

Extent of Awareness on Environmental Issues and Practices among the Residents of the Protected Areas in Surigao Del Norte

Mauricio S. Adlaon,

Surigao State College of Technology, Surigao City, madlaon@ssct.edu.ph,

ABSTRACT

Human indifference on environment's health accelerates the degradation of the latter. This study ascertained the relationship between the extent of awareness on environmental issues and practices of the residents in the protected areas of the province of Surigao del Norte, Surigao Watershed Forest Reserve (SWFR) and Siargao Islands Protected Landscape and Seascapes (SIPLAS). Data gathered could be good ground in crafting environmental stewardship program in the focus area. The statistically treated data proved that the residents' extent of awareness on environmental issues is insufficient to explain the complexity of the natural phenomena vis-a-vis ecological concepts. Their environmental practices are limited to home waste reduction, conservation of energy, and not practicing "kaingin" system of farming. Their awareness on environmental issues is attributed to age, civil status, highest educational attainment, and occupation while environmental practices do not differ when talking about gender. Environmental practices are manifestations of one's acquired knowledge on environmental issues.

Key words: extent of awareness; environmental issues; environmental practices; protected areas in Surigao del Norte

INTRODUCTION

Earth is facing the great negative impacts of humans on environment. They cause environmental degradation as they are not consciously taking care of Mother Earth. Throwing rubbish anywhere is a very simple example of a vicious cycle that ends up going back to humans. Many are unmindful of caring the environment due to their inability to comprehend the very essence of a healthy environment. Insufficient environmental knowledge is believed to contribute to the lack of environmental behavior among people (Esa, 2010). It can be construed that good knowledge about environment ensures effective delivery of environmental oriented activities. Knowledge, which grasps the laws of nature, must direct to the practice of changing the world, more specifically of reverting, if possible, the pristine condition of Mother Earth.

Notwithstanding natural calamities, environmental knowledge among Filipinos seems to be low as evidenced by their indifferent attitude. Unscrupulous individuals or groups of people despite many reminders, warnings, and laws do almost all forms of illegal practices against environment. Even simple segregation of waste and putting them in a garbage bin is not properly observed or not being practiced at all. Ensuring a positive and an effective environmental policy

needs exerting of greater effort by people across the nation. The willingness of the human population to accept and to apply environmental practices may be contingent upon the amount of information or environmental knowledge they have about the condition of the physical environment.

The framework of the study (Figure 1) shows the interplay of the variables. It considers the participants' profile in terms of age, sex, civil status, educational attainment, occupation, and length of stay in the area (Box 1). Box 2 contains extent of awareness of environmental issues while Box 3 contains environmental practices.

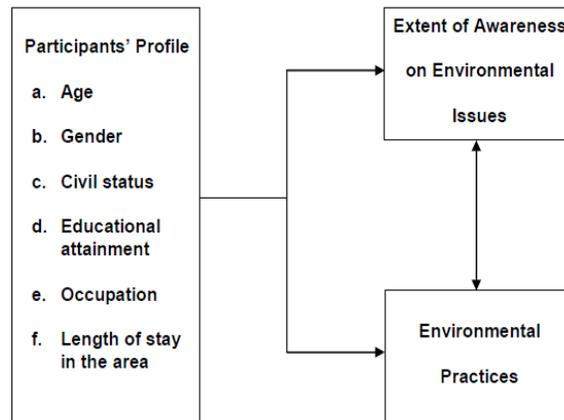


Figure 1. Schematic Framework of the Study

Environmental awareness, in this study, means the protected areas residents' cognitive dimension about the recognized environmental problems, the causes and consequences. It measures the extent of the participants' knowledge regarding the environmental issues and concern. On the other hand, environmental practices refer to as the participant's personal involvement in environmentally responsible behavior and personal action geared toward conservation and preservation and or devastation of the biodiversity of the protected areas. Positive environmental practices connote man's actions geared toward maintaining ecological balance meanwhile those environmental unfriendly acts are referred to as negative.

This study ascertained the relationship between the extent of awareness on environmental issues and practices of the residents in the protected areas of the province of Surigao del Norte which may serve as baseline data in crafting an environmental stewardship program in the focus area.

Specifically, the study sought to answer the following queries:

1. What is the profile of the participants in terms of age, gender, civil status, educational attainment, occupation, and length of stay in the area?
2. What is the extent of awareness on environmental issues of the participants in the protected areas?
3. What are the environmental practices of the participants in the protected areas?
4. When grouped according to the profile variables, do the participants significantly differ in their:
 - 4.1. extent of awareness on environmental issues;

4.2. environmental practices?

5. Is the participants’ extent of awareness on environmental issues significantly associated to their environmental practices?

At 0.05 level of significance, it is hypothesized that:

Ho₁. When grouped according to their profile, there is no significant difference in the participants’ extent of awareness on environmental issues and environmental practices.

Ho₂. There is no significant relationship between the participants’ extent of awareness on environmental issues and their environmental practices.

METHODOLOGY

The content of the study was confined to determining the extent of awareness of environmental issues and practices of the residents of the protected areas of Surigao del Norte, SIPLAS and SWFR. Environmental Literacy Survey employed by Kibert (2000) and Survey Instrument used by Murphy & Olson (2008) served as bases in the development of the questionnaire designed to answer the primordial goal of the study at hand. However, questions on environmental practices are so phrased and anchored on the prohibited acts inside the protected areas which is stipulated in Section 70 of the NIPAS Act of 1992.

The instrument is divided into three parts. The first part is on the participants’ profile. The second part consists of items on environmental problems and ecological issues. The last part gathered data on the environmental practices of the residents. For content validation, the questionnaire was submitted to experts and was pilot tested. The calculated Cronbach alpha was equal to 0.88, which is described as highly reliable.

Through a letter and personal visit, approval from proper authorities to allow the researcher to administer the questionnaire to the participants was sought. With permission granted, the researcher and some of the Environmental Science students in the college department who were well-oriented of the questionnaire administered the questionnaire to the residents of the protected areas in Surigao del Norte specifically those covered by the SIPLAS and SWFR. Table 1 reflects the number of participants. Sample size was obtained using Slovin’s formula. In the choice of actual participants, the stratified random sampling technique was used.

Table 1. *Distribution of Participants*

	Human Population*	Number of Participants	Percentage (%)
Siargao Protected Landscape and Seascape			
Burgos, Surigao del Norte (SN)	3,851	14	3.53
Dapa, SN	22,184	81	20.31
Del Carmen, SN	14,892	54	13.63
General Luna, SN	13,385	49	12.25
Pilar, SN	8,023	29	7.35
San Benito, SN	5,265	19	4.82
San Isidro, SN	6,223	23	5.70
Santa Monica, SN	7,916	29	7.25
Socorro, SN	18,833	69	17.24
<i>Sub total</i>	100,572		

Surigao Watershed Resource Reserve

Mabini, Surigao City (SC)	1,625	6	1.49
Mat-i, SC	4,304	16	3.94
Jubgan, San Francisco, SN	1,351	5	1.24
Cagtinae, Malimono, SN	1,063	4	0.97
Ima, Sison, SN	314	1	0.29
Sub total	8,657		
TOTAL	109,229	399	100.00

*Source: National Statistics Office, 2007 Census of Population

The following statistical devices were employed to analyze the data:

Frequency Count and Percentage Distribution were applied to problem 1, profile of the participants as well problem 3 on the environmental practices of the residents of the protected areas of Surigao del Norte;

Weighted Mean and Standard Deviation were utilized for problem 2 to determine the extent of awareness on environmental issues of the participants;

Analysis of Variance (ANOVA) was employed to problem 4 to test whether there is a significant difference in the extent of awareness on environmental issues when participants are grouped according to the profile variables; and

Chi-square Test of Independence was used in problem 4.2 in order to test whether there is a significant difference in the environmental practices when participants are grouped according to the profile variables. The same statistical measurement was utilized to determine the significant association between the extent of awareness on environmental issues and environmental practices of the participants of the protected areas of Surigao del Norte.

RESULTS AND DISCUSSION

Profile of the Participants

The profile of the participants can be gleaned in table 2.

Table 2. *Profile of the Participants*

Profile Variables		f (n = 399)	%
Age	75 – 84	5	1.25
	65 - 74	17	4.26
	55 – 64	34	8.52
	45 – 54	70	17.54
	35 – 44	110	27.57
	25 – 34	67	16.79
	15 - 24	96	24.06
Gender	Male	151	37.84
	Female	248	62.16
Civil Status	Single	119	29.82
	Married	280	70.18
Educational attainment	College Grad	118	29.57
	College Level	114	28.57
	HS Level	126	31.58
	Elem Level	41	10.28
Occupation	Professional/Technical	81	20.30
	Manager/Official/Proprietor	15	3.76
	Sales/Clerical	43	10.78
	Craftsman/Foreman	18	4.51
	Laborer/Farmer/Service Works/Fisherman	199	49.87
	None (Student)	43	10.78

Length of Stay in the Area	80	1	0.25
	70 – 79	5	1.25
	60 – 69	10	2.51
	50 – 59	42	10.53
	40 – 49	77	19.30
	30 – 39	83	20.80
	20 – 29	61	15.29
	10- 19	105	26.32
	0 – 9	15	3.76

Extent of Awareness on Environmental Issues of the Participants in the Protected Areas

Table 3. *Extent of Awareness on Environmental Issues of the Participants*

Environmental Issues	M	SD	VI
Habitat destruction	2.52	1.03	ME
Pollutions	2.29	1.04	FE
Humans’ interference with nature	2.34	0.99	FE
Insufficient knowledge on ecological balance	2.34	1.00	FE
Global Warming	2.53	1.01	ME
Overpopulation	2.53	0.98	ME
Ozone depletion	2.51	1.08	ME
Overexploitation	2.38	0.99	FE
Energy problem	2.61	1.03	ME
Man’s indifference to the laws of nature	2.63	0.90	ME
Shortage of good drinking water	2.68	1.04	ME
Limited land area	2.41	1.03	FE
Average Mean	2.48	1.01	FE

Legend:

Scale	Parameter	Verbal Interpretation
4	3.25-4.00	Great Extent
3	2.50-3.24	Moderate Extent
2	1.75-2.49	Fair Extent
1	1.00-1.74	Little Extent

As Table 3 depicts, the overall extent of awareness on environmental issues of the residents in the protected areas (SIPLAS and SWRR) of Surigao del Norte is to a *Fair extent*. This means the participants’ knowledge on environmental issues is not sufficient to uncover complex ecological concepts. The result is supported by the study of Ibrahim and Babayemi (2010). It goes to show that the majority of the Earth’s habitants have no sufficient knowledge about the environment. Esa (2010) exposed that even students and teachers lack sufficient environment knowledge.

The *Shortage of good drinking water* environmental issue is the highest. It is because 367 or 91.98% of the participants were from the islands of Siargao and Bucas Grande whose potable drinking water is scarce. The water supply problem is a result of forest cover loss and rapid urbanization, particularly in groundwater recharge areas (De la Paz and Colson, 2008). If the remaining forest cover in the protected areas will continue to decline due to human activities,

there will come a time that these areas will not have enough water for survival. An early intervention should be done.

Noteworthy is the next highest rated item which is the issue on “Man’s indifference to the laws of nature”. It can be deduced that the participants believe that man has abused nature; that man has not given back nature the respect and care it deserves, after all the gifts nature has given man which sustains his life and well-being.

It can be said, however, that since the participants observe first hand the cutting of trees and the practice of “kaingin” and other nature-unfriendly activities in the forest areas, *Habitat destruction* issue obviously surface in their responses.

Even if many of the participants have reached college level and others are college graduates, they are not so aware of the causes of water pollution, or have at all become sensitive to this. Considering that the participants’ exposure to scientific explanations of pollution, its types and its causes is limited, they, naturally do not understand that products or solutions dumped into identified sites could be poisonous and are dangerous to their health. They are not conversant with the scientific explanations of life’s cycles such as those of plants, animals, humans, and the changes in the earth’s movement and the transformation and reaction of elements and gases. This discloses the participants’ limited knowledge on the wholeness of creation, that is, that every creature has a reason for being; that all things in the environment have a role in the overall survival of human life, even in the existence of planet earth.

Environmental Practices of the Residents in the Protected Areas

Table 4. *Environmental Practices of the Participants*

Environmental Practices	Yes		No	
	f	%	f	%
Participating in environmental protection activities				
I participate in protest against individuals/firms /corporations which harm the nature like mining, illegal fishing.	273	68.42	126	31.58
I participate in actions that are organized by the environmentalist groups.	300	75.19	99	24.81
I work with others, or join a group or club to help do things for the biodiversity of our area.	291	72.93	108	27.07
I inform and educate the public, users and producers about the environmental consequences of choice of particular activities and choice of products, their use and ultimate disposal.	294	73.68	105	26.32
I attend training, seminar, or workshop on environmental education/ management.	276	69.17	123	30.83
Practicing reforestation				
I plant trees to improve reforestation in our area.	296	74.19	103	25.81
Conserving energy				
I conserve energy and find ways to turn off electrical appliance when not in use.	350	87.72	49	12.28
I remind others to turn off lights and electrical appliances when not in use or when leaving the room.	342	85.71	57	14.29
I purchase lamps, light-bulbs and appliances that are energy efficient.	317	79.45	82	20.55
Applying the 3R’s principles				
I apply the concept of reduce, reuse, and recycle.	306	76.69	93	23.31
I change ways in order to reduce the amount of waste generated at home.	361	90.48	38	9.52
Avoiding the use of hazardous substances				

Environmental Practices	Yes		No	
	f	%	f	%
I use synthetic chemicals for fishing/farming purposes anyway they won't harm the environment.	100	25.06	299	74.94
I am avoiding the use of hazardous substances and products and the generation of hazardous waste.	355	88.97	44	11.03
Buying organic locally grown foods				
I buy organic locally-grown foods on a regular basis.	310	77.69	89	22.31
Not disrupting biogeochemical cycles				
I consciously do things that do not disrupt biogeochemical cycles such as water cycle, carbon-oxygen cycle, etc.	310	77.69	89	22.31
I reduce water consumption for environmental reason.	322	80.70	77	19.30
Disposing/burning of wastes				
I dump/discard waste products into vacant lot/bodies of water.	80	20.05	319	79.95
I burn garbage and wastes so it will turn into ash.	153	38.35	246	61.65
I dump our refuse in rivers/seas from our homes, anyway, they will not cause water pollution.	55	13.78	344	86.22
I dispose human and other wastes in rivers/stream because they provide food for fishes and other water animals.	37	9.27	362	90.73
I wash clothes, cars and other things into rivers /streams which cannot harm bodies of water.	46	11.53	353	88.47
Cutting trees/practicing kaingin system				
I cut woody shrubs and or trees for firewood.	171	42.86	228	57.14
I practice kaingin system of farming and do hunting of animals for subsistence.	39	9.77	360	90.23
Using cellophane bag				
I use cellophane bag whenever buying stuff in groceries.	346	86.72	53	13.28

Highest in frequency among the environmental practices of the residents of protected areas is *Changing ways in order to reduce the amount of waste generated at home*. It can be inferred that the residents are practicing the 3R's principle – reduce, reuse, and recycle.

Next in frequency among the indicators of environmental practices is *Avoiding the use of hazardous substances and products and the generation of hazardous waste*. There is consistency of the environmental practices of the residents of the protected areas. Many of the sampled participants are aware of the danger garbage poses to the health of the people and to the environment.

It is noted however, that the residents of the protected areas rated fourth environmental practice is *Using cellophane bag whenever buying stuff from grocery stores* ($f = 346$ or 86.72%). This is a negative environmental practice because most of the cellophanes available in the market are non-biodegradable.

On the other hand, the least environmental practices of the residents of the protected areas but are considered to have positive effect to the environment include *Disposing human and other wastes in rivers/stream* (90.73%), *Practicing kaingin system of farming and hunting animals for subsistence* (90.23%), *Washing clothes, cars and other things into rivers/streams* (88.47%), *Dumping of refuse in rivers/seas from homes* (86.22%), *Dumping/discard waste products into vacant lot/bodies of water* (79.95%).

Another striking result is the participants' least environmental practices which are supposed to be done to include: *Participating in protest against individuals /firms /corporations which harm the nature like mining, illegal fishing, etc.* (31.58%) and *Attending training, seminar, or workshop on environmental education/management* (30.83%).

It can be inferred that the residents of the protected areas are conscious in disposing of their wastes. The big number of the sampled population does not throw their wastes into streams, rivers, lakes, or seas nor vacant lots. Residents should proactively save the Earth. Their participation toward protection and conservation is important. Baker and Stanton (2004) see community participation and empowerment as a key component of any natural resource management.

Difference in the Participants’ Extent of Awareness on Environmental Issues when Grouped According to their Profile Variables

Table 5. Mean Difference in the Participants’ Extent of Awareness on Environmental Issues when Grouped According to their Profile Variables

Profile Variables	F Value	p Value	Decision
Age	3.2003	0.0044	Reject H ₀
Gender	0.2132	0.6445	Do not reject H ₀
Civil Status	8.6767	0.0002	Reject H ₀
Educational Attainment	16.4137	0.0000	Reject H ₀
Occupation	5.0019	0.0002	Reject H ₀
Length of stay in the area	1.6886	0.0994	Do not reject H ₀

This finding is contrary with the finding of Kibert (2000) who recorded significant association between gender and environmental knowledge. However, Incekera and Tuna (2011) study conforms with the study at hand since their findings revealed no statistical difference between gender and the self-rating scores of respondents with respect to their knowledge level about environmental and sustainable developmental issues. Males do not have edge over females when talking about ecological problems or issues.

Like gender, length of stay in the area does not cause a significant difference in environmental awareness of the residents of the protected areas. It can be construed that knowledge about natural phenomena in the protected areas and the complexity of each processes do not matter whether one is exposed to the area for quite a long time or a short period of time. The finding is in contrast with Recuenco (2010) who found out that exposure to the natural environment has been proven to be the most influential in developing environmental sensitivity.

Difference in the Participants’ Environmental Practices when Grouped According to their Profile Variables

Table 6. Mean Difference in the Participants’ Environmental Practices when Grouped According to their Profile Variables

Profile Variables	X ²	df	p value	Decision
Age	213.31	120	0.0000	Reject H ₀
Gender	24.11	20	0.2376	Do not reject H ₀
Civil Status	133.53	40	0.0000	Reject H ₀
Educ’l Attainment	84.16	60	0.0215	Reject H ₀
Occupation	204.93	100	0.0000	Reject H ₀
Length of Stay in the Area	262.18	160	0.0000	Reject H ₀

Table 6 confirms that the participants’ environmental practices significantly differ with age, civil status, educational attainment, occupation, and length of stay in the area. In contrast with previous studies (Ibrahim and Babayemi 2010), there is consistency of insignificant differences between environmental knowledge and practices according to gender. It was found out that males scored higher in environmental knowledge than females and that more females than males reported they would do something about environmental problems (Kibert 2000). The finding of this current study defies Kim, et al (2010) study which stressed that female guests are more likely to be socially responsible and engage in environmentally friendly practices while traveling than their male counterparts.

Environmental practices of the residents of protected areas significantly differ in terms of educational attainment. This concretizes the notion that those who obtained college degrees have good environmental practices.

It is surmised that those who stayed longer in the area are aware of the environmental issues and concerns thus their practices are environment friendly. Recuenco (2010) stressed that despite many strategies being practiced within formal education, exposure to the natural environment has been proven to be the most influential in developing environmental sensitivity.

Association Between Extent of Awareness on Environmental Issues and Environmental Practices – Positive / Negative

Table 7. Association Between the Participants’ Extent of Awareness on Environmental Issues and Their Environmental Practices – Positive / Negative

<i>Environmental Practices</i>	<i>X²</i>	<i>df</i>	<i>p-value</i>	<i>Decision</i>
Positive	123.3	42	0.0000	Reject H ₀
Negative	43.96	24	0.0077	Reject H ₀

Table 7 discloses the strong association between extent of awareness on environmental issues and practices among the residents of the protected areas in Surigao del Norte. Environmental practices here are grouped into positive and negative (Montgomery, 2008; DENR, 2004; Miller, 2006). Considered positive environmental practices are participating in environmental protection activities, practicing reforestation, conserving energy, applying the 3R’s – reduce, reuse, recycle, avoiding the use of hazardous substances, buying organic locally grown foods, and not disrupting biogeochemical cycles. On the other hand, disposing/burning of wastes, cutting trees/practicing kaingin system, and using cellophane bags are the negative environmental practices.

The greater the awareness on environmental issues a person has, the greater is the chance for him to consciously do well for the environment. Improving the residents’ awareness on environmental issues enhances their participation in the conservation and protection of their physical environment. The finding discloses the conviction of those deeply involved in protecting and conserving the Earth’s biodiversity. Their attitudes as shown in their heartfelt participation to ecological conservation are gauged by the knowledge they acquired about Mother Nature’s complexity.

CONCLUSIONS

The following conclusions were drawn from the findings of the study:

1. Awareness on environmental issues of the residents of the protected areas of Surigao del Norte are insufficient to explain the complexity of the natural phenomena vis-a-vis ecological concepts.
2. Environmental practices of the residents of the protected areas of Surigao del Norte are limited to home waste reduction, conservation of energy, and not practicing “kaingin” system of farming.
3. Awareness on environmental issues is attributed to age, civil status, highest educational attainment, occupation, and length of stay in the area while environmental practices do not differ when talking about gender.
4. Environmental practices are manifestations of one’s acquired knowledge on environmental issues.

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