

# Community Participation of Calamba, Laguna, Philippines on Environmental Sustainability: Basis for the Development of a Proposed Environmental Management Plan

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**Abstract** – Modernity has not only made life easier with the advancement of society through globalization, but it has also contributed to the rapid decline of the quality of life by way of environmental consequences. Thus, the idea of community participation had been promoted to encourage and promote the community's increased engagement with regards to saving and protecting the environment and monitoring its sustainability. Through descriptive study and the use of a survey questionnaire, the study yielded results that showed a better establishment of connections and relationships between locals and tourists, as community participation means to become a part of local activities and programs and a mechanism of interaction within the community. The results have also shown how the active participation of the residents entails participation in the decision-making process regarding the implementation of programs that have a significant impact on their locality and natural environment. The findings indicated the way the locality views the importance of their engagement in promoting community participation for improved protection of the natural environment and how it impacts their lives. Moreover, this determined the effect of an accomplished program or initiative on the community and its members. Since environmental sustainability is the primary goal of further encouraging community participation, it is then recommended for local government units (LGUs) to consider enriching both the locality's environmental aspect and the community members' quality of life which include financial security and social harmony in conducting initiatives, programs, and training.

**Keywords** – community participation, environmental sustainability, LGUS

## INTRODUCTION

With the changes brought by the rapid transition of the world to modernity due to increased globalization, this does not only provide positive impacts to the people particularly in making life easier and more modern, however, there are also some negative impacts of these changes that are directly affecting the world and the environment in return.

Environmental sustainability had been defined as the concern of the various issues regarding the protection and the conservation of the environment due to various harmful man-made elements such as illegal logging, deforestation, dumping of chemicals and other toxic substances in different bodies of water, etc. [1]. Active community participation is found to be most ideal and effective for maintaining environmental sustainability as this enables people to be more aware

of the negative impacts brought by their lack of care or concern to the environment as well as also encourages a change in their behavior and perspective [2].

On the other hand, This study is not only to determine the level of community participation but also to highlight the factors hindering them to engage in environmental sustainability and to come up with solutions or proposed courses of action that will further enhance their willingness to contribute in creating an effective environmental management program catered for a collective, sustainable way of life within the community not only for their environment but also in promoting a strong and harmonious relationship within its members. As Calamba follows the mandate of RA 9003 or the Ecological Solid Waste Management Act (ESWMA) of 2000, Calamba has its city provincial board dedicated to the management of solid waste and

barangay levels, a 10-year SWM plan, and an established Materials Recovery Facility (MRF) in every barangay [3].

With this program as context, surrounds the mandated waste disposal procedures set by national and local governments and the actual waste disposal practices of the residents in the community, therefore there is a need for enhanced cooperation between the local government and its communities to maintain a healthy environment free of waste that can also boost Calamba's social and economic morale. Through the utilization of the Spontaneous, Induced, and Coercive variants of community participation, the aims of the researchers and the beliefs of the respondents in analyzing the development process will be presented, yielding results needed to form a more efficient way of assessing the level of community participation under the context of promoting environmental sustainability within Calamba, Laguna.

#### **OBJECTIVES OF THE STUDY**

The main objective of this study is to assess the level of community participation in the environmental sustainability of Calamba, Laguna residents. Specifically, assess the level of community participation in the environmental sustainability of Calamba, Laguna residents in terms of air quality control affecting the quality of lives, the good relationship among residents and tourists, natural environment preservation measures, cultural architecture and landscape preservation, cultural self-identity empowerment, employment creation, and tourists' local expenditure; present the benefits derived from community participation for environmental sustainability in terms of economic, social, and environmental; present the types of community participation about environmental sustainability in terms of spontaneous participation, induced participation, and coercive participation; Also, correlate the level of community participation and the factors affecting pollution to environmental sustainability; and Lastly, propose a sustainable environmental program for the City of Calamba, Laguna.

#### **MATERIALS AND METHODS**

The researchers adopt a descriptive study to carry out the purpose of the study. which is to define the correlation between the level of community participation and environmental sustainability in

Calamba City, Laguna. The respondents of the study are 111 residents located at Barangay Canlubang, Calamba City, Laguna. This was determined by using the statistical power analysis of G-power. It is a statistical treatment used to determine the sample size wherein; the effect size of 0.3 medium, the alpha error is .05, and the power is 0.95. The researchers used a non-random sampling technique in which it was situated on whoever is willing and available to answer the survey to the selected barangay. The main instrument that was utilized in this study is a research-made questionnaire. The value of Cronbach's alpha is 0.968 which signifies that there is an excellent internal consistency of the items. The researchers and respondents have agreed to meet through the utilization of Microsoft Forms for the survey to be done. The participants responded to the survey which was gathered, computed, inspected, and presented.

The statistical tools used in the study were Weighted Mean and Pearson R. The weighted mean is a measure of central tendency that will be used to determine the average means of the scales through the survey to be conducted about the assessment of the level of community participation, benefits derived from community participation, and types of community participation. As for the second, The Pearson-r, or also known as the Pearson's correlation coefficient, measures the level of strength of the association or correlation between two or more variables, so as with this study, the Pearson-r is particularly used to determine the correlation of the level of community participation and the benefits derived from community participation as well as the types of community participation concerning environmental sustainability. The researchers were provided a consent form for selected respondents. The purpose of the study was stated on the consent that set a guideline to protect the rights of each respondent and does not compel anybody to answer the survey. It was ensured that all personal information and data will be managed with strict confidentiality.

#### **RESULTS AND DISCUSSION**

From the Summary Table 1, most of the respondents agreed with regards to the good relationship among residents and tourists 3.62, which ranked as the highest among all indicated means under the level of community participation. This only showed that the respondents expressed importance regarding forming and maintaining better relationships between the residents and the tourists as they see this as a good and

strong foundation for allowing the tourists to have a good impression and memory of their tourist destination being showed off to people.

**Table 1. Assessment of Level of Community Participation**

Indicators	WM	SD	VI	Rank
Air Quality Control affecting Quality of Lives	3.20	0.78	A	6
Good Relationship among Residents and Tourists	3.62	0.54	A	1
Natural Environment Preservation Measures	3.27	0.70	A	5
Cultural Architecture and Landscape Preservation	3.45	0.63	A	2
Cultural Self-Identity Empowerment	3.32	0.66	A	4
Employment Creation	3.11	0.82	A	7
Tourist' Local Expenditure	3.42	0.70	A	3
<b>Composite Mean</b>	<b>3.34</b>	<b>0.58</b>	<b>A</b>	

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

On the other hand, some of the respondents agreed concerning employment creation (3.11) and ranked as the lowest mean among all indicated means and levels of community participation. Even though there is the existence of drawing attention to the importance of community participation for environmental sustainability, it can be noted that some of the respondents are still not yet convinced of its ability to be able to provide opportunities for employment and occupation for the residents and community members. Hence, this can be argued the idea on how tourism development and environmental sustainability had been believed and perceived to have the potential of being able to provide people with employment opportunities – allowing them to earn for themselves while also taking in serious thought their contribution in helping to increase their heritage and culture [4].

**Table 2. Benefits Derived from Community Participation for Environmental Sustainability**

Indicators	WV	SD	VI	Rank
Spontaneous Participation	3.28	0.67	A	2
Induced Participation	3.39	0.63	A	1
Coercive Participation	3.12	0.78	A	3
<b>Composite Mean</b>	<b>3.26</b>	<b>0.62</b>	<b>A</b>	

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

From the following indicators in the summary table 2, environmental factors ranked as the highest (3.56) and have a verbal interpretation strongly agreed. This only meant that the respondents of the present study showed that the combination of different things together that work as one unit and practice of better and effective community integration for environmental sustainability could provide many benefits for the environmental aspect, especially in terms of its protection

On the other hand, the indicator economic factor (3.47) ranked second with a verbal interpretation agree. It is shown that that the social factor got the lowest rank (3.43) and a verbal interpretation agrees. This signifies that most respondents of the study do not necessarily think that this can have a significant impact or influence affecting the social part of people in the way that they are interacting with their respective communities at the very least. Although, social aspects and interaction in any type or form of the community are needed to be taken into serious thought as this will become the basis on how people communicate and interact with one another as well as how they will deliver their ideas and understanding of deep things especially on launching attempts and actions meant for promoting and practicing environmental sustainability [5].

**Table 3. Types of Community Participation about Environmental Sustainability**

Indicators	WM	SD	VI	Rank
Economic	3.47	0.60	A	2
Social	3.43	0.64	A	3
Environmental	3.56	0.55	SA	1
<b>Composite Mean</b>	<b>3.49</b>	<b>0.54</b>	<b>A</b>	

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

From the table 3, Induced participation ranked as the highest (3.39) and has a verbal interpretation agree. This involves that the type of community participation that is usually seen by allowing and response in participation among the people, having a top-down type of approach in terms of the chain of command, and also allowing feedback from the people are the most popular type of community participation that should be highly encouraged. This is closely followed by spontaneous participation that is ranked second (3.28) and has a verbal interpretation agree.

Henceforth, it can be gleaned that the lowest in ranking under types of community participation is coercive participation (3.12) and has a verbal

interpretation agree. This only involves that having nothing to do with the sometimes lack of good participation and engagement shown by people on some occasions, especially in terms of the decision-making processes in their communities. This does not mean that they do not want to at least be informed of the progress and developments in their surrounding conditions and places. As such, using threats or force

to get or do something type of community participation is not usually the best idea to be in a good type of community participation that should be encouraged and being practiced because this only shows cutting off the people in all forms and types of decision-making and also in the process involved in the putting of such agreed attempts and programs for environmental sustainability in their respective communities [6].

**Table 4. Correlation of the Level of Community Participation and the Benefits and Types of Community Participation about Environmental Sustainability**

Variables	Correlation coefficient	Interpretation	Probability	Interpretation
Community participation and Benefits	0.755	Very strong direct relationship	0.000	Significant
Community participation and type of participation	0.862	Very strong direct relationship	0.000	Significant
Benefits and type of participation	0.756	Very strong direct relationship	0.000	Significant

*Legend: (Interpretation of correlation coefficient, r) + (-) 1.00 = Perfect direct (inverse) relationship; +(-).70 to .99 = Very strong direct (inverse) relationship; -(-).40 to +.69 = Strong direct (inverse) relationship; +(-).30 to = .39 = Moderate direct (inverse) relationship; +(-).20 to + .29 = weak direct (inverse) relationship; +(-).01 to .19 = Negligible direct (inverse) relationship; 0 = No relationship [zero order correlation]; When sig < .05, it is significant; When sig is > = .05, it is not significant*

Table 4 presents the correlation, relationship of the level of community participation and the benefits and types of community participation concerning environmental sustainability. The community participation and type of participation got the highest correlation coefficient of 0.862 and interpreted as having a very strong direct relationship and having a probability of 0.000 and interpreted as Significant. Thus, this showed that it depends on the type of participation pointed by the residents and members of the local community in which their level of community participation will be based. The type of participation should likewise be considered since this will become the basis of how people engage or participate and the extent of their participation. Figuring out the type of participation can also be extremely important in developing the right ways of reaching goals that can improve and encourage these among the community's people.

In terms of benefits and types of participation, this also got a correlation coefficient of 0.756 and was verbally interpreted as having a very strong direct relationship with one another and having a probability of 0.000 and interpreted as Significant. It's the main note that the type of participation shown by the residents or the local community members can directly influence or relate to the type and extent of benefits that they will be enjoying in their community. Lastly, in

terms of community participation and benefits, this also got a correlation coefficient of 0.755 and verbally interpreted as having a very strong direct relationship with one another and in addition, having a probability of 0.000 and interpreted as Significant. Community participation and benefits can be considered as "two sides of the same coin" and go well with one another, especially if community participation is continuously being encouraged in the community involved. First, people must be engaged and show active participation in the different attempts' programs meant for the betterment of their community – as this can provide them a summary of the effects of their participation and the benefit that it will likely cause to them as well. With this noted, there is a fine connection between benefits and community participation. This should be maintained well to protect the community involved.

Likewise, the type of community participation exhibited by the residents and community members can also have a central role when it comes to the types also level benefits that they will be enjoying and will be experiencing in their community. Hence, it is noted that benefits are the direct result of the degree or extent of the type of participation that has been shown by the residents in their purpose of being a valuable contribution to the development and achievement of sustainability of their environment with the Ecological Solid Waste Management Act Program and with this

program as context, surrounds the mandated waste disposal procedures set by national and local governments and the actual waste disposal practices of the residents in the community, therefore there is a need

for enhanced cooperation between the local government and its communities to maintain a healthy environment free of waste that can also boost Calamba's social and economic morale [7].

**Table 5. Proposed Environmental Management Plan**

Key Result Areas	Strategies	Possible Outcomes	Persons/Agencies Involved	Budget
Assessment of the Level of Community Participation  <i>Employment creation</i>	Development of programs intended for offering job opportunities for the residents.  Job fairs  Communicating with different businesses and organizations who may want to outsource employees	Increased participation in environmental sustainability programs  Greater chances of becoming employed and earn a living  Increased number of employed residents  Creation of businesses job opportunities also intended for the promotion of environmental sustainability	PESO or Public Employment Service Office	Php 10-15, 000  (USD 196.85 – 295.28)
Assessment of the Level of Community Participation  <i>Good relationship among residents and tourists</i>	Providing seminars and interactive and informative videos to be posted on various social media platforms such as in Facebook and YouTube	Increased awareness of the residents of the importance of exhibiting practices for better interacting with tourists  Good feedbacks from the tourists  Increased recommendation from tourists to visit the area	Local Tourism Office  Local Residents  Public Relations of the LGUs	Php 10-15, 000  (USD 196.85 – 295.28)
Benefits Derived from Community Participation for Environmental Sustainability  <i>Environmental Aspect</i>	Formulating different programs and activities intended for the protection and conservation of the environment	Planting more trees, residents becoming more cautious in disposing of their garbage  Strictly adhering to environmental policies and cleanliness in surroundings  Creation of more open and green zones and spaces in the locality  Reduced waste generated	DENR  Local government unit (LGU)  CENRO  Local residents	Php 100-300,000  (USD 1968.50 – 5905.51)
Benefits Derived from Community Participation for Environmental Sustainability  <i>Social</i>	Developing and implementing activities and seminars intended in bringing together people and recognizing the importance of their heritage and culture	Increased participation and collaboration between people  Reduced rate of reported incidences of local fights between residents	Local government unit (LGU)  Local Residents	Php 10-15, 000  (USD 196.85 – 295.28)

## CONCLUSION AND RECOMMENDATION

Regarding the appraisal of the level of community participation, this is mainly being shown more on the establishment of better connections and relationships between the locals and how they transpire it with the tourists. Community participation is not merely being exhibited using becoming a "part" of different activities and programs of the locality, but community participation is being seen more on how they deal and interact with others in their community. Since environmental sustainability is the primary goal of further encouraging community participation, it is only suitable that the environmental aspect will be the primary concern and the specific aspect that will be targeted. The environmental aspect of every locality should be taken into significant consideration since this will be the cornerstone of promoting their locality and tourist destinations to travelers. Active participation of the local residents not just in various initiatives and programs are not just the concern of induced type of community participation but also in allowing the residents to assiduously participate in the decision-making procedure also in providing their feedback and insights on how such proposed programs will be implemented and what would be its impact to the environment, their locality, and their natural environment. Community participation is necessary to be taken into consideration to better determine what will be its impact on the people and also in the accomplishment of a particular program or initiative. With this, necessary strategies and approaches can be practiced to better enhance community participation over time.

It is recommended for local government units (LGUs) to take into consideration the implementation of various initiatives and programs that will not just promote environmental sustainability but will also focus on how such programs can be able to generate more income and also provide job opportunities for the residents. Another critical recommendation is concerned with drafting and implementing an investment plan for the locality – that will be focused on providing financial support for local businesses, conducting activities that will promote and attract more investors in doing business in the locality, and also in the funding of investment activities in the locality. There is also the need to conduct seminars and training programs that will be provided for the LGUs on learning strategies that can help them to effectively encourage the residents to show or exhibit the induced type of participation in their different initiatives and activities in their respective communities. Lastly, training, seminars, other programs, and initiatives should be developed and continuously be implemented in the locality to encourage increased community participation among the residents. Further, monitoring and evaluation

tools should also be used to determine if increased community participation is yielding positive results for the community.

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