



SWOT Quantitative Analysis of PGIS Environment Code 16-07A: A Transformative Advancement for Climate Action

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Abstract

Today's world climate condition is at a crisis level pervaded by uncontrolled environmental management due to various anthropogenic disruptions brought by mishandling of waste, carbon emission, deforestation, and forest degradation. The Provincial Government of Ilocos Sur (PGIS), as one of the Philippines' local government entities, passed and implemented 2016 the Environment Code 16-07A that would supposedly keep the local climate stature in a balanced state. The paper examined the Code by using statistical methods specifically frequency, mean, and Pearson's R, and by further quantitatively assessing and analyzing the data through the application of SWOT (strengths, weaknesses, opportunities, and threats) analysis format. The statistical findings showed that the positive significant relationships either in 0.01 or 0.05 levels imply that the challenge is open to PGIS concerning the passage of more relevant policies. The negative relationships between the variables of employment and implementation found in all of the areas imply that as the rate of employment goes high, the rate of implementation of the Code goes down. Specifically, if the inverse relationships persist to happen, then, it means that as an individual is highly employed, the interest in fulfilling the provisions of the Code decreases.

Subject Areas

Politics, Public Policy, Statistics

Keywords

Climate Change, Transformative Advancement, Policies, Amendment, Climate Action, Anthropogenic Cause, Philippines

1. Introduction

The Philippine government has put in place a comprehensive climate change policy consistent with Article II, Section 16 of the Philippine Constitution. The Provincial Government of Ilocos Sur (PGIS) being one of the local governments of the country, crafted and implemented the Environment Code Ordinance No 16-07A series of 2016 [1]. The Code forms part of the implementation of the Local Government Code of 1991, RA 7160. The Code also pursues the attainment of the provisions of RA 7942 known as the Act Instituting a New System of Mineral, Resources Exploration, Development, Utilization, and Conservation.

PGIS is located in the northern part of the Philippines. The release of 38.5 kt of greenhouse gas between 2001 and 2022 is affecting the climate status of the province that appears as the subject of the PGIS Code to eliminate, balance, or mitigate. This is a response to the Intended Nationally Determined Contribution of the Philippines (INDC). It is then appropriate to evaluate the strengths, weaknesses, opportunities, and threats of the Code and see the inclination of the Code on what particular variables it would need to pay attention to and improve. The output of the study is to come up with a SWOT quantitative assessment as the basis for finding the loopholes of the Code that it needs to focus on to deal with. The problems of the study are; 1) What are the levels of awareness, participation, responsiveness, and implementation concerning the Code as to Lowland & Coastal Areas, Upland Areas, and As a Whole? 2) Are there significant relationships between the profiles and the levels of awareness, participation, responsiveness, and implementation in the Areas of Lowland & Coastal Areas, Upland Areas, and as a Whole. The study covers primarily Section 16 to Section 30 of Article III-Forest Resources and Section 69 to Section 74 of Article VII-Coastal and Inland Water Resources of the Code.

2. Literature Review

It is equally significant to emphasize the connectivity of the topic to previous studies wherein it provides the ground to qualify the study as a novel enterprise dealing with the local policy examined in SWOT quantitative analysis. Climate Change Impact: Daigle, C., & Vasseur, L. (2019) [2] situate the everyday ongoing destruction of the environment, the greenhouse effect, ozone layer depletion, deforestation, and air and water pollution. The articles offer a solution to the environmental crisis through a radical shift in human consciousness, a fundamental change in the way people relate to the environment. Instead of thinking of nature as a resource to be used for human needs, it argues that the true value of nature is intrinsic and independent of its utility. The initial impacts of climate change as asserted by Tol, R. S. (2018) [3] may well be positive. But in the long run, the negative impacts dominate the positive ones. Negative impacts will be substantially greater in poorer, hotter, and lower-lying countries. Poverty reduction complements greenhouse gas emissions.

On Climate Change Policies: We find that sustained positive temperature

deviations from historical norms have a non-linear negative effect on economic growth and growth per capita. This point of view was the perception of De Bandt, & O., Jacolin, L., *et al.* (2021) [4]. A sectoral decomposition shows that the share of industrial value-added also declines. While the share of agricultural value-added increases, agricultural output and productivity decline. Therefore, global warming reinforces development traps, hindering further adaptation to climate change and implying the need for policies, particularly in the countries with high vulnerabilities. Further, Alnaser, N. W., & Flanagan, R. (2022) [5] established that there are many innovate ideas and proposals suggested in order to minimize the impact of climate change, but no simple solution exists because of the interdependence and fast-moving technological solutions, and the role of the policy makers in setting targets and providing finance for solutions.

Awareness Leading to Climate Action: Tiller, T. R., & Schott, C. (2013) [6] observed that climate change awareness most likely may result in thinking that lives will be negatively affected by climate change. Climate change awareness does not appear to influence concretely. There is a need for a demand-focused measures aimed at reducing the GHG emission. Lull, C., & Llinares, J. V., *et al.* (2021) [7] on the other hand, focused on the transversal competence “knowledge of contemporary problems” and SDG 13—Climate Action, recognized on the global climate is an essential task for everyone, understand their personal impact on the world’s climate, and support climate-friendly economic activities.

Lastly, in Participation as an Effective Approach to Climate Change: Cattino, M., & Reckien, D. (2021) [8] in mitigation, public participation in local climate plans is significantly related to local greenhouse gas reduction target. Public participation has a positive impact on both, the transformative potential of adaptation and the ambition for mitigation. The influence of participation on adaptation is stronger than the influence on mitigation. The four conditions under public participation that can lead to potential transformative action, are: 1) Recognition of all actors; 2) Clear and meaningful engagement in all decision-making stages; 3) Full decision-making power of the involved public; 4) The support of a logic of welfare. While Wamsler, C., & Alkan-Olsson, J. (2020) [9] observes that there is widespread consensus that support and require transdisciplinary approaches, notably by involving citizens in the change process and finding innovative ways. In fact, current structures and mechanisms for mainstreaming nature and climate considerations into sectoral planning are limited, and furthermore, neglect citizen involvement. There is a blind spot with respect to personal spheres of transformation toward sustainability.

3. Methodology

The paper followed the quantitative procedures of collecting data, then applied statistical methods and the results were interpreted, and further analyzed using SWOT format of analysis. The method established the aspects that need to be further studied for the development of the PGIS Code.

3.1. Research Design

In particular, the study used questionnaires in the survey through Google Survey Form, and the questionnaires were floated for the gathering of data of the respective variables contained in the Code, particularly forest, coastal, and inland water resources. The study is guided by the paradigm below, see **Figure 1**.

3.2. Population and Sampling

The study used the Random Sampling technique. The procedure was first to identify the thirty-four (34) municipalities in their specific locations whether lowland, coastal, and upland. The following samples emerged: 1) Lowland and Coastal—Magsingal, Cabugao, and Sto. Domingo; 2) Upland—Lidlidda, Suyo, and Cervantes; 3) As a Whole—The totality of the sample areas. The sample sizes for each of the municipalities were determined by using Yamane’s formula

$$n = N / (1 + N(e)^2)$$

where *n* stands for the sample size, *N* for population, and *e* for the margin of error with the equivalent to 0.05 at the given confidence level of 95%, Yamane (1967) [10].

The number of respondents per sample municipalities was 1) Magsingal with a population of 25,573 had Three Hundred Ninety-Four (394) sample size. 2) Cabugao with 38,884 total population had Three Hundred Ninety-Six (396) sample size. 3) Sto. Domingo with a population of 29,041 had Three Hundred Ninety-Five (395) sample size. 4) Lidlidda with a population of 4705 had Two Hundred Sixty-Five (265) sample size. 5) Suyo with a population of 10,943 had Three Hundred Eighty-Six (386) sample size. 6) Cervantes with a population of

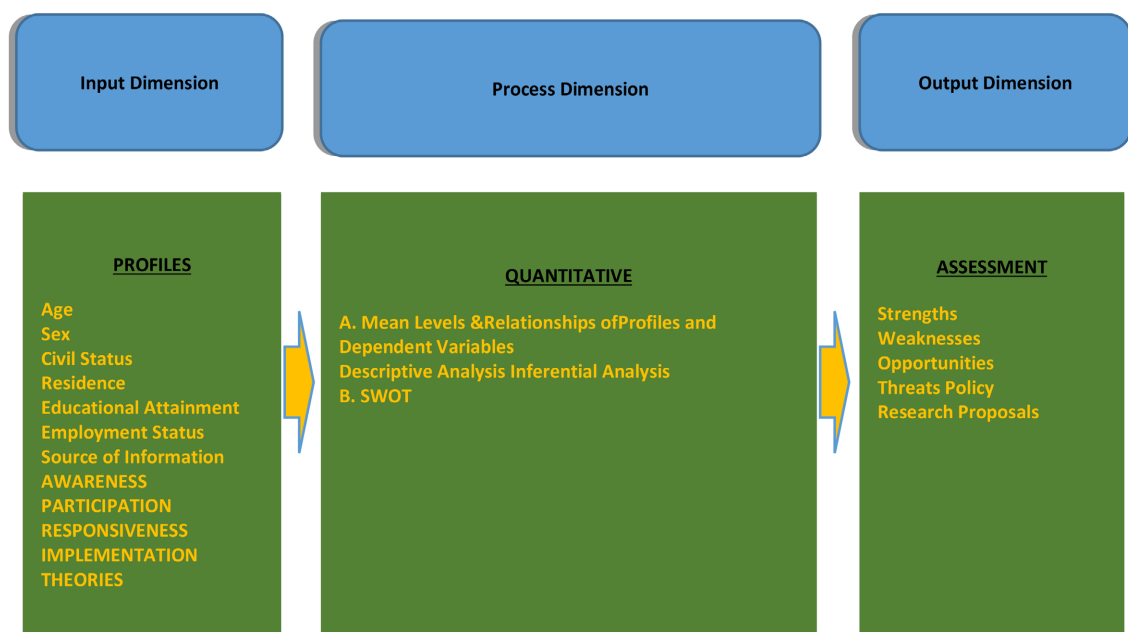


Figure 1. Conceptual paradigm.

19,449 yielded Three Hundred Ninety-Two (392) sample size. 7) Representing the Whole sample size had an aggregate total of Two Thousand Two Hundred Twenty-Two (2222). Further, respondents were categorized into the following sub-classes according to age: 1) Early youth (12 - 20 years old) has 1053 respondents; 2) Youth (21 - 30 years old) has 376; 3) early adult (31 - 40 years old) has 603; 4) Adult (41 - 59 years old) has 150; 5) Senior citizens (60 years old and above) has a total of 40 (see in **Table 1**).

The age bearing was done following the provisions of the Philippine Declaration of Arbor Day Republic Act 10176 of 2012, signifying the age coverage starting from age twelve (12). Hence, the age categorization signifies varied experiences that were anticipated from the respondents who were from different geographical locations and from different age brackets depicting the differences and semblances in terms of the experiences of the respondents concerning the Code.

3.3. Data Gathering Instrument

The survey questionnaires were prepared and constructed following valid criteria centered on the specific contents of Articles III and VII of the Environment Code that were further subdivided into the following dependent variables, awareness, participation, responsiveness, and implementation. The survey questionnaire was further referred from two (2) various authorities and four (4)

Table 1. Distribution of respondents as to lowland & coastal, upland LGUs, and as a whole.

	Lowland & Coastal		Upland LGUs		As a Whole	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Residence						
Cabugao	396	17.80			396	17.80
Magsingal	394	17.70			394	17.70
Sto. Domingo	395	17.80			395	17.80
Suyo			380	17.10	380	17.10
Lidlidda			265	11.90	265	11.90
Cervantes			392	17.60	392	17.60
Total	1185	53.30	1037	46.60	2222	100
Age						
Early Youth (12 - 20 yrs. old)	613	51.70	440	42.40	1053	47.4
Youth (21 - 30 yrs. old)	194	16.40	182	17.60	376	16.9
Early Adult (31 - 40 yrs. old)	273	23.00	330	31.80	603	27.1
Adult (41 - 59 yrs. old)	87	7.30	63	6.10	150	6.8
Senior Citizen (60 - above)	18	1.50	22	2.10	40	1.8
Total	1185	100	1037	100	2222	100

government heads for validation purposes. The validation results came out with the overall mean rating of $\bar{x} = 4.38$ with the overall descriptive rating of “Very High”. This means that the mean rating attests to the acceptability and validity of the questionnaires that was based on Articles III and VII sub-divided into the four (4) dependent variables. The validity results thus, affirmed that the statements were expressed in clear and logical perspectives that can be easily grasp and understood by the respondents.

In addition, the validity index results served as the basis for improving and refining the questionnaire to suit the attainment of the objectives of the study. The questionnaire was initially tried to dummy respondents and was floated only to the respondents of the sample municipalities. The results of the survey were the data for statistical interpretation and SWOT analysis of the paper.

3.4. Interpretation and Analysis of Data

The following were the statistical treatment of data: 1) Mean was used to present the level of awareness, level of participation, level of responsiveness, and level of implementation. 2) Bivariate Correlation using Pearson’s R was applied to determine the significant relationship between the independent variables and dependent variables. 3) Quantitative interpretation of data to the statistical results and SWOT analysis were applied. Specifically, the *strengths* and *weaknesses* were derived from the mean statistical level. In particular, the “High” mean level was considered as the *strength* whereas the “Fair” mean level and other lower mean levels were considered as *weaknesses*. The significant relationships between the variables at 0.01 and 0.05 levels of significance were intended to come up with the figures for determining the *positive* and *negative* relationships. The purpose was to determine which among the data are supportive (*opportunity*), and inversely related (*threat*) to come up with specific analysis in terms of their respective values. The *strength* of relationships was further used to take the implications that established the *opportunities* and *threats* of the study.

3.5. Hypotheses

The hypotheses of the study were: 1) There are no significant relationships between the profiles of the respondents and the levels of awareness, participation, responsiveness, and implementation categorized into Lowland & Coastal, and Upland areas; 2) There are no significant relationships between the profiles and the levels of awareness, participation, responsiveness, and implementation between the data taken as a whole representing the entire sample municipalities.

4. Statistical Findings and Their Implications

4.1. Level of Awareness

In the dependent variable awareness, the mean descriptives are all “High” significantly carried by the values of the mean, which are $\bar{x} = 3.85$ for Lowland, $\bar{x} = 3.84$ for Upland, and $\bar{x} = 3.85$ as a Whole (refer **Table 2** next page).

Table 2. Level of awareness of lowland & coastal, upland areas and as a whole.

ITEM	Lowland/Coastal		Upland		As a Whole	
	Mean	DR	Mean	DR	Mean	DR
Awareness 1						
I am aware concerning the existence of PGIS Environment Code 16-07A particularly Forest Resources. (Article III Sec 17 - 18 PGIS Code)	3.86	H	3.85	H	3.86	H
Awareness 2						
I am aware concerning the Coastal and Inland Water Resources of the code. (Article III Sec 17 - 18 PGIS Code)	3.89	H	3.86	H	3.87	H
Awareness 3						
I am familiar that every month of June, Arbor Day is celebrated, the event to plant trees and mangroves in the Province of Ilocos Sur. (Article III Sec 17 - 18 PGIS Code)	3.85	H	3.85	H	3.85	H
Awareness 4						
I am aware that all residents of the Province of Ilocos Sur whose age is twelve (12) years old and above are required to plant one (1) seedling during the Arbor Day celebration. (Article III Sec 17, PGIS Code)	3.79	H	3.81	H	3.80	H
Awareness 5						
I am aware that celebration of the Arbor Day has a strong beneficial impact to the environment. (Article III Sec 28 PGIS Code)	3.92	H	3.91	H	3.92	H
Awareness 6						
I am aware that there exist mangrove nurseries in Candon City for the second district and Cabugao for the first district of Ilocos Sur. (Article III Sec 28 PGIS Code)	3.74	H	3.59	H	3.67	H
Awareness 7						
I am aware about the funds appropriated annually in the Local Expenditures Program, such as but not limited to seedlings procurement, salaries and maintenance/upkeep of designated protected planting areas. (Article III Section 20, PGIS Code)	3.66	H	3.68	H	3.67	H
Awareness 8						
I know that barangay officials and deputized non-governmental organizations are responsible in the maintenance of trees and mangrove. (Article III Section 19, PGIS Code)	3.96	H	3.92	H	3.94	H
Awareness 9						
I am aware that trafficking flora and fauna is prohibited, unless the Municipal Mayor and the DENR have issued a current and valid permit for the transport thereof from the source. (Article III Sec 28e)	3.75	H	3.83	H	3.79	H
Awareness 10						
I am aware that hunting and/or gathering of endangered or threatened species, is prohibited. (Article III Sec 28, PGIS Code)	4.10	H	4.10	H	4.10	H
Sub-Awareness	3.85	H	3.84	H	3.85	H
Legend:						
Range	Descriptive Rating					
4.50 - 5.00	Very High					
3.50 - 4.49	High					
2.50 - 3.49	Fair					
1.50 - 2.49	Low					
1.00 - 1.49	Very Low					

It can be gleaned that the respondents are aware of the existence of PGIS Environment Code 16-07A pertaining to forest resources, coastal and inland water resources, and the awareness of every month of June, Arbor Day is celebrated to plant trees and mangroves represented by awareness 1, 2 & 3 (Article III Sec 17 - 18 PGIS Code) with their parallel mean values of $\bar{x} = 3.86$, $\bar{x} = 3.89$, and $\bar{x} = 3.85$ for Lowland and Coastal Area.

Further, awareness 4 (Article III Sec 17, PGIS Code) with the corresponding mean values of $\bar{x} = 3.79$ for Lowland, $\bar{x} = 3.81$ for Upland, and $\bar{x} = 3.80$ for as a Whole, the values correspond to a “High” descriptive rating that residents whose age are twelve (12) years old and above who are required to plant one (1) seedling during the Arbor Day Celebration.

Respondents are likewise aware of the 5 & 6 items of awareness (Article III Sec 28 PGIS Code) that celebration of the Arbor Day has a strong beneficial impact on the environment inclusive with the awareness of the existence of mangrove nurseries in Candon City and Cabugao, further affirmed by the mean values of $\bar{x} = 3.92$, $\bar{x} = 3.74$ for Lowland, $\bar{x} = 3.91$, $\bar{x} = 3.59$ for Upland, and $\bar{x} = 3.92$, $\bar{x} = 3.67$ for as a Whole.

“High” awareness also on the appropriated funds specifically in awareness 7 (Article III Section 20, PGIS Code), appeared to have mean values of $\bar{x} = 3.66$ for Lowland, $\bar{x} = 3.68$ for Upland, and the mean value of $\bar{x} = 3.67$ for as a Whole.

Likewise, the functions of the barangay officials are particularly present in Awareness 8 (Article III Section 19, PGIS Code). It includes the deputized non-governmental organizations responsible for the maintenance of trees and mangroves proven to be much aware by the mean values of $\bar{x} = 3.96$ for Lowland and Coastal Area, $\bar{x} = 3.92$ for Upland, and $\bar{x} = 3.94$ for as a Whole.

The respondents are likewise aware that trafficking *flora* and *fauna* is prohibited unless the Municipal Mayor and DENR have issued a current and valid permit for the transport thereof, as indicated in awareness 9 (Article III Sec 28e) with the mean values of $\bar{x} = 3.75$ for Lowland and Coastal, $\bar{x} = 3.83$ for Upland, and $\bar{x} = 3.79$ for as a Whole in the same level as “High”.

Lastly, awareness 10 (Article III Sec 28, PGIS Code) speaks of the prohibition of hunting and/or gathering endangered or threatening species. The respondents are “Highly” aware with the mean values of $\bar{x} = 4.10$ for Lowland and Coastal, $\bar{x} = 4.10$ for Upland, and $\bar{x} = 4.10$ for as a Whole.

4.2. Level of Participation

Two ratings of participation are rated “Fair” with the respective mean values of $\bar{x} = 3.45$ for participation 1, and for participation 2 $\bar{x} = 3.48$ in the Lowland, and Coastal Areas. Participation one (1) speaks of regular participation in the Arbor Day celebration. Whereas participation 2 is on a personal way of influencing or convincing others to participate during Arbor Day celebrations. It can be therefore inferred that respondents do not completely dedicate themselves to the fulfillment of the Code. It thus, means that their participation is conditional,

or it depends on the time and place where to conduct the activity. The situation may also mean the condition of their respective participation whether the government has a way to provide the necessary materials for planting including seedlings and mobility (see **Table 3** below).

Table 3. Level of participation of lowland & coastal, upland areas and as a whole.

ITEM	Lowland/Coastal		Upland		As a Whole	
	Mean	DR	Mean	DR	Mean	DR
Participation 1						
I regularly participate in the Arbor Day celebration either planting trees or mangroves in the coastal areas.	3.48	F	3.68	H	3.57	H
Participation 2						
I personally influence others to participate during Arbor Day celebrations to help sustain and rehabilitate the condition of our environment.	3.45	F	3.64	H	3.54	H
Participation 3						
I take part in the implementation of tree planting or mangrove planting in my locality.	3.62	H	3.72	H	3.67	H
Participation 4						
I participate with the barangay officials in my barangay concerning active monitoring and supervising the planting of trees and/or mangroves in my area.	3.51	H	3.67	H	3.59	H
Participation 5						
I take part in ensuring that environment law violators are apprehended and are given fines and/or filed cases respective to their violations.	3.53	H	3.64	H	3.58	H
Participation 6						
My religion constantly encourages me to participate in forest and coastal planting activities.	3.66	H	3.81	H	3.73	H
Participation 7						
I prefer to participate and plant in my own property either mangrove, lumber trees, fruit trees etc.	3.77	H	3.90	H	3.83	H
Participation 8						
In my participation, I don't choose any place where to plant either mangrove, lumber trees, fruit trees, etc.	3.52	H	3.67	H	3.59	H
Participation 9						
My active participation is my utmost contribution to fight climate change good for me, my neighbors and my country and to all people.	3.83	H	3.90	H	3.86	H
Participation 10						
I get involve with the barangay officials in my barangay in ensuring the participation of constituents in my area.	3.58	H	3.73	H	3.65	H
Sub-Participation						
	3.60	H	3.74	H	3.66	H
Legend:						
Range			Descriptive Rating			
4.50 - 5.00			Very High			
3.50 - 4.49			High			
2.50 - 3.49			Fair			
1.50 - 2.49			Low			
1.00 - 1.49			Very Low			

In participation 3, taking part in the implementation of tree planting or mangrove planting in private locations, with mean value of $\bar{x} = 3.67$ “High” in As a Whole, represents the overall participation of the constituents in conjunction with participation 4 with mean value of $\bar{x} = 3.59$ “High”, pertaining to participation with the barangay officials in the barangay level. Likewise, in participation 5 with the mean value of $\bar{x} = 3.58$ which is also “High” concerns taking part in ensuring that environmental law violators are apprehended and given fines and/or filed cases.

Likewise, the rating is also “High” in participation 6 with the mean value of $\bar{x} = 3.73$ that there is a constant encouragement of religion, and this also applies in the Lowland & Coastal Area with a mean value of $\bar{x} = 3.66$ “High” and Upland mean of $\bar{x} = 3.81$ which is also “High”. Participation 7 as represented by the mean of $\bar{x} = 3.83$ “High”, in As a Whole, shows that participation and planting in personal properties either mangroves, lumber trees, fruit trees, etc. But contradictory to the findings in participation 8 with the mean value of $\bar{x} = 3.59$ “High”, the respondents do not choose any place where to plant. Although, in participation 9 with the mean of $\bar{x} = 3.59$ “High”, it divulged that their active participation is their utmost contribution to fight climate change. Even if, as it is affirmed in participation 10 appearing therein the mean of $\bar{x} = 3.59$ “High” that getting involved with the barangay officials in ensuring the participation of constituents in the area, cannot suffice to explain the existing contradictory findings.

4.3. Level of Responsiveness

All items in all of the areas have a descriptive rating of “High” that the highest mean level is $\bar{x} = 4.12$ and the lowest mean level is $\bar{x} = 3.93$ (see **Table 4** below)

Specifically, in As a Whole, responsiveness 1 with the mean value of $\bar{x} = 3.93$ “High” refers to action in fighting against natural resources abuse. In responsiveness 2 with the mean value of $\bar{x} = 3.90$ “High” pertains to the consideration of the maximum implementation of fines allowed by law. Responsiveness 3 with the mean value of $\bar{x} = 3.95$ “High”, place consideration for the inclusion of planting seedlings and/or mangroves as a pre-requisites to secure business permits and transportation licenses. Likewise, responsiveness 4 with the overall mean value of $\bar{x} = 3.87$ subjectively calls for the inclusion of planting seedlings and/or mangroves as pre-requisites to various licenses. Also, with visible proof in responsiveness 5, with the overall mean value of $\bar{x} = 4.01$ “High”, speaks for the inclusion of planting seedlings and/or mangroves to 4Ps beneficiaries. It is certain to also provide the findings in responsiveness 6 with the mean value of $\bar{x} = 4.03$ particularly the inclusion of planting seedlings and/or mangroves as requirements to graduating students. And the findings in responsiveness 7 affirmed by the overall mean value of $\bar{x} = 3.98$ “High”, speaks for the inclusion of planting trees as an additional penalty for forestry law violators.

Table 4. Level of responsiveness of lowland & coastal, upland areas and as a whole.

ITEM	Lowland/Coastal		Upland		As a Whole	
	Mean	DR	Mean	DR	Mean	DR
Responsiveness 1						
I am active in fighting against natural resources abuse in my locality having experienced the impact of huge loss of forest resources and coastal resources like, drought, super typhoon, lack of potable water etc.	3.88	H	3.94	H	3.91	H
Responsiveness 2						
I consider that the maximum implementation of fines allowed by law including penalties thereof for violations of the Environment Code will minimize or eliminate resources abuse.	3.88	H	3.93	H	3.90	H
Responsiveness 3						
I consider that inclusion of planting seedlings and/or mangroves as a pre-requisites to secure business permits and transportation licenses are needed to secure a viable environment.	3.90	H	4.01	H	3.95	H
Responsiveness 4						
I am confident that inclusion of planting seedlings and/or mangroves as a pre-requisites to secure marriage licenses, and employment clearances are needed to secure a viable environment.	3.81	H	3.94	H	3.87	H
Responsiveness 5						
I am confident that inclusion of planting seedlings and/or mangroves to 4Ps beneficiaries will improve the coastal and forest condition of the province.	4.01	H	4.02	H	4.01	H
Responsiveness 6						
I am confident that inclusion of planting seedlings and/or mangroves as requirements to graduating students will motivate participation of the youth that will ensure continuous environment programs.	4.01	H	4.06	H	4.03	H
Responsiveness 7						
I am confident that the inclusion of planting trees as an additional penalty to forestry law violators will ensure sustainable environment.	3.93	H	4.05	H	3.98	H
Responsiveness 8						
I will highly implement the code particularly in safeguarding forest resources and coastal resources of the Province.	3.98	H	4.06	H	4.02	H
Responsiveness 9						
I am supporting the implementation of the Forest Resources Information System program of the province which is very active in my locality.	4.00	H	4.04	H	4.02	H
Responsiveness 10						
I will support the initiative to improve and update the PGIS Environment Code 16-07 to ensure a balance and sustainable forest and coastal resources to mitigate the cause of Climate Change.	4.09	H	4.12	H	4.11	H
Sub-Responsiveness	3.95	H	4.02	H	3.98	H
Legend:						
Range			Descriptive Rating			
4.50 - 5.00			Very High			
3.50 - 4.49			High			
2.50 - 3.49			Fair			
1.50 - 2.49			Low			
1.00 - 1.49			Very Low			

Furthermore, responsiveness 8, with an overall mean value of $\bar{x} = 4.02$ relies on the strict implementation of the Code particularly in safeguarding forest resources and coastal resources of the province, supported by the findings in responsiveness 9 with a mean value of $\bar{x} = 4.04$ representing the whole respondents supporting the implementation of Forest Resources Information System program. These are, at the same time, concurred in by the findings in responsiveness 10, with a general mean of $\bar{x} = 4.11$ “High”, referring to the support for the initiative to improve and update the PGIS Environment Code 16-07A.

4.4. Level of Implementation

The highest mean value in implementation is $\bar{x} = 4.24$ with the descriptive rating of “High” specifically in implementation 1 (Art III Sec 16, PGIS Code) in close collaboration with concerned national government agencies particularly the Department of Environment and Natural Resources. Likewise, in implementation 2 (Art III Sec 18a, 18d, 18.4) with the corresponding mean values of $\bar{x} = 4.12$ for Lowland & Coastal, $\bar{x} = 4.17$ for Upland, and $\bar{x} = 4.14$ for as a Whole. All with “High” descriptive ratings, particularly in the implementation of Fiesta ti Kabanbantayan and Arbor Day with the integrated annual budget (see **Table 5** next page).

The same is true in implementation 3 (Art III Sec 18.9) confirmed by the mean values of $\bar{x} = 4.22$ for Lowland & Coastal, $\bar{x} = 4.23$ for Upland, and $\bar{x} = 4.22$ for As a Whole with the descriptive rating of “High”, that tree planting activities are implemented in the municipalities. Whereas in implementation 4 (Art III Sec 18e 10) as evidenced by the mean values $\bar{x} = 4.20$ for Lowland & Coastal, $\bar{x} = 4.21$ for Upland, and $\bar{x} = 4.20$ for as a Whole with “High’ descriptive ratings concerning barangay officials and deputized non-governmental organizations in implementing the maintenance of planted trees. This is coherently supported by the findings in implementation 5 (Art III Sec 19) confirmed by the mean values of $\bar{x} = 4.04$ for Lowland, $\bar{x} = 4.11$ for Upland, and $\bar{x} = 4.07$ for As a Whole depicting the “High” rating in terms of cutting, harvesting, and transport of timber and lumber products, including the processing and sales. It also includes the findings in implementation 6 (Art III Sec 24) with the mean values of $\bar{x} = 4.10$ for Lowland & Coastal, $\bar{x} = 4.13$ for Upland, and $\bar{x} = 4.11$ for As a Whole. All with descriptive rating “High” that PGIS implemented the establishment and maintenance of a Forest Resources Information system promoting public and private sector investments.

Further, implementation 7 (Art III Sec 25) as evidenced by the “High” rating of the following mean values $\bar{x} = 4.08$ for Lowland & Coastal, $\bar{x} = 4.12$ for Upland, and $\bar{x} = 4.10$ for As a Whole, that respondents rated PGIS as active in implementing forestry laws limited to community-based forestry projects as devolved to the province pursuant to RA 7160. This is complemented by implementation 8 (Art III Sec 28) attested by the findings of the mean values of $\bar{x} = 4.02$ for Lowland & Coastal, $\bar{x} = 4.07$ for Upland, and $\bar{x} = 4.04$ for As a

Table 5. Level of implementation of lowland & coastal, upland areas and as a whole.

ITEM	Lowland/Coastal		Upland		As a Whole	
	Mean	DR	Mean	DR	Mean	DR
Implementation 1						
PGIS implements the Environment Code in close collaboration with concerned national government agencies and instrumentalities, particularly the Department of Environment and Natural Resources. (Art III Sec 16, PGIS Code)	4.24	H	4.24	H	4.24	H
Implementation 2						
The implementation of Fiesta ti Kabanbantayan and Arbor Day in my Municipality is with integrated annual budget process such as but not limited to seedlings procurement, salaries of members of the Task Force Kalikasan, and maintenance/upkeep of designated protected planting areas. (Art III Sec 18a, 18d, 18.4)	4.12	H	4.17	H	4.14	H
Implementation 3						
Tree planting activities are implemented in my Municipality in any of the following areas; 1) Public school grounds, 2) idle or vacant public lands, 3) public parks, 4) river banks, 5) private schools, park and gardens with the consent of the owners. (Art III Sec 18.9)	4.22	H	4.23	H	4.22	H
Implementation 4						
Barangay officials and deputized non-governmental organizations in my Municipality are the ones responsible in implementing the maintenance of planted trees. (Art III Sec 18e 10)	4.20	H	4.21	H	4.20	H
Implementation 5						
Cutting, harvesting, and transport of timber and lumber products, including the processing and sale are actively implemented in my place, in order to create legitimate forms of livelihood and generate additional local government revenues subject to DENR laws and regulations. (Art III Sec 19)	4.04	H	4.11	H	4.07	H
Implementation 6						
PGIS implemented the establishment and maintenance of a Forest Resources Information system promoting public and private sector investments in the operation of production, protection, and recreation forests and forest-based industries in the province. (Art III Sec 24)	4.10	H	4.13	H	4.11	H
Implementation 7						
PGIS is active in implementing forestry laws limited to community-based forestry projects as devolved to the province pursuant to RA 7160 particularly in city/municipal communal forests, integrated social forestry areas, and small watersheds for the prevention of forest fires, illegal cutting, and kaingin. (Art III Sec 25)	4.08	H	4.12	H	4.10	H
Implementation 8						
The following prohibitions are implemented in my area; 1) indiscriminate cutting of trees, 2) use of unregistered power/chain saws, 3) hunting, destroying, or mere possession of any plants, animals, or other forest products, 4) use of unregistered hunting paraphernalia, 5) trafficking flora and fauna, and 6) maintain any open fires except in some circumstances. (Art III Sec 28)	4.02	H	4.07	H	4.04	H
Implementation 9						
In my Municipality, the amount of Php 5,000.00 and/or imprisonment of not less than 30 days upon a verified complaint initiated by PGIS to the National Prosecution Service as penalty and fine for violating the provisions of the Code, is fully implemented. (Art III Sec 29, PGISCode).	3.94	H	4.00	H	3.97	H

Continued

Implementation 10						
PGIS implemented the establishment of Mangroves Nurseries in Candon City and Cabugao for the propagation of mangroves for shoreline protection and fish habitat, and that, during “Fiesta ti Kabaybayan” planting is done to implement sustainable development projects. (Art VII Sec 69 & 70)	4.09	H	4.11	H	4.10	H
Sub-Implementation	4.10	H	4.14	H	4.12	H
Legend:						
Range	Descriptive Rating					
4.50 - 5.00	Very High					
3.50 - 4.49	High					
2.50 - 3.49	Fair					
1.50 - 2.49	Low					
1.00 - 1.49	Very Low					

Whole all with the ratings of “High”, that the following prohibitions are implemented; 1) indiscriminate cutting of trees, 2) use of unregistered power/chain saws, 3) hunting, destroying, or mere possession of any plants, animals, or other forest products, 4) use of unregistered hunting paraphernalia, 5) trafficking flora and fauna, and 6) maintain any open fires except in some circumstances. Implementation 9 (Art III Sec 29, PGIS Code) with corresponding mean values of $\bar{x} = 3.94$ for Lowland & Coastal Area, $\bar{x} = 4.02$ for Upland, and $\bar{x} = 4.02$ for as a Whole with the ratings of “High” pertaining to the implementation in the municipal level concerning the amount of Php 5000.00 and/or imprisonment of not less than 30 days as penalty. This is combined by the findings in implementation 10 (Art VII Sec 69 & 70) based on the mean values of $\bar{x} = 4.09$ for Lowland & Coastal, $\bar{x} = 4.11$ for Upland, and $\bar{x} = 4.10$ for As a Whole that PGIS implemented the establishment of mangroves nurseries, and that, during “Fiesta ti Kabaybayan” celebration planting is done.

4.5. Implications of the Mean Levels

Awareness: With respect to the findings of the levels of the mean in the variable awareness, the findings do not necessarily correspond to actual action to really plant one seedling to comply with Arbor Day. It is, then, accurate to establish that it is not at all essential for citizens to do it, although they are aware. It is proper to assume that being aware is entirely different from full involvement and participation ensuring a physical comprehensive output of putting into action the Code.

Participation: Although the descriptive ratings of the remaining variables of participation, excluding participation 1 and participation 2 is “High”, it does not precede to understand the capacity of the individuals in the output ratio of getting involved with environment projects as the utmost contribution to fight cli-

mate change, and therefore, need to establish the reasons and actual condition of the participation of the respondents.

Responsiveness: Respondents really agree and support the move to improve the Code for it to conform to the present environmental strategies currently being implemented by various nations around the world. Thus, items of the variable responsiveness summarize the wishes and aspirations of the respondents. It can be noted that, although the people support the proposed provisions for addition to the Code, reliance is still within the bounds of local legislative authorities.

Implementation: The “High” descriptive output of the mean affirms that the variable implementation is concretely applied which is beyond question. Yet, it must be further figured out as to what extent of their respective applications. Assessing the existing enforcement of the Code and whether it satisfies the quantitative evaluation “High” particularly on the items budget, logistics, number of seedlings planted, regulations in cutting and harvesting trees, etc. are to be respectively verified.

4.6. Bivariate Correlation—Lowland & Coastal Area

In Lowland & Coastal Area, the positive relationships between the dependent variables’ residence with the dependent variable participation with a significant level of 0.01 with the corresponding value of $r = 0.123^{**}$ with the strength of the relationship “Very Low”, it must be noted that only participation is significantly related to the independent variable residence for reasons assumed that the respondents are participative at a very low level to environmental activities as provided by the Code. Further, their awareness, responsiveness, and implementation cannot be taken as significant with the independent variable residence due to the probability of the location that they reside in the Lowland and Coastal Area having not enough location to conduct environmental activities (see **Table 6** next page).

As to the independent variable age, it is well taken to posit that all of the dependent variables awareness, participation, responsiveness, and implementation are significantly related all in the positive category with the corresponding values of $r = 0.179^{**}$ for awareness, $r = 0.181^{**}$ for participation, $r = 0.190^{**}$ for responsiveness, and $r = 0.188^{**}$ for implementation all having significant relationship at 0.01 level and marked as “Very Low” strength of relationships.

Further, the independent variable sex that none of the dependent variables are significantly related in the positive or negative dimensions, which can be further interpreted that none emerged as significantly related probably because of the context that it is irrelevant to take responsibility for the provisions of the Code based on sex. Regardless of sex, everyone acts for the good of nature.

In civil status, it is very clear from the data that all of the dependent variables are significantly related at either 0.01 and 0.05 levels of significance with the specific values of $r = 0.093^{**}$ for awareness, $r = 0.075^*$ for participation, $r = 0.125^*$ for responsiveness, and $r = 0.136^{**}$ for implementation, deploring strength of

Table 6. Bivariate correlation between the profiles and the level of awareness participation, responsiveness, and implementation.

<i>Profiles</i>	<i>Awareness</i>	<i>Participation</i>	<i>Responsiveness</i>	<i>Implementation</i>
Lowland/Coastal				
Residence	0.042	0.123**	0.014	-0.004
Age	0.179**	0.181**	0.190**	0.188**
Sex	0.040	-0.002	0.012	0.006
Civil Status	0.093**	0.075*	0.125**	0.136**
Employment	-0.109**	-0.108**	-0.172**	-0.218**
Educational Attainment	0.153**	0.161**	0.199**	0.212**
Religion	0.044	0.093**	0.037	0.021
Source of Information	-0.154**	-0.148**	-0.142**	-0.064*
Upland				
Residence	-0.104**	-0.091**	-0.105**	-0.073*
Age	0.252**	0.256**	0.268**	0.170**
Sex	-0.100**	-0.125**	-0.116**	-0.055
Civil Status	0.084**	0.084**	0.136**	0.122**
Employment	-0.106**	-0.143**	-0.218**	-0.173**
Educational Attainment	0.204**	0.229**	0.211**	0.189**
Religion	-0.018	-0.013	0.01	-0.023
Source of Information	-0.178**	-0.103**	-0.098**	-0.052
As a Whole				
Residence	-0.019	0.071**	0.012	0.005
Age	0.212**	0.219**	0.227**	0.182**
Sex	-0.026	-0.057**	-0.046*	-0.021
Civil Status	0.088**	0.078**	0.130**	0.129**
Employment	-0.107**	-0.125**	-0.193**	-0.199**
Educational Attainment	0.173**	0.196**	0.207**	0.204**
Religion	0.009	0.051*	0.03	0.005
Source of Information	-0.165**	-0.125**	-0.120**	-0.057**
Legend: Magnitude of r—strength of relationship				
(±)1.00 - perfect—perfect direct or perfect inverse (±)0.81 - 0.99—strong/very high (±)0.61 - 0.80—substantial/high (±)0.41 - 0.60—moderate (±)0.21 - 0.40—low (±)0.20 and below—very low				
Legend:				
**Significant at 0.01				
*Significant at 0.05				

relationship at “Very Low”. This means that, although the strength of the relationship is “Very Low”, yet, it depicts a meaning that whether the respondents are either single, married, or separated, it cannot despise them to participate in the implementation of the Code.

On the other hand, the independent variable employment surprisingly bears a negative significant relationship with the dependent variables having the specific values of $r = -109^{**}$ for awareness, $r = -108^{**}$ for participation, $r = -172^{**}$ for responsiveness, and $r = -218^{**}$ for implementation all at 0.01 level of significance with the corresponding negative strength of correlations of “Low”, whereas the rest have the strength of negative relationships with “Very Low”. It thus means, that when situations of employability become higher, the lower the instances of their responses as indicated in the relationship. Hence, there is a threat to the fulfillment of the desires of the Code when it comes to the aspect of employment.

In educational attainment, significant relationships emerged between awareness with the value of $r = 0.153^{**}$ “Very Low”, participation with the value of $r = 0.163^{**}$ and responsiveness $r = 0.199^{**}$ with the strength of relationship “Very Low”. All of the relationships are within the level of 0.01. The relationships imply that all of the levels of educational attainment from the elementary level up to the doctoral level do not preclude the respondents from performing what is provided in the Code. It thus, further affirmed that it is very significant to perform the functions of being educated in the realm of doing things for nature.

Explicitly, in the independent variable religion, it is noteworthy that it is only the dependent variable participation that has a significant relationship with the value of $r = 0.093^{**}$ in 0.01 level of significance that corresponds to “Very Low” strength of the relationship. It is clear that religion cannot take away participation although at a “Very Low” level only.

Lastly, it is clear in the source of information wherein there is a negative significant relationship with all the dependent variables awareness with the value $r = -0.154^{**}$, participation $r = -0.148^{**}$, responsiveness $r = -0.142^{**}$, and implementation $r = -0.064^{**}$ all with the strengths of relationships as “Very Low” in 0.01 level of significance. These correspond to the dissemination factors on the Code, that while most of the respondents depend on social media particularly FB, as it appeared in the demographic profile, it underlines the importance of the means of disseminating the provisions of the Code being made publicly aware for everyone to ensure compliance.

4.7. Bivariate Correlation—Upland Area

While in the Upland area, the independent variable residence has significant relationships with all the dependent variables but all in the negative relationships. The following are the respective values, for awareness $r = -0.104^{**}$ with the strength of the relationship of “Very Low”, for participation the negative value appears $r = -0.091^{**}$ with the strength as likewise “Very Low”, and for respon-

siveness $r = -0.105^{**}$ with the strength of the relationship as “Very Low”. All of the three (3) variables are in 0.01 level of significance.

Whereas the dependent variable of implementation, having a visible value of $r = -0.073^*$ at 0.05 level of significance, still falls under “Very Low” level of significance. This result undoubtedly subsumes to the categorization that, as one of the variables increases, the other variable goes down. Of which, the relationship is in the opposite direction. It thus, can be interpreted that, based on the geographical location of the respondents, whether he or she belongs to the Lowland & Coastal Area or Upland Area, it does define the commitment that the individuals have.

In the independent variable age, it is established that all of the dependent variables are significantly related at 0.01 level of significance at the strength of relationships of “Low” and “Very Low”. The specific values are the following: for awareness $r = 0.252^{**}$, for participation $r = 0.256^{**}$, for responsiveness $r = 0.268^{**}$, and for implementation $r = 0.170^{**}$. It is the dependent variable implementation that has strength only of “Very Low”, while the rest is “Low”. These findings presume the individuation concerning age that whatever the age of the respondent, it does not affect the applicability of the provisions of the Code. It can be further assumed that all of the generations from early youth to senior citizens are all guided by the contents of the Code.

On sex, the dependent variable awareness has a negative significant relationship with the value of $r = -0.100^{**}$, while participation has a value of $r = -0.125^{**}$, and responsiveness it has a value of $r = -0.116^{**}$ that it is evident that all the variables are with the strength of relationship with “Very Low” and all of the variables are significant at the level of 0.01. It can be implied hereof of the gender sensitivity of the respondents in the Upland Area, that sex is a determining factor of the commitment in the aspects of the Code, that it is practical to consider that whatever is the sex of the individual it has a significant level of involvement, which is contradictory to the findings in the Lowland & Coastal Area.

The significant relationships that the independent variable civil status has with the dependent variables awareness $r = 0.084^{**}$, with participation $r = 0.084^{**}$, responsiveness with $r = 0.136^{**}$, and with implementation at $r = 0.122^{**}$. It is clear that all of the variables have a strength of the relationship that is “Very Low”. This can lead to the conclusion that age doesn’t matter when it comes to embracing the Code.

The independent variable employment appears to have a negative relationship with the dependent variables. The following are the details of values on its negative significant correlation with awareness $r = -0.106^{**}$, participation $r = -0.143^{**}$, responsiveness $r = -0.218^{**}$, and implementation with $r = -0.173^{**}$. The variables are all in 0.01 significant relationships at the strength of relationships of “Very Low” except for responsiveness which is “Low”. Hence, from this aspect, it is safe to assume that as the individual is in a higher position, then the commitment to fulfill the contents of the Code is sacrificed.

Concerning educational attainment, in Upland it can be seen that the dependent variable awareness with a value of $r = 0.204^{**}$, participation with $r = 0.229^{**}$, responsiveness with $r = 0.211^{**}$, and implementation with a value of $r = 0.189^{**}$. The significant relationships are all in the level 0.01 with the corresponding strengths of the first three (3) variables to be “Low” and the last which is implementation as “Very Low”. By the virtue of the findings, it is very strong to affirm that whatever the educational attainment of the respondents, it has always a significant relationship which means, educational attainment is not a stumbling block for the realization of the provisions of the Code.

Pertinent to the aspect of religion, it can be easily confirmed from the data that there are no significant relationships to any of the dependable variables, to which it can be concluded that in the Upland, there is no effect of religion on the perceptions of the dependent variables.

Lastly is the source of information, only the dependent variables awareness, participation, and responsiveness established a significant relationship with the corresponding values of $r = 0.178^{**}$, $r = 0.103^{**}$, and $r = 0.098^{**}$ respectively. The data displays a “Very Low” strength of relationships with a level of significance at 0.01. It is, therefore, conclusive to post that the dissemination factor is a vital aspect of the realization of the contents of the Code. Without proper dissemination activity, the Code will obviously fail. It is immediate to understand that the more effective the manner of the information drive is, the more assurance that the objectives of the case will be fulfilled.

4.8. Bivariate Correlation—As a Whole

In the perspective of As a Whole, the independent variable **residence** is only significantly related at 0.01 level of significance to only one dependent variable which is participation with the value of $r = -0.071^{**}$ with the strength of the relationship of “Very Low”. It may be inferred that, the significant relationships carried over what transpired in the Lowland & Coastal Area with 53% of the respondent population of the actual number of 1185.

In addition, the values of the independent variable age with the dependent variables simply connote significant relationships, all at 0.01 level of significance with the values of $r = 0.212^{**}$ for awareness, $r = 0.219^{**}$ for participation, $r = 0.227^{**}$ for responsiveness, and $r = 0.182^{**}$ for implementation. The strength of relationships varies from the first three variables, the strength is “Low”, while in the variable implementation, it has a strength of “Very Low”. It does affirm that whatever the age, be it young or old, it ends up having always significant relationships with the dependent variables.

Looking at the relationships of sex with the dependent variables, it is noteworthy to divulge the negative relationships it has between participation with the values of $r = -0.057^{**}$ with the strength of relationships of “Very Low” at 0.01 level of significance, and responsiveness with the value of $r = -0.046^{*}$ at 0.05 level of significance with the strength of relationship “Very Low”. It appeared

that sex has no significant relationship with awareness and implementation, yet it divulged the facts that the relationships with variables participation and responsiveness are in the opposite direction. This means that sex is a factor in the As a Whole representation of the findings, probably due to the different preoccupations of the two genders, since most, farmers are males who are directly into planting which probably triggered the relationships.

Moreover, the relationships between civil status and the dependent variables are pragmatic if they are significantly related, all at 0.01 level significance and have the strength of relationships as “Very Low”. The respective values are the following: $r = 0.088^{**}$ for awareness, $r = 0.078^{**}$ for participation, $r = 0.130^{**}$ for responsiveness, and $r = 0.129^{**}$ for implementation. The findings thus rely on the different civil statuses whether one is a single, married, widow, separated, or annulled that it has always a significant relationship.

It is undeniable to reiterate the negative relationships of the dependent variable employment to the dependent variables. The negative significant relationships are attested by the values, and the following are the details: $r = -0.107^{**}$ for awareness, $r = -0.125^{**}$ for participation, $r = -0.193^{**}$ for responsiveness, and $r = -0.199^{**}$ for implementation. The significant levels are all 0.01, and all are in negative relationships. With respect to the negative relationships, it can be inferred that as the employment of an individual becomes more lucrative, demanding, and stressful, it has an impact on the *dependent variable that as one of the variables goes up, the other goes to the opposite*. This instance is considered a threat to the very nature of the Code to ensure its efficient implementation because as an individual gets a better job, he or she seems not to heed the call of the provisions of the Code.

In terms of educational attainment, it is visible to recognize the significant relationship it has with the dependent variables all at 0.01 level of significance and at a “Very Low” strength of relationships. Concretely, the value of significance for awareness is $r = 0.173^{**}$, for participation is $r = 0.196^{**}$, for responsiveness is $r = 0.207^{**}$, and for implementation is $r = 0.204^{**}$. It is undeniable that educational attainment plays a great role in the attainment of a conducive environment seemingly because of the learning actions taking place in the classrooms.

In terms of religion, there is only one among the dependent variables that have a significant relationship, and this is participation with the value of $r = 0.051^{**}$ at 0.01 level of significance with the clear strength of the relationship as “Very Low”. Hence, religion does not in any way deprive the participation of believers, and instead, enjoins and encourages the faithful to embrace and embark on environmental activities.

Lastly, it is surprising to take note of the negative significant relationships that the independent variable source of information has to all the dependent variables. Awareness having a value of $r = -0.165^{**}$, participation with the value of $r = -0.125^{**}$, responsiveness $r = -0.207^{**}$, and for implementation $r = -0.057^{**}$. All the negative relationships at 0.01 level of significance, and with the strength

of relationships of “Very Low”, this implies that as wider as the medium of dissemination thereof, the more supposedly, the dependent variable could have been more effective.

5. Discussion on SWOT Analysis

In **Figure 2** (see next page), it shows the SWOT diagram based on the statistical findings of the study. The following are the discussions;

Strengths: The generalization is, there is “High” level of awareness, participation, responsiveness, and implementation of the PGIS Environment Code 16-07A supported by the values of the mean in all of the areas; sub-awareness $\bar{x} = 0.85$ for Lowland & Coastal, $\bar{x} = 3.84$ for Upland, $\bar{x} = 3.85$ for as a Whole. In sub-participation, the values are $\bar{x} = 3.60$ for Lowland, $\bar{x} = 3.74$ for Upland, $\bar{x} = 3.66$ for as a Whole. In sub-responsiveness, the mean values are $\bar{x} = 3.95$ for Lowland, $\bar{x} = 4.02$ for Upland, and $\bar{x} = 3.96$ for As a Whole. And, in sub-implementation, the mean values are $\bar{x} = 4.10$ for Lowland, $\bar{x} = 4.14$ for Upland, and $\bar{x} = 4.12$ for As a Whole. All are interpreted as having a descriptive rating of “High”. Moreover, there is no negative implication derived and there is no mean level of “Low” that appeared. The genuine transcription is, there is an overall “High” level of assessment with the dependent variables, but it does not follow that it does have the same level of actual implementation of the policy. Hence, there is “High” internal positive assessment, but the external impact does not necessarily follow.

Weakness: The weaknesses are found in the mean values present in the Lowland and Coastal area, particularly in the variables participation one (1) and participation two (2) with the mean values of $\bar{x} = 3.45$ and $\bar{x} = 3.48$ rated as “Fair”. Participation one (1) pertains to regular participation in the Arbor Day celebration, and participation two (2) concerns the personal way of influencing others to participate during Arbor Day celebration. These are the “negative points” with the implication that transpires in the content of the Code, whether the Code is up to date and needs amendments. This is subject to a resolution to examine the contents of the Code to ensure the participation of the citizens.

Opportunities: Significant relationships at 0.01 level with the profiles and the dependent variables awareness, participation, responsiveness, and implementation, in the As a Whole representing the entire respondent, the findings are as follows; residence and participation at $r = 0.071^{**}$, age and awareness at $r = 0.212^{**}$, age and participation at $r = 0.219^{**}$, age and responsiveness at $r = 0.227^{**}$, age and implementation $r = 0.182^{**}$, civil status and awareness $r = 0.088^{**}$, civil status and participation $r = 0.078^{**}$, civil status and responsiveness $r = 0.130^{**}$, civil status and implementation $r = 0.129^{**}$, educational attainment and awareness $r = 0.173^{**}$, educational attainment and participation $r = 0.196^{**}$, educational attainment and responsiveness $r = 0.207^{**}$, and educational attainment and implementation $r = 0.204^{**}$. In one instance, a significant relationship at 0.05 level appeared in the relationship between religion and participation with

I N T E R N A L

STRENGTHS

There is an overall “**HIGH**” mean level of **Awareness, Participation, Responsiveness & Implementation** of the Code regardless of the areas of the respondents; Lowland and Coastal, Upland, and as a Whole.

The values are;

ITEM	Lowland / Coastal		Upland		As a Whole	
	Mean	DR	Mean	DR	Mean	DR
Sub-Awareness	3.85	H	3.84	H	3.85	H
Sub-Participation	3.60	H	3.74	H	3.66	H
Sub-Responsiveness	3.95	H	4.02	H	3.98	H
Sub-Implementation	4.10	H	4.14	H	4.12	H

Implications: The overall “High” level of assessment of the dependent variables cannot include to affirm the same level of the actual implementation. Internal is positive, but the external is yet undetermined. So far, no negative consequences. Therefore, the need to establish qualitative *follow-up* findings.

WEAKNESSES

The presence of “**FAIR**” mean level in the independent variables **Participation 1 & 2** in the Lowland and Coastal Area is considered weaknesses.

The values are;

ITEM	Lowland / Coastal		Upland		As a Whole	
	Mean	DR	Mean	DR	Mean	DR
Participation 1	3.48	F	3.68	H	3.57	H
Participation 2	3.45	F	3.64	H	3.54	H

Implications: These two weaknesses are sporadic impacts with negative internal provisions of the Code which are negative external consequences. The internal issue is the transformation of the Code to update as a response to the output of the variables **participation 1 & 2** to embody full participation of the citizenry. Fair participation may mean conditional involvement which is external. Hence, the subjects need qualitative *follow-up*.

OPPURTUNITIES

Positive Significant Relationships in *As a Whole* at 0.01 & 0.05 levels of significance between the **Profiles** and the dependent variables **Awareness, Participation, Responsiveness and Implementation** are found either “Low” or “Very Low” strength of relationship. The values are;

As a Whole	Awareness	Participation	Responsiveness	Implementation
Residence	-	.071**	-	-
Age	.212**	.219**	.227**	.182**
Civil Status	.088**	.078**	.130**	.129**
Educational Attainment	.173**	.196**	.207**	.204**
Religion	-	.051*	-	-

Implications: Various activities and high actions are tantamount to high accomplishments and work outputs as impact of the positive significant relationship. Pertinent action towards alleviation and mitigation depends in the initiative of PGIS legislative officials to increase the strength of relationships of the variables from “Low” and “Very Low” to at least “Strong” or “Very High” level.

TREATHS

Negative Significant Relationships in *As A Whole* at 0.01 & 0.05 level of significance between the **Profiles** and the dependent variables **Awareness, Participation, Responsiveness and Implementation** is found “Very Low” strength of (-) relationship.

The values are;

As a Whole	Awareness	Participation	Responsiveness	Implementation
Sex	-	-.057**	-.046*	-
Employment	-.107**	-.125**	-.193**	-.199**
Source of Information	-.165**	-.125**	-.120**	-.057**

Implications: Imply the unreceptiveness or unawareness of PGIS concerning the call to eliminate and control the climate rate of the emitted 38.5 ktCO₂e/year due to the release of stored carbon brought by deforestation and forest degradation. Specifically, if the inverse relationships between **employment and the dependent variables** persist to happen, then, it means that as an individual is highly employed, the interest in fulfilling the provisions of the Code decreases.

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Figure 2. The SWOT analysis paradigm.

the value of $r = 0.051^*$ with “Very Low” as the strength of the relationship. This means that the challenge is open to PGIS concerning the passage of more relevant policies. The internal positive impact is marginally good. Whereas the external negative impact is in the minimal application of the provisions of the Code. It is presumed that strong activities and high actions result in high accomplishments and work outputs. Therefore, pertinent action towards the development of responsive climate change alleviation depends on the initiative of PGIS to increase the strength of relationships of the variables.

Threats: The negative significant relationship between the profiles and the dependent variables awareness, participation, responsiveness, and implementation are considered threats since the situation explains that *when one of the variables increases, the other variable decreases*. The specific negative significant relationships in 0.01 level are as follows; sex and participation at $r = -0.057^{**}$, employment and awareness $r = -0.107^{**}$, employment and participation $r = -0.125^{**}$, employment and responsiveness $r = -0.193^{**}$, employment and implementation $r = -0.199^{**}$, source of information and awareness $r = -0.165^{**}$, source of information and participation $r = -0.125^{**}$, source of information and responsiveness $r = -0.120^{**}$, source of information and implementation $r = -0.057^{**}$. While the negative significant relationship at 0.05 exists in sex and responsiveness with the value of $r = -0.046^*$. All are in negative relationships. These relationships imply the unreceptiveness of PGIS concerning the call to eliminate and control the climate rate of 38.5 kt CO₂e/year. If the inverse relationships between employment and all the dependent variables continue in the years to come, then, this means that high employment will necessarily decrease the implementation of the Code. Hence, if PGIS remains passive, then the province will continue to experience a decrease in the net carbon flux with -322 kt CO₂e/year that exists at present. The challenge is, to eliminate the inverse significant relationships of the variables.

6. Conclusions

The study undoubtedly established the “High” mean level of awareness, participation, responsiveness, and implementation. Behind such a “High” level of the mean, there exists sporadic negative points, participation one (1) and participation two (2) specifically in the Lowland area. The implications rest in the content of the Code needing systematic modification in terms of some inclusions and/or deletions to embody the participation of the local citizens. The dependent variable responsiveness items one (1) to ten (10) with the descriptive rating of “High” in all areas, confirm that there is all-out support of the respondents to the pre-requisites of planting seedlings prior to the issuances of business permits, transportation licenses, marriage licenses, employment clearances, etc. The positive significant relationships of the variables either in 0.01 or 0.05 levels in the As a Whole area, all the significant relationships can be seen with their strength as either “Very Low” or “Low”. This situation implies that the challenge is open to PGIS concerning the passage of more relevant policies.

Negative relationships between the variables employment and implementation are found in all of the areas. The implication is that as the rate of employment goes high, the rate of implementation of the Code goes down. Specifically, if the inverse relationships persist, then, it means that as an individual is highly employed, the interest in fulfilling the provisions of the Code decreases.

Overall, the utmost concern of the respondents is to protect the interest of the residents from the benefits they extract from local resources, while at the same time protecting them from the environmental impact of resource over-utilization. Major responsibility certainly resides in the provincial government in its commitment to protecting the lives of the people at all costs. Truly, the future of the province depends on the insistence, awareness, and motivation of local leaders. Hence, the full actualization of the findings of the study rests on the trustworthy and committed local leaders. The men and women of the province can only be assured of eternal stable climate conditions, once appropriate action is fully realized and implemented. This can ultimately cause PGIS to emerge as an *efficient* and *effective* environmental agent in capturing a resilient and adaptive climate change province. The mandate then, is the development of policies expressed from a legal perspective for liberation from climate risk.

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Conflicts of Interest

The author declares no conflicts of interest.

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