” will fix the knowledge gap of the Bataenos that may lead to either their acceptance or rejection of the said project.					
13. Given the information shown through media outlets, I accept 100% the use of “green coal” in the province of Bataan.					

Thank you for your response. We’ll send you a copy of the final paper to your Barangay officials once I’m done with the research.

ANNEX B

RESEARCH SERVICES

LRO-SR109: INSTRUMENT VALIDATION FORM

Thesis/Research Title:			
AWARENESS, KNOWLEDGE, AND SOCIAL ACCEPTABILITY OF GREEN COAL (BANA GRASS) AS ENERGY SOURCE AMONG RESIDENTS OF BATAAN, PHILIPPINES			
Proponent(s)/Author(s):			
1	*John Myles D. Canuto*		
2	*** Nothing Follows *****		
3			
4			
5			
6			
Name of Research Adviser:	*N/A*		
Signature of Research Adviser:	*N/A*		
Academic Department:	*N/A*	Program:	*N/A*
Research Objective/s:			
1. Know the demographic profile like age, municipality, educational attainment, and years of residence of residents of Bataan included in the study; *2. Identify the level of knowledge/awareness relative to possible use of green coal as alternative energy source;* *3. Determine if the information regarding the project of using green coal as alternative energy source has been disseminated to all levels of social classes of the residents of Bataan properly, thus leading to the social acceptability of the said provincial project.*			
Research Variables:			
Independent variable = sociodemographic profile, knowledge, and understanding on the use of bana grass or "green coal" *Dependent variable = social acceptability on the use of "green coal" as alternative energy source in Bataan*			
Research Design and Methodology:			
Quantitative Design particularly One Shot Survey			
Enumerate Survey Instrument/s:			
Kindly see attached file in the email			
Enumerate Interview Protocol/s:			
N/A			
Endorsement: (to validator)			
	Name of Certified Validator		Name and Signature of Research Coordinator
Endorsement: (to LRO)		Feb 15, 2024	
	Signature of Certified Validator		Date
Note: Please attach the survey instrument/s and/or Interview Protocol/s as well as the research paper			

LRO-SR109: Instrument Validation Form

Colegio de San Juan de Letran
B A T A A N

RESEARCH AND PUBLICATION DEPARTMENT

RPD-SR104: STATISTICAL SERVICES FORM

Thesis/Research Title:			
AWARENESS, KNOWLEDGE, AND SOCIAL ACCEPTABILITY OF GREEN COAL (BANA GRASS) AS ENERGY SOURCE AMONG RESIDENTS OF BATAAN, PHILIPPINES			
Proponent(s)/Author(s):			
1	*John Myles D. Canuto*		
2	***Nothing Follows***		
3			
4			
5			
6			
Name of Research Adviser:	*N/A*		
Signature of Research Adviser:	*N/A*		
Academic Department:	*N/A*	Program:	*N/A*
Research Objective/s:			
1. Know the demographic profile like age, municipality, educational attainment, and years of residence of residents of Bataan included in the study; *2. Identify the level of knowledge/awareness relative to possible use of green coal as alternative energy source;* *3. Determine if the information regarding the project of using green coal as alternative energy source has been disseminated to all levels of social classes of the residents of Bataan properly, thus leading to the social acceptability of the said provincial project.*			
Research Variables:			
Independent variable = sociodemographic profile, knowledge, and understanding on the use of bana grass or "green coal" *Dependent variable = social acceptability on the use of "green coal" as alternative energy source in Bataan*			
Statistical Tools:			
Spearman Rho			
Endorsement: (to statistician)	Mr. Faisal Jackarain	Ms. Abegail Abelgas	
	Name of Certified Statistician	Name and Signature of Research Coordinator	
Endorsement: (to RPD)	Asst. Prof. Faisal H. Jackarain, RN, MPH	19 July 2024	
	Signature of Certified Statistician	Date	
Note: Please attach the research paper and data set.			

@letranbataan letranbataan.edu.ph 0921-939-1624

ANNEX C

CONSENT LETTERS TO BARANGAYS IN BATAAN

MARCH 01, 2024

BARANGAY CAPTAIN
BRGY. STA ELENA POBLACION, ORION, BATAAN

TO WHOM IT MAY CONCERN:

Greetings!

I, a student researcher from University of the Philippines Open University, would like to formally ask your good office to conduct the data gathering in your barangay necessary for our research titled: "**AWARENESS, KNOWLEDGE, AND SOCIAL ACCEPTABILITY OF GREEN COAL (BANA GRASS) AS ENERGY SOURCE AMONG RESIDENTS OF BATAAN, PHILIPPINES**". I would like to conduct the said data collection on MARCH 01, 2024.

I intend to gather the following data: KNOWLEDGE, AWARENESS, & SOCIAL ACCEPTABILITY of the residents of Barangay Sta Elena Poblacion regarding the utilization of bana grass (green coal) as alternative energy source of the province.

The data gathered will aid me in selecting respondents and surveying them, and will help strengthen the overall foundation of my research.

Rest assured that all data gathered shall be treated with utmost confidentiality in accordance with the Data Privacy Law of 2012.

Hoping for your favorable response.

Respectfully,

MR. JOHN MYLES D. CANUTO
Researcher

Epifanio R. Mariano
Punong Barangay
March 01 2024

MARCH 01, 2024

BARANGAY CAPTAIN
BRGY. ALANGAN, LIMAY, BATAAN

TO WHOM IT MAY CONCERN:

Greetings!

I, a student researcher from University of the Philippines Open University, would like to formally ask your good office to conduct the data gathering in your barangay necessary for our research titled: "**AWARENESS, KNOWLEDGE, AND SOCIAL ACCEPTABILITY OF GREEN COAL (BANA GRASS) AS ENERGY SOURCE AMONG RESIDENTS OF BATAAN, PHILIPPINES**". I would like to conduct the said data collection on MARCH 01, 2024.

I intend to gather the following data: KNOWLEDGE, AWARENESS, & SOCIAL ACCEPTABILITY of the residents of Barangay Alangan regarding the utilization of bana grass (green coal) as alternative energy source of the province.

The data gathered will aid me in selecting respondents and surveying them, and will help strengthen the overall foundation of my research.

Rest assured that all data gathered shall be treated with utmost confidentiality in accordance with the Data Privacy Law of 2012.

Hoping for your favorable response.

Respectfully,

MR. JOHN MYLES D. CANUTO
Researcher

TERESITA D DELA RAEA
PUNONG BARANGAY
03-01-2024

MARCH 01, 2024

BARANGAY CAPTAIN
BRGY. LUCANIN, MARIVELES, BATAAN

TO WHOM IT MAY CONCERN:

Greetings!

I, a student researcher from University of the Philippines Open University, would like to formally ask your good office to conduct the data gathering in your barangay necessary for our research titled: "**AWARENESS, KNOWLEDGE, AND SOCIAL ACCEPTABILITY OF GREEN COAL (BANA GRASS) AS ENERGY SOURCE AMONG RESIDENTS OF BATAAN, PHILIPPINES**". I would like to conduct the said data collection on MARCH 01, 2024.

I intend to gather the following data: KNOWLEDGE, AWARENESS, & SOCIAL ACCEPTABILITY of the residents of Barangay Lucanin regarding the utilization of bana grass (green coal) as alternative energy source of the province.

The data gathered will aid me in selecting respondents and surveying them, and will help strengthen the overall foundation of my research.

Rest assured that all data gathered shall be treated with utmost confidentiality in accordance with the Data Privacy Law of 2012.

Hoping for your favorable response.

Respectfully,

MR. JOHN MYLES D. CANUTO
Researcher

By: Kap Reynaldo Ando
4/9/2024
12:30 pm

JUNE 11, 2024

BARANGAY CAPTAIN
BRGY. TUGATOG, ORANI, BATAAN

TO WHOM IT MAY CONCERN:

Greetings!

I, a student researcher from University of the Philippines Open University, would like to formally ask your good office to conduct the data gathering in your barangay necessary for our research titled: "**AWARENESS, KNOWLEDGE, AND SOCIAL ACCEPTABILITY OF GREEN COAL (BANA GRASS) AS ENERGY SOURCE AMONG RESIDENTS OF BATAAN, PHILIPPINES**". I would like to conduct the said data collection on JUNE 11-12, 2024.

I intend to gather the following data: KNOWLEDGE, AWARENESS, & SOCIAL ACCEPTABILITY of the residents of Barangay Tugatog regarding the utilization of bana grass (green coal) as alternative energy source of the province.

The data gathered will aid me in selecting respondents and surveying them, and will help strengthen the overall foundation of my research.

Rest assured that all data gathered shall be treated with utmost confidentiality in accordance with the Data Privacy Law of 2012.

Hoping for your favorable response.

Respectfully,

MR. JOHN MYLES D. CANUTO
Researcher

MARLO A. REYES
KAGAWAD
BRGY. TUGATOG
ORANI BATAAN

JUNE 11, 2024

BARANGAY CAPTAIN
BRGY. RIZAL, PILAR, BATAAN

TO WHOM IT MAY CONCERN:

Greetings!

I, a student researcher from University of the Philippines Open University, would like to formally ask your good office to conduct the data gathering in your barangay necessary for our research titled: "**AWARENESS, KNOWLEDGE, AND SOCIAL ACCEPTABILITY OF GREEN COAL (BANA GRASS) AS ENERGY SOURCE AMONG RESIDENTS OF BATAAN, PHILIPPINES**". I would like to conduct the said data collection on JUNE 11-12, 2024.

I intend to gather the following data: KNOWLEDGE, AWARENESS, & SOCIAL ACCEPTABILITY of the residents of Barangay Rizal regarding the utilization of bana grass (green coal) as alternative energy source of the province.

The data gathered will aid me in selecting respondents and surveying them, and will help strengthen the overall foundation of my research.

Rest assured that all data gathered shall be treated with utmost confidentiality in accordance with the Data Privacy Law of 2012.

Hoping for your favorable response.

Respectfully,

MR. JOHN MYLES D. CANUTO
Researcher

Received by:

ROBERTO A. REYES, JR
Punong Barangay

JUNE 11, 2024

BARANGAY CAPTAIN
BRGY. LAON, ABUCAY, BATAAN

TO WHOM IT MAY CONCERN:

Greetings!

I, a student researcher from University of the Philippines Open University, would like to formally ask your good office to conduct the data gathering in your barangay necessary for our research titled: "**AWARENESS, KNOWLEDGE, AND SOCIAL ACCEPTABILITY OF GREEN COAL (BANA GRASS) AS ENERGY SOURCE AMONG RESIDENTS OF BATAAN, PHILIPPINES**". I would like to conduct the said data collection on JUNE 11-12, 2024.

I intend to gather the following data: KNOWLEDGE, AWARENESS, & SOCIAL ACCEPTABILITY of the residents of Barangay Laon regarding the utilization of bana grass (green coal) as alternative energy source of the province.

The data gathered will aid me in selecting respondents and surveying them, and will help strengthen the overall foundation of my research.

Rest assured that all data gathered shall be treated with utmost confidentiality in accordance with the Data Privacy Law of 2012.

Hoping for your favorable response.

Respectfully,

MR. JOHN MYLES D. CANUTO
Researcher

RECEIVED
11 JUN 2024

MARK PAUL E. LOPEZ
BRGY. SECRETARY

JUNE 11, 2024

BARANGAY CAPTAIN
BRGY. SAPA, SAMAL, BATAAN

TO WHOM IT MAY CONCERN:

Greetings!

I, a student researcher from University of the Philippines Open University, would like to formally ask your good office to conduct the data gathering in your barangay necessary for our research titled: **"AWARENESS, KNOWLEDGE, AND SOCIAL ACCEPTABILITY OF GREEN COAL (BANA GRASS) AS ENERGY SOURCE AMONG RESIDENTS OF BATAAN, PHILIPPINES"**. I would like to conduct the said data collection on JUNE 11-12, 2024.

I intend to gather the following data: KNOWLEDGE, AWARENESS, & SOCIAL ACCEPTABILITY of the residents of Barangay Sapa regarding the utilization of bana grass (green coal) as alternative energy source of the province.

The data gathered will aid me in selecting respondents and surveying them, and will help strengthen the overall foundation of my research.

Rest assured that all data gathered shall be treated with utmost confidentiality in accordance with the Data Privacy Law of 2012.

Hoping for your favorable response.

Respectfully,

MR. JOHN MYLES D. CANUTO
Researcher

JUNE 14, 2024

BARANGAY CAPTAIN
BRGY. TIPO, HERMOSA, BATAAN

TO WHOM IT MAY CONCERN:

Greetings!

I, a student researcher from University of the Philippines Open University, would like to formally ask your good office to conduct the data gathering in your barangay necessary for our research titled: "**AWARENESS, KNOWLEDGE, AND SOCIAL ACCEPTABILITY OF GREEN COAL (BANA GRASS) AS ENERGY SOURCE AMONG RESIDENTS OF BATAAN, PHILIPPINES**". I would like to conduct the said data collection on JUNE 17-18, 2024.

I intend to gather the following data: KNOWLEDGE, AWARENESS, & SOCIAL ACCEPTABILITY of the residents of Barangay Tipo regarding the utilization of bana grass (green coal) as alternative energy source of the province.

The data gathered will aid me in selecting respondents and surveying them, and will help strengthen the overall foundation of my research.

Rest assured that all data gathered shall be treated with utmost confidentiality in accordance with the Data Privacy Law of 2012.

Hoping for your favorable response.

Respectfully,

MR. JOHN MYLES D. CANUTO
Researcher

RECEIVED COPY
BY: RICHARD GAGLAND
06-14-2024

JUNE 14, 2024

BARANGAY CAPTAIN
BRGY. NAPARING, DINALUPIHAN, BATAAN

TO WHOM IT MAY CONCERN:

Greetings!

I, a student researcher from University of the Philippines Open University, would like to formally ask your good office to conduct the data gathering in your barangay necessary for our research titled: "**AWARENESS, KNOWLEDGE, AND SOCIAL ACCEPTABILITY OF GREEN COAL (BANA GRASS) AS ENERGY SOURCE AMONG RESIDENTS OF BATAAN, PHILIPPINES**". I would like to conduct the said data collection on JUNE 17-18, 2024.

I intend to gather the following data: KNOWLEDGE, AWARENESS, & SOCIAL ACCEPTABILITY of the residents of Barangay Naparing regarding the utilization of bana grass (green coal) as alternative energy source of the province.

The data gathered will aid me in selecting respondents and surveying them, and will help strengthen the overall foundation of my research.

Rest assured that all data gathered shall be treated with utmost confidentiality in accordance with the Data Privacy Law of 2012.

Hoping for your favorable response.

Respectfully,

MR. JOHN MYLES D. CANUTO
Researcher

Received by:
Ma. Corazon R. Castro
Brgy. Sec.
06/14/2024

JULY 05, 2024

BARANGAY CAPTAIN
BRGY. PAYSAWAN, BAGAC, BATAAN

TO WHOM IT MAY CONCERN:

Greetings!

I, a student researcher from University of the Philippines Open University, would like to formally ask your good office to conduct the data gathering in your barangay necessary for our research titled: "**AWARENESS, KNOWLEDGE, AND SOCIAL ACCEPTABILITY OF GREEN COAL (BANA GRASS) AS ENERGY SOURCE AMONG RESIDENTS OF BATAAN, PHILIPPINES**". I would like to conduct the said data collection on JULY 05 - 06, 2024.

I intend to gather the following data: KNOWLEDGE, AWARENESS, & SOCIAL ACCEPTABILITY of the residents of Barangay Paysawan regarding the utilization of bana grass (green coal) as alternative energy source of the province.

The data gathered will aid me in selecting respondents and surveying them, and will help strengthen the overall foundation of my research.

Rest assured that all data gathered shall be treated with utmost confidentiality in accordance with the Data Privacy Law of 2012.

Hoping for your favorable response.

Respectfully,

MR. JOHN MYLES D. CANUTO
Researcher

GERMAN L. REGALADO JR.
Punong Barangay
07-05-2024

JULY 05, 2024

BARANGAY CAPTAIN
BRGY. BINARITAN, MORONG, BATAAN

TO WHOM IT MAY CONCERN:

Greetings!

I, a student researcher from University of the Philippines Open University, would like to formally ask your good office to conduct the data gathering in your barangay necessary for our research titled: "**AWARENESS, KNOWLEDGE, AND SOCIAL ACCEPTABILITY OF GREEN COAL (BANA GRASS) AS ENERGY SOURCE AMONG RESIDENTS OF BATAAN, PHILIPPINES**". I would like to conduct the said data collection on JULY 05 - 06, 2024.

I intend to gather the following data: KNOWLEDGE, AWARENESS, & SOCIAL ACCEPTABILITY of the residents of Barangay Binaritan regarding the utilization of bana grass (green coal) as alternative energy source of the province.

The data gathered will aid me in selecting respondents and surveying them, and will help strengthen the overall foundation of my research.

Rest assured that all data gathered shall be treated with utmost confidentiality in accordance with the Data Privacy Law of 2012.

Hoping for your favorable response.

Respectfully,

MR. JOHN MYLES D. CANUTO
Researcher

7/5/24

ROBERTO S. DEL ROSARIO
BRGY. CAPTAIN

JULY 08, 2024

BARANGAY CAPTAIN
BRGY. TANATO, BALANGA CITY, BATAAN

TO WHOM IT MAY CONCERN:

Greetings!

I, a student researcher from University of the Philippines Open University, would like to formally ask your good office to conduct the data gathering in your barangay necessary for our research titled: "**AWARENESS, KNOWLEDGE, AND SOCIAL ACCEPTABILITY OF GREEN COAL (BANA GRASS) AS ENERGY SOURCE AMONG RESIDENTS OF BATAAN, PHILIPPINES**". I would like to conduct the said data collection on JULY 08-13, 2024.

I intend to gather the following data: KNOWLEDGE, AWARENESS, & SOCIAL ACCEPTABILITY of the residents of Barangay Tanato regarding the utilization of bana grass (green coal) as alternative energy source of the province.

The data gathered will aid me in selecting respondents and surveying them, and will help strengthen the overall foundation of my research.

Rest assured that all data gathered shall be treated with utmost confidentiality in accordance with the Data Privacy Law of 2012.

Hoping for your favorable response.

Respectfully,

MR. JOHN MYLES D. CANUTO
Researcher

MARITES A. ALCAZIAR
BRGY. SECRETARY