PERCEPTIONS ON GLOBAL CLIMATE CHANGE
AT BENGUET STATE UNIVERSITY

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ABSTRACT

Climate change is a global issue. The academe plays an important role in disseminating information about climate change; one way is by conducting surveys. This study investigated the perceptions and level of awareness on global climate change of the different sectors in Benguet State University. Through cluster sampling, three hundred sixty (360) respondents were used comprising of four sectors – administrators, faculty, students, and non-teaching personnel. The different sectors in the university have similar perceptions on climate change - it is real and harmful; human activities that caused it are pollution due to industry; it concerns them and must be addressed by everyone including BSU; and actions can be done to address it whether at home or in the campus such as waste segregation and tree planting. On their level of awareness, the respondents are highly aware of climate change as a global issue; ways/devices/methods that help mitigate climate change impact such as more efficient cars/appliances and alternative energy sources; and on the difference that an individual and an institution can make on the projected impacts of climate change. Overall, there are no significant differences on the perceptions and level of awareness on climate change among the sectors. However, significant differences were noted according to the sectors' level/amount of exposure, basis of beliefs, and access to information. There seems to be room for improvement with respect to what BSU is doing to address climate change as indicated by the low percentage of respondents who believe BSU is doing its part to address climate change. BSU as an academic institution has an important role to play in alleviating the effects of climate change within the community and the municipality. It should create more avenues for the involvement of all the sectors in the university in its campaign on climate change mitigation especially on its Eco-Waste Management Program and allow for better participation on the Information, Education, and Communication (IEC) arm of the said program.

KEYWORDS: Climate change, perceptions, level of awareness, academe, survey

INTRODUCTION

Everything on earth is bound to change. Physical world, time, event, and even people change. Changes are sometimes natural but some are results of human choices and actions. It can be a change for the best or for worse. A law in physics, called the law of entropy states that natural systems tend to proceed toward a state of greater disorder. Evidences of this state of disorder are increasing as seen in the climate. Many times, extreme and very unpredictable weather conditions are experienced.

The earth's climate has changed throughout history. Study shows that the global average temperature during the last few decades was warmer than any comparable period during the last 400 years. In addition, present evidence suggests that temperatures at many, but not all, individual locations were higher during the past 25 years than any period of comparable

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length since A.D. 900 (National Research Council, 2005). The amount of carbon dioxide in the atmosphere has increased greatly by about 35 percent in the industrial era and this increase is due to human activities, primarily due to combustion of fossil fuels and removal of forests. Thus, humankind has dramatically altered the chemical composition of the global atmosphere.

As earth climate changes, the frequency and intensity of extreme events are exposed to change. Changes in some types of extreme events have already been observed like the increase in the frequency and intensity of heat waves and heavy precipitation events.

Concern for climate change has reached global proportion (Climate Change in-depth, 2007; NREP Global Climate Survey, n.d.; Climate Change & Energy, Public Opinion Survey, n.d.). Those who were surveyed considered several actions that can be done to address climate change. These include electricity generated in ways that do not damage the climate; reduce energy use; purchase technologies; drive less; use alternatives; change car.

We now live in a unique time in that our scientific abilities have not only given us a precise age of the planet, but of the universe itself. Yet there are many things we do not understand, and some of the questions that remain before us may have a significant impact on the quality of our lives in the future. As our current civilization observes an unquestioned period of warming on Earth, the issue of the nature of this change remains a topic of discussion for both scientists and the public at large. It is important, therefore, for those of us in the educational community to help our students get the best information with which to guide their own thoughts and decisions in a changing world (Seymour, 2009).

Climate change is a global issue. As we are living in this time of extreme climate change, everybody should be aware of this so that we will in any way take action to contribute in the mitigation of this problem. In one's own simple way, it would contribute in minimizing this global problem.

The academe plays an important role in promoting climate change education (Filho, 2010). The World Climate Change Survey has established that climate change deserves proper attention and needs to be taken more seriously by universities. To determine the level of awareness of people in this area, a survey research was conducted. In fact, survey about climate change among university students would seem an effective way to analyze current trends, identify possible problems and propose some possible solutions. However, study shows that little emphasis to climate change in campus activities is a worldwide problem and researches on climate change is yet to find its way into university programs worldwide. The academe plays an important role in disseminating information about climate change; one way is through conducting surveys. Hence, this study was conceptualized.

Efforts to counter the effects of climate change are one of Benguet State University's thrusts. During its 23rd Charter Day celebra-tion, its theme "BSU: A Partner in Mitigating and Developing Adaptation Strategies on Climate Change" demonstrated the university's commitment to spearhead efforts in alleviating climate change impacts within the region. Several programs aligned to Climate Change Mitigation and Adaptation strategies were lined-up. On the other hand, Benguet State University - Eco Waste Management Program (BSU-EWMP) is another program with an aim to minimize wastes through improved technologies, adopt attitudinal chang-es and management strategies and identify and propose bolder and more innovative policies and measures. These goals shall be achieved through its four separate components – Informa-tion, Communication and Education (IEC), Col-lection and Transport (C & T), Materials Recov-ery Facility (MRF), and Research, Training and Development (R,T &D). The program includes the following waste manage-ment policies and imple-

menting guidelines: source segregation; reduction of residual wastes such as banning of all Styrofoam products in all university outlets and pursuing packaging alternatives; increased reuse of internal memos, plastics and glass bottles, cans; waste auditing; mode of collection through segregation; and composting of food wastes and agricultural wastes (Eco-Waste Management Program, BSU, n.d.).

It is hoped that the result of this study will be used to assist Benguet State University in its goal to have a strong participation in mitigating climate change – that each sector or individual will be given a key role to play in alleviating the impacts of climate change; that the university will help increase each sector's or individual's awareness on climate change regarding its impact on their lives, environment, school, economy, government, etc. as well as help them to be more familiar with activities that either lessen or aggravate the impact of global warming. The university can also capitalize on the result of this study to advance its Eco-Waste Management Program. BSU has a great influence to the pub-lic and making a difference is one simple way to help the municipality and even the country in achieving such goals.

Based on the issues and discussions presented, the study investigated on the perceptions and level of awareness on global climate change of the different sectors in Benguet State University. Specifically, the study sought to: (1) determine the perceptions on global climate change of the different sectors in the university; (2) compare the perceptions on global climate change of the following sectors: administrator, faculty, student and the non-teaching personnel; (3) determine the level of awareness on global climate change of the different sectors in the university; and (4) compare the level of awareness on global climate change among the following sectors: administrator, faculty, student and the non-teaching personnel

MATERIALS AND METHODS

The research was conducted at Benguet State University, La Trinidad, Benguet during the period February – May 2009. Data collec-tion was through a questionnaire eliciting Likert-type responses from the respondents on their perception and level of awareness on global climate change. The questionnaire is subdivid-ed into two parts. The first part is composed of questions to determine the perceptions on climate change. The second part was composed of questions to determine the level of awareness on climate change of the respondents. Most of the questions were taken from global climate change surveys accessed from the internet such as Climate Change Survey (www.eo.ucar.edu); The National Registry of Environmental Profes-sionals Global Climate Change Survey (http://www.urban-renaissance.org/urban/publications/globsurv.pdf); Climate Change in-depth, Perth 2007 (http://www.dpi.wa.gov.au/mediaFiles/Is-survey.pdf) and some are constructed by the researchers. The reliability of the constructed questionnaire was tested using the Cronbach's alpha test resulting to a high value of 0.943 indi-cating an excellent internal consistency.

Participants

Through cluster sampling, three hundred sixty (360) respondents were used comprising of four sectors – administrators (10), faculty (71), students (254) and non-teaching personnel (25). The students used in this study were those en-rolled during the second semester of SY 2008 – 2009 with courses representing the eight col-leges in the university.

Design

Analysis of data utilized descriptive sta-tistics, specifically frequency counts, and mode for the perception of the respondents and the weighted mean for their level of awareness. In-terpretation for the perception of the respond-ents was done by getting the mode of a par-ticular item. The percentage of the respondents whose response in a particular item is the modal value was then determined. A modal value of 3 means the particular item is the perception of

most respondents (agreement). A modal value of 2 means that most of the respondents do not agree with the particular item so it is not their perception and modal value of 1 means most of the respondents were uncertain whether the particular item could be their perception or not. On the level of awareness of the respondents, their response was interpreted as highly aware of a particular item when the weighted mean is within the range 2.34 – 3.00, moderately aware when the weighted mean is within the range 1.67 – 2.33 and not aware when the weighted mean is within the range 1.00 – 1.66.

The data were interpreted based on the following scales:

Rating	Perceptions	Range	Level of Awareness
3	Agree (A)	2.34 – 3.00	Highly Aware (HA)
2	Disagree (D)	1.67 – 2.33	Moderately Aware (MA)
1	Not Sure (NS)	1.00 – 1.66	Not Aware (NA)

The Chi Square test at 0.05 and 0.01 levels of significance were used for the comparison of the perceptions on global climate change among the four sectors. For the comparison of their level of awareness, the F – test was used at 0.05 and 0.01 level of significance.

RESULTS AND DISCUSSION

For practical reasons, the results will be presented and analyzed at the same time. As a whole, general findings will be presented. Significant differences on the perceptions of the different sectors will also be specifically discussed.

Perception on Global Climate Change

Perceptions on climate change. The study aimed to determine the perception of the respondents on climate change. The results are shown in Figure 1. It can be seen that the re-

spondents view climate change as real and is happening with 92% who believe there is solid evidence that the earth is warming as well as 86% who agree that we are in a period of climate change. This view is substantiated by the disagreement of more than half of the respondents on the following claims: the Earth's atmosphere is too large for man's activity to change climate, there's not enough evidence to support claims earth is getting warmer, scientists are overstating evidence of global warming for own interest and media is overstating evidence of global warm-ing. This finding is consistent with the views of environmental professionals in the U.S which showed that most of them believe global warming is a real, measurable, climatic trend currently in effect and the rate at which global warming may be occurring is a serious problem facing the planet (NREP Global Climate Survey, n.d.).

Climate change and global warming are not exactly the same, but they're closely related, and some people use the terms interchange-ably. This is also true among respondents with 58% of them who view that climate change and global warming are the same.

The predominant sentiment among Filipinos is that climate change is dangerous. Seven out of ten Filipinos believe that climate change is dangerous not only for the environment but also for themselves and their families (Pulse Asia, 2010). Respondents in this study share the same views with their fellow Filipinos where 81% believe climate change is harmful. This is not surprising since the country has recently experienced several calamities brought about by typhoons with unusual patterns.

The respondents were also asked on the primary factors that lead them to believe temperatures on earth are increasing. Figure 2 summarizes the results. It can be seen that the respondents consider human-induced factors as their top responses such as human activity (90%) and pollution (88%). Other factors considered have something to do with oc-
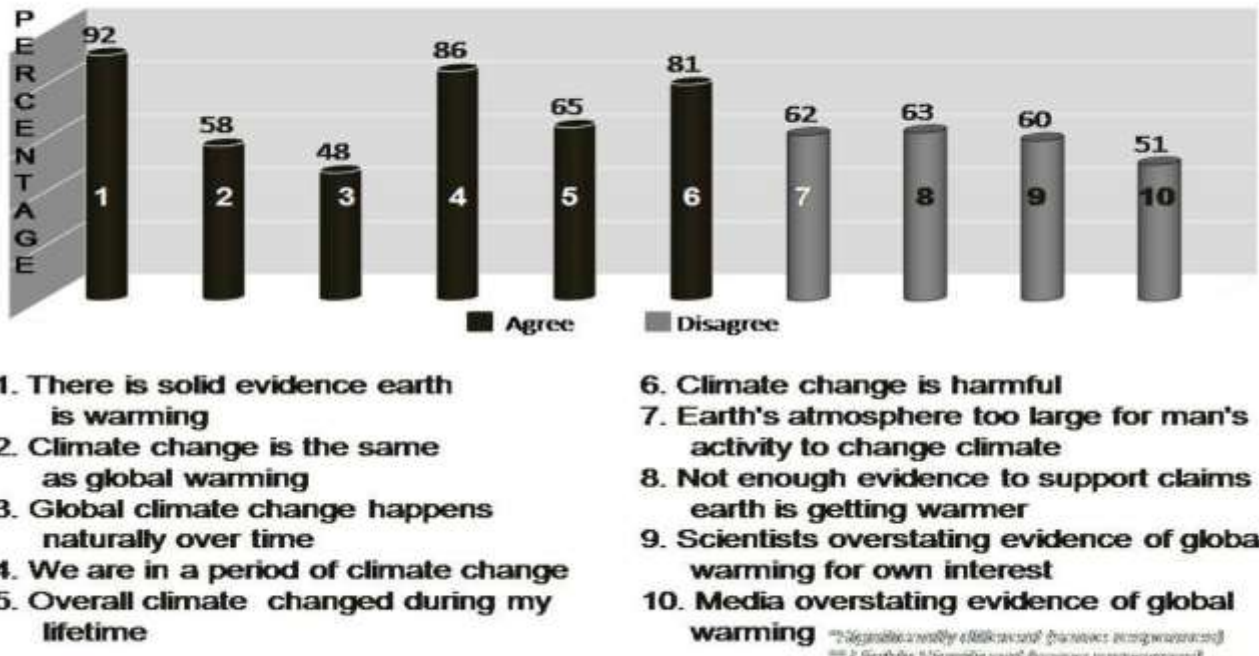
1. There is solid evidence earth is warming
2. Climate change is the same as global warming
3. Global climate change happens naturally over time
4. We are in a period of climate change
5. Overall climate changed during my lifetime

6. Climate change is harmful
7. Earth's atmosphere too large for man's activity to change climate
8. Not enough evidence to support claims earth is getting warmer
9. Scientists overstating evidence of global warming for own interest
10. Media overstating evidence of global warming

Figure 1. Percentage of respondents on their views on climate change.
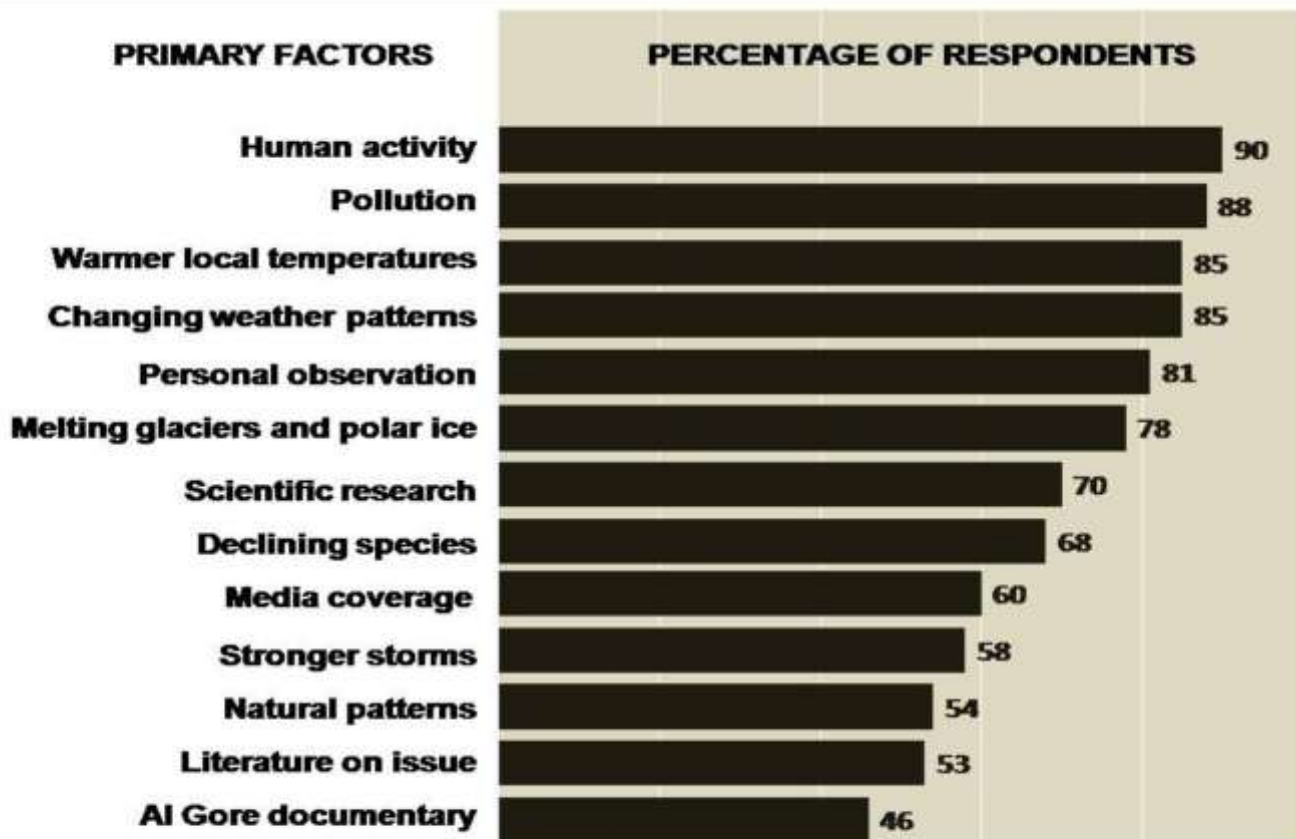

Figure 2. Percentage of respondents on the primary factors leading them to believe temperatures on earth are increasing.

currences in the environment such as warmer local temperatures, changing weather patterns, melting glaciers and polar ice, and declining species. Scientific research and even person-al observation are also considered. However only few respondents consider media coverage (60%), literature on issue (53%) and the Al Gore documetary (46%) as primary factors. This in-dicates that the respondents' beliefs on climate change are not influenced by these sources of information.

Factors that play a role to earth's climate and causes of climate change. Both natural phenomena and human activities such as burning of wastes, commuting/driving, use of non-biodegradable products, industries such as power plants are viewed by more than three fourths of the respondents to play a role in the Earth's climate. This is illustrated in Figure 3. Overall, the results are similar to findings of glo-bal surveys on climate change.

Globally, people believe the main factor in climate change is human causes such as waste, population increases, electricity, etc. (Synovate and Deutsche Welle, 2010). This is also true to the respondents of this study where more than 85% view that the causes of climate change are pollution due to industry, burning of fossil fuels/ gas emissions, car and air traffic, deforestation/ agriculture, people and overpopulation. Included also are greenhouse gases and ozone deple-tion. These results can be seen in figure 4. Al-though most of these causes are anthropogenic in nature, still 81% believe there are also natural causes of climate change.

Attitude towards climate change. Climate change is arguably the greatest challenge facing the world today. In line with this, the attitude of respondents towards climate change is determined. Results are shown in Figure 5. The respondents still believe that it is not yet too late to take action to ameliorate the impacts of climate change. More than 90%
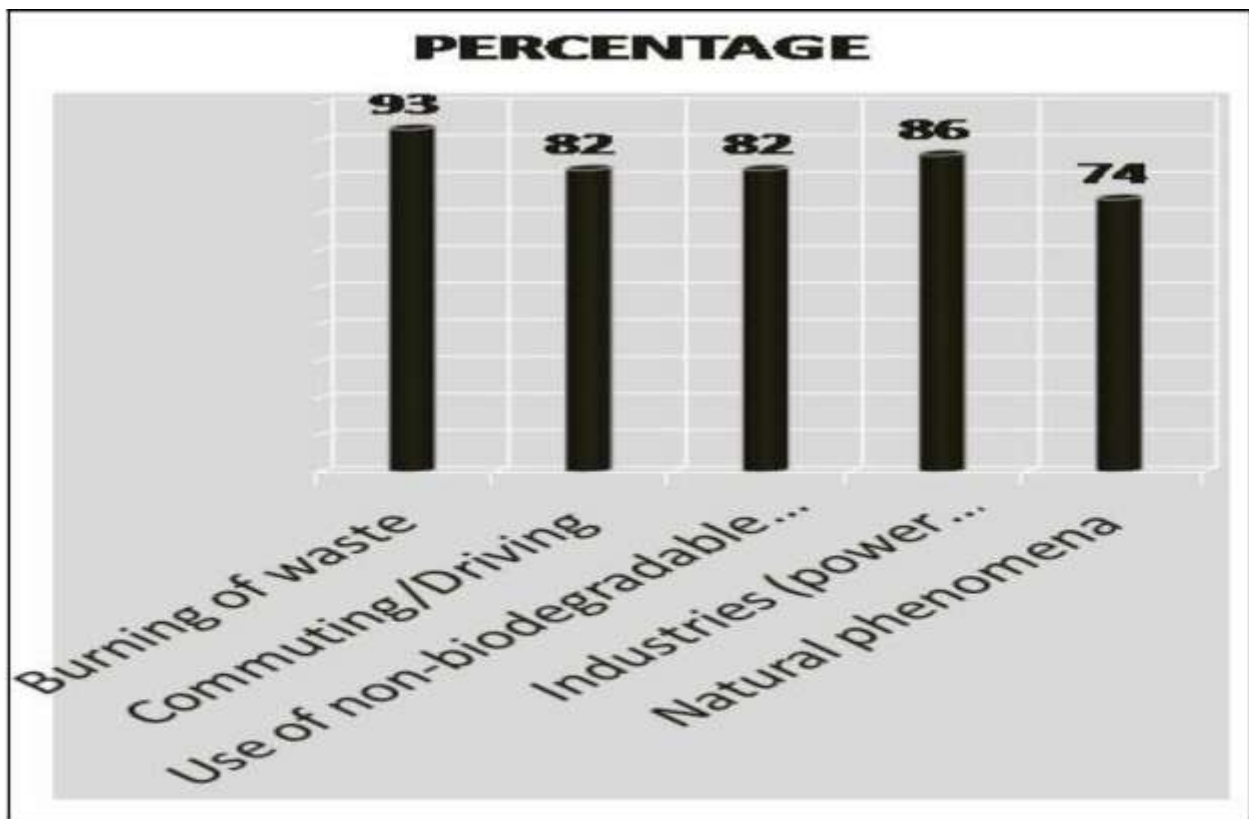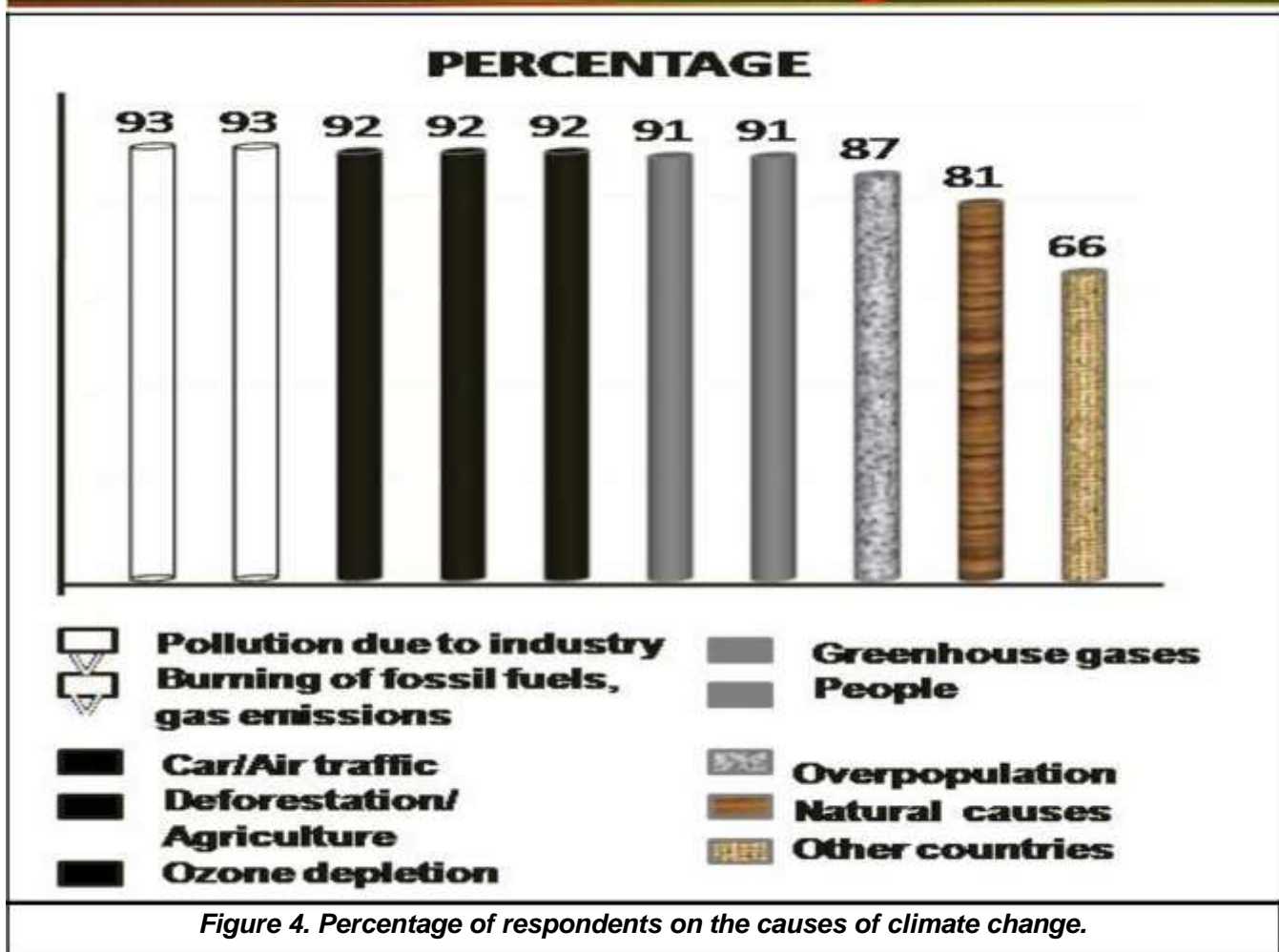

Figure 3. Percentage of respondents on the factors that play a role in earth's climate.

PERCENTAGE

93 93 92 92 92 91 91 87 81 66

☐ Pollution due to industry
▽ Burning of fossil fuels, gas emissions
■ Car/Air traffic
■ Deforestation/ Agriculture
■ Ozone depletion

▦ Greenhouse gases
▦ People
▨ Overpopulation
▨ Natural causes
▨ Other countries

Figure 4. Percentage of respondents on the causes of climate change.

of the respondents are very much concerned with climate change and view that it must be addressed now. Ninety five percent believe that whether a person belongs to the academe, government, industry or any sector, everybody is responsible in tackling climate change.

As part of the community, an academic institution such as Benguet State University play an important role in reducing the impacts of climate change. As such, all sectors in the university are aware of this where most of them view that BSU should address climate change (87%) and that as part of the institution one should take action to address climate change in the ca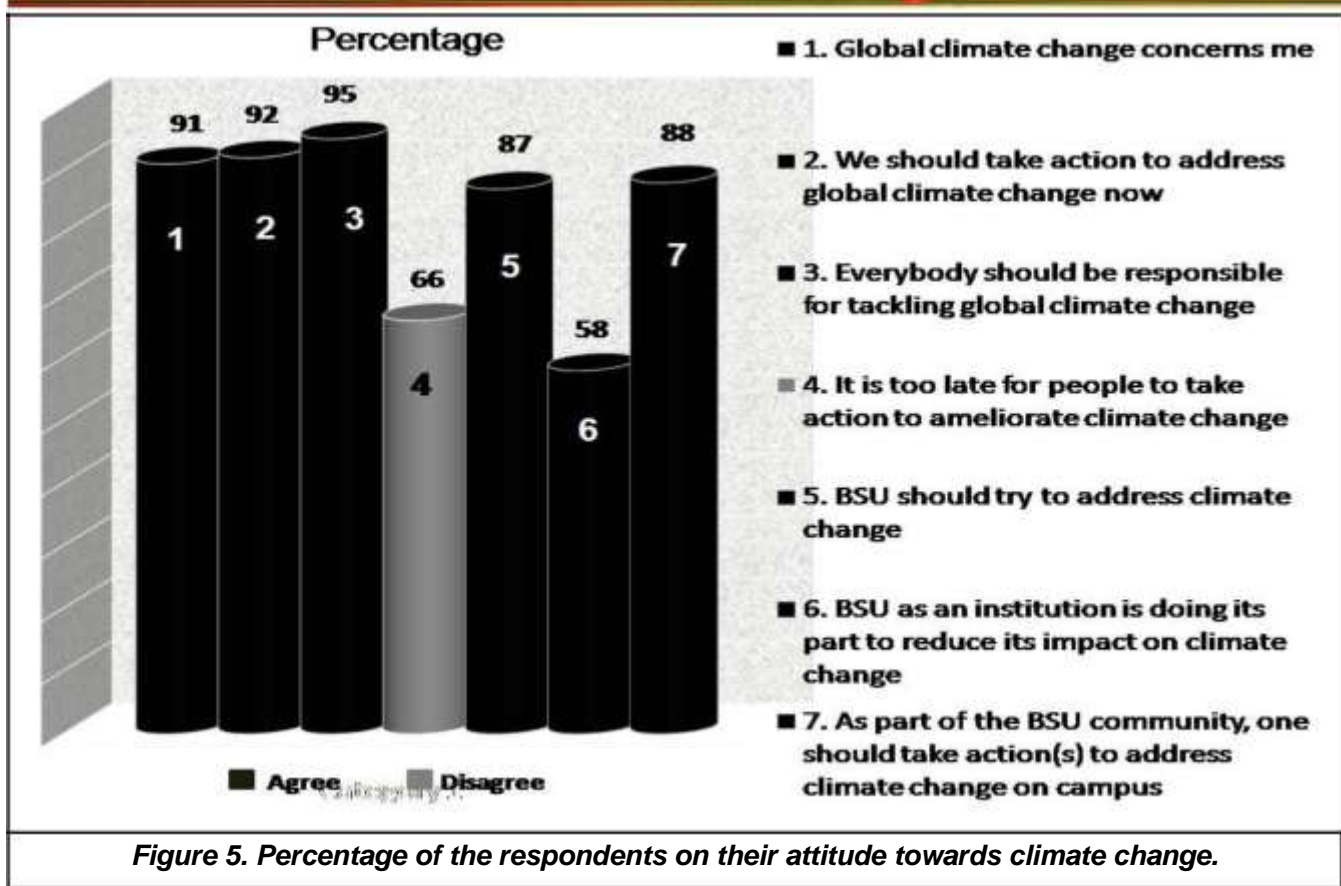mpus (88%). However, only 58% believe that their institution is doing its part to reduce its impact on climate change. In line with this, BSU must work harder

to increase the awareness of its constituents about its different programs that impacts climate change mitigation.

Actions that can be done to address climate change in the campus and at home. When asked what actions they can do to address climate change in campus and at home, majority of the respondents are inclined to do activites that protect the environment. This is shown in figure 6. The activities include segregation of wastes (93%), taking part in activities such as tree planting (92–93%), saving electricity and buying/using recyclable products (89-93%), composting at home (90%), use energy saving devices/ appliances (83-89%) and biking/walking or commuting (84-85%). This result is similar to other surveys done where the public is relatively active in environmental protection with most of them engaged in recycling, saving electricity, tree planting and waste segregation (Pulse Asia,

Percentage

- 1. Global climate change concerns me
- 2. We should take action to address global climate change now
- 3. Everybody should be responsible for tackling global climate change
- 4. It is too late for people to take action to ameliorate climate change
- 5. BSU should try to address climate change
- 6. BSU as an institution is doing its part to reduce its impact on climate change
- 7. As part of the BSU community, one should take action(s) to address climate change on campus

Figure 5. Percentage of the respondents on their attitude towards climate change.

2010; Synovate and Deutsche Welle, 2010).

About 90% of the respondents believe that informing and updating them through reading materials and allowing them to participate or get involved through sharing what they know are actions they can do to advance the cause of climate change mitigation. This result is an indication that the respondents conveyed what the essence of advocacy is on climate change.

Comparison on the perceptions on global climate change among the different sectors

Perceptions on climate change. When the perceptions on climate change among the sectors were compared, significant differences were noted. This is shown in table 1. A significantly higher percentage of the administrator (80%) and faculty (82%) sectors compared to the other two sectors (below 61%) perceive that the overall climate changed during their lifetime, as supported by its $p < 0.05$. This result implies personal observation to be an important factor

influencing the views of these two sectors.

Another significant difference, with $x2 = 12.741$, $p = 0.047$, is on the perception that global climate change happens naturally over time. Fifty percent of the administrator sector do not have this perception while a small majority of the faculty, student and non-teaching sectors (below 53%) have this perception. We can see from the result that the administrator sector believe that the global climate change we are experiencing right now is human-induced.

While more than 60% of administrator, faculty and non-teaching personnel do not believe that media is overstating the evidence of global warming, only 45% of students do. This difference is found to be significant, $x2 = 13.837$, $p = 0.023$. It could be inferred that students do not trust the media. This can be corroborated by the findings of the survey done on young Americans showing that only 33%

under the age of 35 trust the news media as a source of information on climate change, a proportion lower than any other age group (Feldman et al., 2010). This finding suggests that news organizations and journalists need to take initiatives to increase their credibility and to build stronger relationships with younger audiences.

The same statistical test also revealed significant differences on the perceptions among the four sectors regarding the primary factors that lead them to believe earth's temperatures are increasing. This is also shown in Table 1. A significantly higher percentage of administrators (above 69%) and faculty (above 58%) compared with the other two sectors (below 53%) rely on literature on issue and Al Gore Documentary as bases for their belief on the increase of temperatures on earth. These differences are shown to be significant, with significance values of $p < 0.05$. Similarly, a higher percentage of administrators (90% & 80%) and faculty (85% & 65%) compared with the other two sectors (80% and below 51%) consider personal observation and natural patterns as factors influencing

their belief. The difference in the percentage is significant, with $x2 = 14.54$, $p = 0.024$ and $x2 = 13.008$, $p = 0.043$, respectively. This finding implies the advantage of administrators and faculty as having wider exposure to these issues than the students and non-teaching personnel. This is also consistent with an earlier result of the important role that personal observation plays regarding the views of the administrator and faculty sectors.

Another significant finding shows that a greater majority of the faculty sector (70%) considers media coverage as a factor influencing their beliefs while only a small majority of administrators, students and non-teaching personnel do (below 57%). This difference is revealed to be highly significant with $p < 0.01$, suggesting that faculty members consider media as sources of information on their beliefs. This is understandable since current events are sometimes incorporated in their lessons and teachers must always be updated on issues and events affecting not only the country but the world.
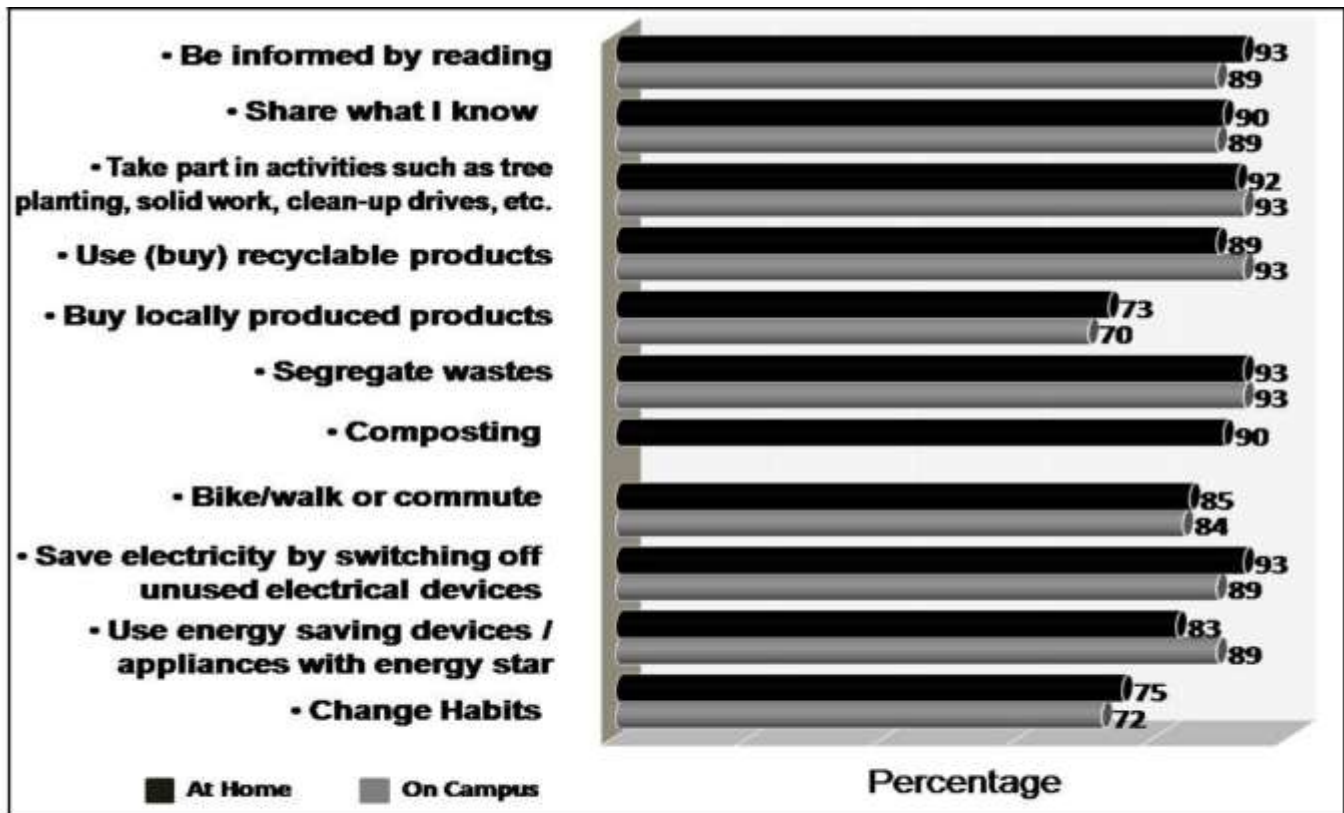

Figure 6. Percentage of respondents on the actions they can do to address climate change.

Table 1. Comparison on the perceptions on global climate change among the different sectors

	ADMINIS-TRATOR		FACULTY		STU-DENTS		NON-TEACHING		Chi	sig
	%	DE	%	DE	%	DE	%	DE		
There is solid evidence that the earth is warming.	90	A	95.77	A	90.94	A	92	A	3.176	0.786
Climate change is the same with global warming.	70	A	57.75	A	59.45	A	44	D	8.925	0.178
Global climate change happens naturally over time.	80	D	92.96	D	85.04	D	84	D	12.741	0.047*
We are in the period of climate change.	50	A	45.07	A	48.82	A	52	A	4.730	0.579
The overall climate changed during my lifetime.	80	A	81.69	A	60.63	A	52	A	15.136	0.019*
Climate change is harmful	80	A	88.73	A	78.74	A	80	A	5.553	
There is not enough evidence to support claims that the earth is getting warmer.	70	D	69.01	D	62.60	D	56	D	3.995	0.677
Scientists are overstating evidence about global warming for their own interest.	70	D	67.61	D	56.69	D	52	D	3.937	0.685
The earth's atmosphere is too large for man's activity to change the climate.	80	D	70.42	D	57.87	D	56	D	5.864	0.439
The media is overstating the evidence of global warming.	70	D	63.38	D	45.28	D	68	D	13.837	0.032*

PRIMARY FACTOR/S LEADING THEM TO BELIEVE THAT TEM-PERATURES ON EARTH ARE INCREASING	ADMINIS-TRATOR		FACULTY		STU-DENTS		NON-TEACHING		Chi	sig
	%	DE	%DE		%	DE	%	DE		
Human Activity	100	A	88.73	A	90.16	A	88	A	4.475	0.613
Pollution	100	A	88.73	A	88.98	A	80	A	8.576	0.199
Warmer Local Temperatures	90	A	92.96	A	82.68	A	80	A	9.473	0.147
Changing weather Patterns	90	A	92.96	A	83.07	A	80	A	7.145	0.308
Personal Observation	90	A	84.51	A	80.31	A	80	A	14.54	0.024*
Melting glaciers and Polar Ice	100	A	77.46	A	78.35	A	64	A	7.07	0.314
Scientific Research	80	A	77.46	A	68.50	A	60	A	12.004	0.062
Declining Species	100	A	76.06	A	64.96	A	64	A	11.668	0.070
Media Coverage	50	A	70.42	A	56.30	D	56	A	28.485	0.000**
Stronger Storms	70	A	66.20	A	54.33	D	64	A	9.384	0.153
Natural Patterns	80	A	64.79	A	50.79	D	44	D	13.008	0.043*
Literature on Issue	80	A	64.79	A	48.43	D	52	A	21.286	0.002**
Al Gore Documentary	70	A	59.15	D	43.31	D	44	D	20.246	0.003**

Legend: M – Mean DE – Descriptive Equivalent   A – Agree   D – Disagree NS – Not Sure
*Significant at 0.05 level of significance   **Highly significant at 0.01 level of significance

Factors that play a role to earth's climate and causes of climate change. A significantly lower percentage of students (below 77%) compared with the other sectors (above 80%) consider natural phenomena and the human activity "using of non-biodegradable products such as plastic bags, cans, etc." to play a role in the earth's climate. This result is shown in table 2. This comparison is found to be highly significant, with each factor having $\rho < 0.05$.

In general, all sectors have similar views as to the causes of climate change. Except for "overpopulation" which is viewed by a significantly greater number of the faculty sector com-pared to the other sectors, with $x2 = 24.510$, $\rho = 0.000$.

Attitude towards climate change and actions that can be done to address it in the campus and at home. Table 3 shows the comparison of the views among the different sectors on their attitude towards climate change and actions they can do to address climate change in the campus and at home. Differences were observed as to the attitude towards climate change among the sectors. A significantly lower percentage of students (53%) as compared to the other sectors (60% and above) perceive that BSU as an institution is doing its part to reduce its impact on climate change. This difference is found to be significant, with $x2 = 15.889$, $\rho = 0.014$, indicating that only a few students see BSU to play an active role in climate change mitigation. Though BSU have programs on climate change mitiga-

Table 2. Comparison of the perceptions among the different sectors on the factors that play a role on climate change and causes of climate change

	ADMINIS-TRATOR		FACULTY		STU-DENTS		NON-TEACHING		Chi	sig
	%	DE	%	DE	%	DE	%	DE		
Natural phenomena plays a role in Earth's Climate	90	A	80.28	A	70.87	A	84	A	18.997	0.004**
Human activity that plays a role in Earth's climate										
- Burning of Wastes	100	A	98.59	A	92.52	A	84	A	7.910	0.245
-Commuting/Driving	90	A	92.96	A	78.74	A	80	A	9.521	0.146
-Commuting/Driving	90	A	92.96	A	78.74	A	80	A	9.521	0.146
-Construction	90	A	87.32	A	74.02	A	72	A	7.594	0.269
-Using non-biodegradable products such as plastic bags, cans, etc.	90	A	95.77	A	76.38	A	92	A	16.849	0.0105*
-industries such as power plants, manufacturing plants, etc.	100	A	94.37	A	82.68	A	96	A	10.694	0.0985
Cause of climate change										
-Pollution due to industry	90	A	92.96	A	93.70	A	92	A	6.123	0.410
-People	100	A	92.96	A	90.94	A	84	A	10.188	0.117
-Car and air traffic	90	A	95.77	A	90.94	A	92	A	5.586	0.471
-Burning of fossil fuels, gas emissions	90	A	95.77	A	92.13	A	92	A	7.855	0.249
-Deforestation/agriculture	90	A	94.37	A	90.94	A	84	A	6.451	0.375
-Greenhouse gases	90	A	92.96	A	91.34	A	88	A	10.977	0.089
-Ozone depletion	90	A	94.37	A	91.34	A	92	A	5.916	0.473
-Natural causes	80	A	87.32	A	79.53	A	84	A	7.314	0.293
-Overpopulation	80	A	92.96	A	86.22	A	76	A	24.510	0.000**
-Other countries	70	A	77.46	A	63.78	A	72	A	12.535	0.051

Legend: M – Mean DE – Descriptive Equivalent A – Agree   D – Disagree NS – Not Sure
*Significantly different at 0.05 level of significance

tion, it should involve more students in its drive to reduce its impact on climate change.

Overall, the perceptions of the different sectors on actions they can do to address climate change do not differ significantly. The practices mentioned can be done by anybody at home or in the campus, regardless of which sector he/ she belongs to. However, the administrator sec-tor differs with the other three sectors in terms of personal way of realizing one's commitment to help reduce the impact of climate change. This is shown where a significantly higher percentage of administrators (90%) compared to the other three sectors (below 79%) believe they can ad-dress climate change personally by patronizing locally produced products. Analysis of data sup-ports this claim, with $x2 = 14.899$, $\rho = 0.021$. On the other hand, a significantly lower percentage of non-teaching personnel (68%) compared to the other three sectors (above 80%) view the use of energy saving devices such as applianc-es with the energy star as one action that can be done to address climate change at home. A reason could be that not all the respondents

from this group are familiar with the "energy star" symbol on appliances or what the symbol repre-sents.

Level of Awareness on Climate Change

About climate change. When asked to rate their level of awareness on climate change, most of the respondents rated themselves to be highly aware on most of the items. This is illustrated in Figure 7. The items include fossil fuels as main contributor to climate change; there is an increase of CO2 and net increase in temperature since the beginning of the industrial revolution; and climate change is now a global issue. Though climate change is widely discussed in almost all forms of media, most of the respondents are only moderately aware of its projected impacts and coal as the number one fossil fuel that contributes most to climate change. This finding is similar to the survey done on the extent of Filipino's knowledge about climate change where almost the same percentages report having either sufficient (42%) or little (32%) knowledge about the issue (Pulse Asia, 2010).
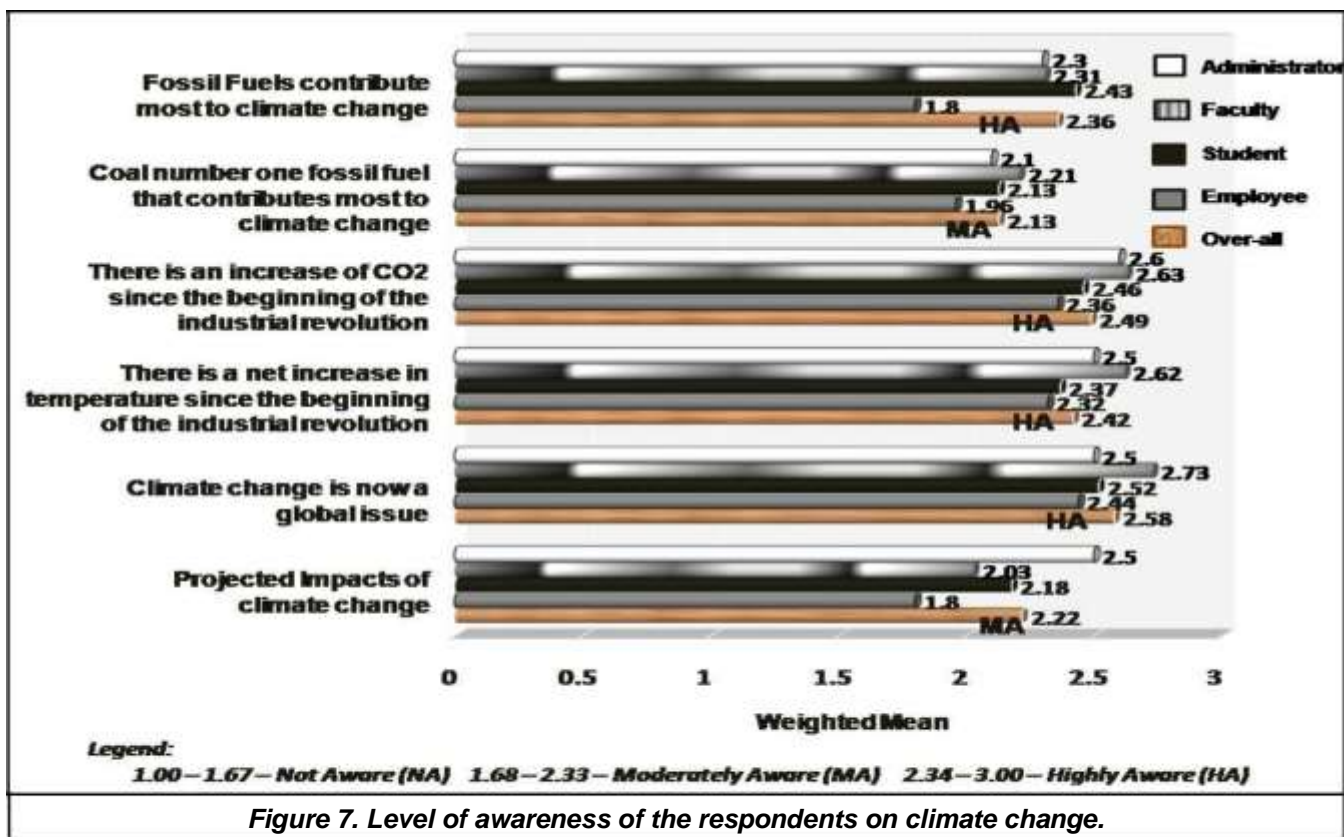

Figure 7. Level of awareness of the respondents on climate change.

Table 3. Comparison of the perceptions among the different sectors on their attitude towards climate change and actions they can do to address climate change in the campus and at home

	ADMINIS-TRATOR		FACULTY		STU-DENTS		NON-TEACHING		Chi	sig
	%	DE	%	DE	%	DE	%	DE		
ATTITUDE TOWARDS CLIMATE CHANGE										
Global climate change concerns me.	90	A	91.55	A	90.94	A	88	A	1.033	0.984
We should take action to address climate change now.	90	A	91.55	A	91.73	A	92	A	8.010	0.237
Everybody should be responsible for tackling global warming.	100	A	97.18	A	94.49	A	96	A	2.612	0.856
It is too late for people to take action to ameliorate climate change effects	50	D	64.79	D	67.62	D	64	D	9.523	0.146
Benguet State University should try to address climate change.	90	A	92.96	A	84.25	A	100	A	10.908	0.041
Benguet State University as an institution is doing its part to reduce its impact on climate change.	80	A	69.01	A	53.15	D	60	A	15.889	0.014*
As part of the Benguet State University community, one should take action(s) to address climate change on campus.	100	A	92.96	A	86.61	A	80	A	8.690	0.192
ACTIONS THAT CAN BE DONE TO ADDRESS CLIMATE CHANGE ON CAMPUS										
-Be informed by reading	80	A	92.96	A	89.37	A	84	A	11.331	0.079
-Save electricity by switching off unused electrical devices such as computers, lights, exhaust fans, etc.	80	A	92.96	A	88.58	A	92	A	9.324	0.342
-Using energy saving devices	90	A	91.55	A	88.58	A	88	A	1.841	0.934
-bike or walk	90	A	88.73	A	83.46	A	72	A	5.155	0.524
-Share what I know	90	A	94.37	A	88.58	A	84	A	7.406	0.285
-Take part in activities such as tree-planting, solid work, etc..	90	A	91.55	A	93.70	A	88	A	4.422	0.620
-Use recyclable products	100	A	94.37	A	93.31	A	88	A	3.483	0.746
-Segregate wastes	100	A	95.77	A	91.73	A	96	A	3.545	0.738
-Buy locally produced products	90	A	78.87	A	66.93	A	72	A	14.899	0.021*
-Change habits	90	A	81.69	A	68.11	A	72	A	11.092	0.086
ACTIONS THAT CAN BE DONE TO ADDRESS CLIMATE CHANGE AT HOME										
-Be informed by reading	100	A	94.37	A	92.91	A	92	A	7.265	0.210
-Save electricity by switching off unused appliances such as television, lights, radio, etc.	90	A	94.37	A	92.91	A	92			
-Using energy saving devices such as appliances with the energy star	90	A	91.55	A	81.50	A	68	A	13.160	0.041*
-bike, walk or commute	100	A	88.73	A	83.46	A	84	A	11.792	0.067
-Share what I know	90	A	92.96	A	88.58	A	96	A	7.943	0.242
Take part in barangay activities such as tree planting, clean up drives, etc.	100	A	92.96	A	92.13	A	84	A	3.168	0.787
-Buy and Use recyclable products	90	A	91.55	A	88.58	A	88	A	8.239	0.221
-Segregate wastes	100	A	94.37	A	92.91	A	88	A	2.220	0.898
-Buy locally produced products	90	A	80.28	A	69.29	A	80	A	9.951	0.127
-Composting	90	A	95.77	A	88.98	A	88	A	5.121	0.528
-Change habits	90	A	84.51	A	70.47	A	84	A	11.909	0.064

Legend: M – Mean DE – Descriptive Equivalent A – Agree   D – Disagree NS – Not Sure
*Significantly different at 0.05 level of significance

One's impacts to climate change. Whether as a group or as individuals, ones' actions could make a difference on the projected impacts of climate change. The level of awareness of the respondents on this matter is shown in Figure 8. Overall, the respondents are highly aware that BSU as an institution and as individuals can make a difference to the projected impacts of climate change while they are moderately aware of the impact of their action to climate change. It is in this note that sufficient knowledge on one's impacts to climate change will spell the difference on how an individual or an institution can contribute to climate change mitigation.

Ways/methods/devices to mitigate climate change. The respondents were asked to rate their level of awareness to some of the ways/methods/devices to mitigate climate change. The result is summarized in figure 9. Overall, the respondents are highly aware of more efficient cars and appliances along with alternative energy such as solar, nuclear and wind. Hydrogen cars, electric appliances with energy star and biomass/bioenergy are less familiar with the respondents as indicated by their moderate awareness on such technologies. They also have moderate awareness on processes such as carbon capture and storage, carbon sequestration and iron fertilization. This is not surprising since discussions about these processes are limited to specific purposes only (i.e. classroom discussion, panel discussion, symposium, as student research work/ assignment, etc.).
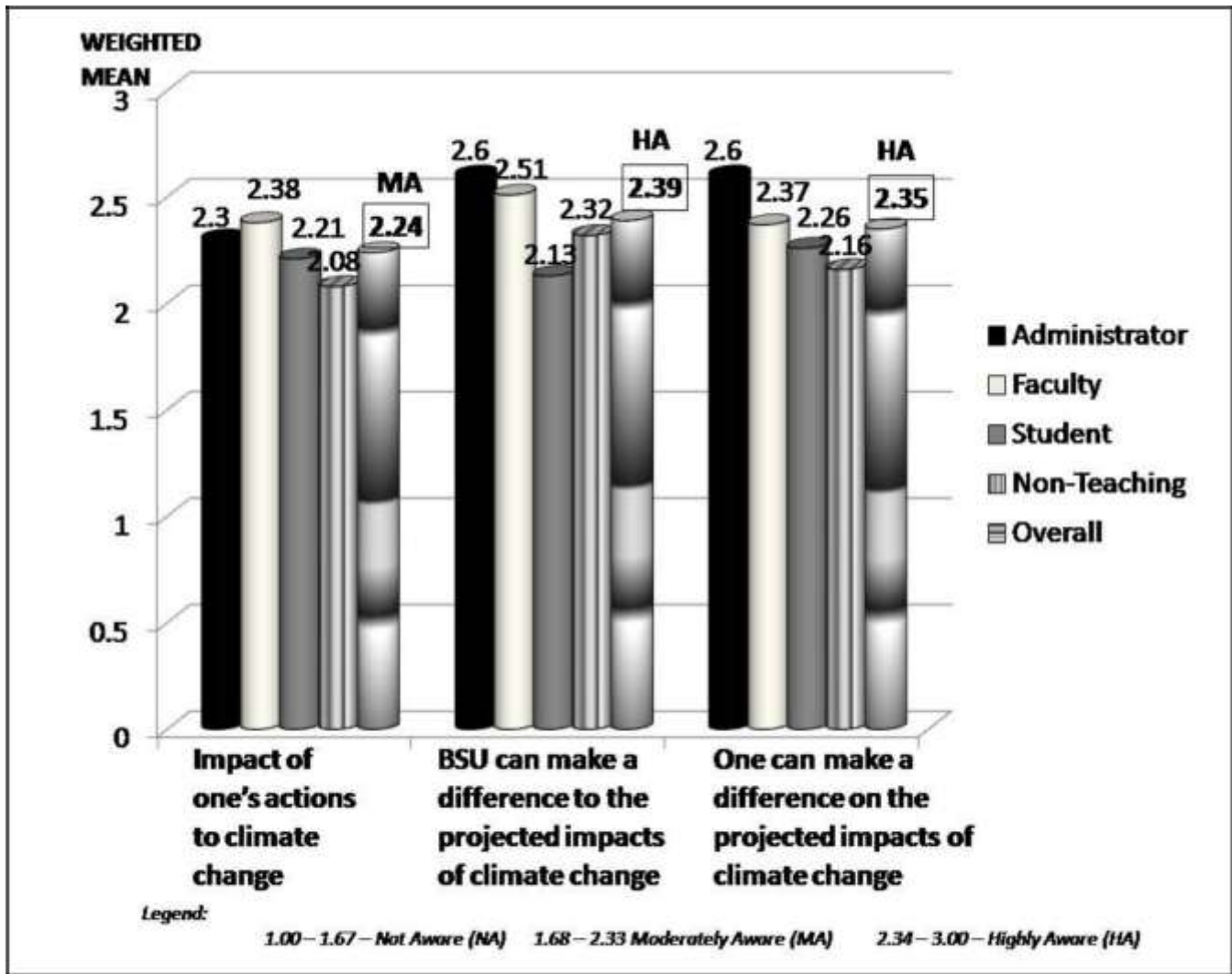

Figure 8. Level of awareness of the respondents on one's impact to climate change.
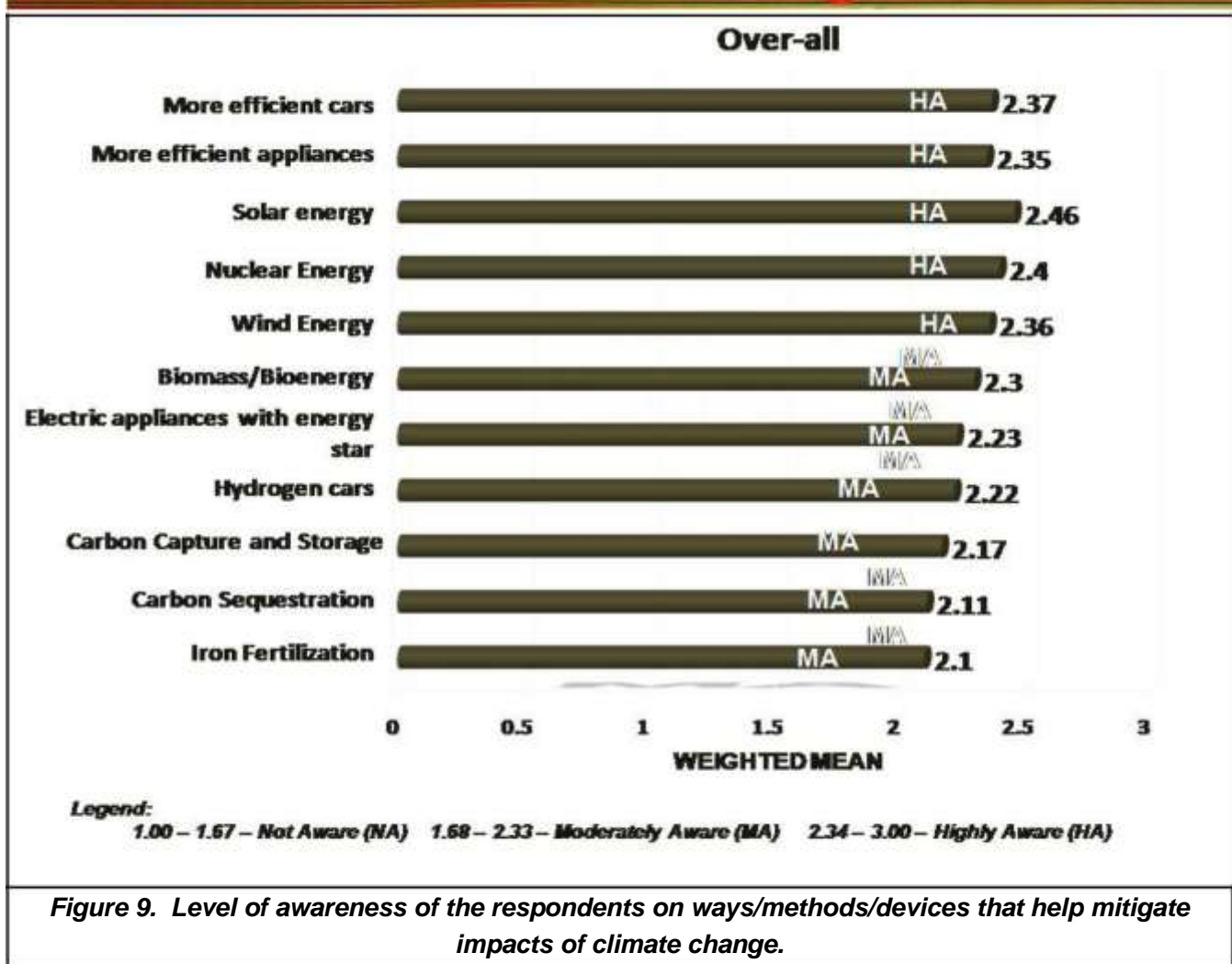
Figure 9. Level of awareness of the respondents on ways/methods/devices that help mitigate impacts of climate change.

Comparison on the Level of Awareness on Climate Change of the Different Sectors

About climate change. In general, there is no difference in the level of awareness on climate change among the four sectors considered in this study. This can be seen in Table 4 and illustrated in Figure 7. This result indicates that the level of awareness on climate change among the different sectors in the university is not sector dependent. All sectors in the university have equal exposure to various source of information on climate change. However, the level of awareness of students on the contribution of fossil fuels to climate change is significantly greater (M = 2.43) compared to that of the other sectors (M < 2.31). Analysis using the F-test support this statement, with $F = 5.888$, $\rho = 0.001$, implying that students are more knowledgeable about fossil fuels than the other sectors where the latter could be getting their information from their science classes or in other academic assemblies.

Ways/methods/devices to mitigate climate change. Table 4 also shows the comparison on the level of awareness among the sectors on ways/methods/devices to mitigate climate change. In general, there are no significant differences on the level of awareness among the sectors except for the processes such as carbon capture and storage, carbon sequestration and iron fertilization. The administrator sector are highly aware of them (M = 2.60, 2.50 and 2.40, respectively) while the other three sectors are moderately aware of them. The differences in the means of the level of awareness between

Table 4. Comparison on the level of awareness of the different sectors on climate change

	ADM M DE	FAC M DE	STUD M DE	NT M DE	F	SIG
Fossil fuels contribute most to climate change.	2.30 MA	2.31 MA	2.43 HA	1.80 MA	5.888	0.001*
Coal is the number one fossil fuel that contributes most to climate change.	2.10 MA	2.21 MA	2.13 MA	1.96 MA	0.662	0.576
There is an increase of CO2 since the beginning of the industrial revolution	2.60 HA	2.63 HA	2.46 HA	2.36 HA	1.549	0.202
There is a net increase in temperature since the beginning of the industrial revolution.	2.50 HA	2.62 HA	2.37 HA	2.32 MA	2.362	0.071
Climate change now a global issue	2.50 HA	2.73 HA	2.5 HA	2.44 HA	1.598	0.189
Projected impacts of climate change	2.50 HA	2.03 MA	1.9 MA	1.80 M	2.398	0.068
WAYS/METHODS/DEVICES THAT HELP MITIGATE CLIMATE CHANGE IMPACTS						
More efficient cars	2.60 HA	2.38 HA	2.37 HA	2.24 MA	0.52	0.669
Solar energy	2.70 HA	2.48 HA	2.46 HA	2.28 MA	0.813	0.488
Nuclear Energy	2.60 HA	2.41 HA	2.41 HA	2.20 MA	0.811	0.489
Wind Energy	2.70 HA	2.38 HA	2.36 HA	2.16 MA	1.207	0.307
More efficient appliances	2.70 HA	2.38 HA	2.33 MA	2.32 MA	0.75	0.523
Electric appliances with the energy star	2.70 HA	2.30 MA	2.22 MA	1.96 MA	2.217	0.086
Hydrogen cars	2.60 HA	2.25 MA	2.22 MA	1.96 MA	1.603	0.188
Biomass/bioenergy	2.60 HA	2.34 MA	2.31 MA	1.92 MA	2.464	0.062
Carbon capture and storage	2.60 HA	1.97 MA	2.23 MA	1.92 MA	3.531	0.015*
Carbon sequestration	2.50 HA	1.93 MA	2.17 MA	1.84 MA	3.206	0.023*
Iron fertilization	2.40 HA	1.89 MA	2.17 MA	1.84 MA	3.265	0.022*
ONE'S IMPACTS TO CLIMATE CHANGE						
Impact of one's actions to climate change	2.30 MA	2.39 HA	2.21 MA	2.08 MA	1.49	0.217
The university can make a difference to the projected impacts of climate change	2.60 HA	2.51 HA	2.13 MA	2.32 MA	2.932	0.034*
As an individual one can make a difference to the projected impacts of climate change	2.60 HA	2.37 HA	2.26 MA	2.16 MA	2.097	0.100

Legend: M – Mean DE – Descriptive Equivalent ADM – Administrator   FAC – Faculty
        STUD – Student   NT – Non-teaching   MA - Moderately Aware   HA - Highly Aware
        *Significantly different at 0.05 level of significance

the administrator sector and the other three sectors are significant as indicated by their associated probability values ρ < 0.05 (Table 4). This result indicates that administrators have more exposure to specialized topics suggesting again the advantage of one's position in obtaining information. Administrators in BSU are really updated and well informed about climate change.

One's impacts to climate change. Comparison on the level of awareness on one's impact to climate change among the sectors is also shown in Table 4 and Figure 8. Both the students (M = 2.13) and non-teaching (M = 2.32) sectors are moderately aware that BSU as an institution can make a difference to the projected impacts of climate change while the other two sectors are highly aware of these (MA = 2.60 and MF = 2.51). The difference when tested is found to be significant, with F = 2.932, ρ = 0.034. This is consistent with earlier result where a lower percentage of students view BSU is doing its part to address climate change. An implication of this would be that BSU should try to have more student involvement in its programs and activities especially those that tackle climate change issues.

SUMMARY, CONCLUSION, AND RECOMMENDATION

Summary

The results are summarized as follows:

1. The different sectors in the university perceive that climate change is real and harmful; human activities that caused it are pollution due to industry and burning of fossil fuels; it concerns them and must be addressed by everyone including BSU; and actions can be done to address it at home or in the campus such as waste segregation, buying/using biodegradable products and share what they know. However, only a small majority of the respondents perceive that BSU is doing its part to reduce its impact on climate change.

2. In general, the perceptions on climate change of the different sectors in the university do not differ significantly. However, some significant differences were noted:

a. A significantly higher percentage of the administrator and faculty sectors compared to the other two sectors perceive that the overall climate changed during their lifetime.

b. A significantly lower percentage of students compared with the other three sectors do not believe media is overstating the evidences of global warming while a higher percentage of the faculty sector consider media coverage as a primary factor influencing their belief that temperatures on earth are increasing.

c. A significantly lower percentage of students compared with the three sectors perceive that BSU is doing its part to reduce its impact to climate change.

d. A significantly higher percentage of administrators compared with the other sectors consider patronizing locally produced products as actions they can do to mitigate climate change impacts in the campus and at home.

3. The different sectors in the university are highly aware that climate change is now a global issue and to more efficient cars and appliances, alternative energy sources like solar, wind and nuclear energy as some ways/devices/methods made to mitigate climate change impact. They are also highly aware on the difference that an individual and an institution can make on the projected impacts of climate change. On the other hand, they are only moderately aware of the projected impacts of climate change and to some ways/devices/methods that help mitigate its impact such as hydrogen cars, bioenergy/biomass.

4. Overall, the level of awareness on climate change among the different sectors does not

differ significantly except for the following:

a. Students have a significantly higher level of awareness compared with the other three sectors on fossil fuels contributing most to climate change. Likewise, administrators compared with the other sectors have a significantly higher level of awareness on carbon capture and storage, carbon sequestration and iron fertilization as ways/methods/devices made to mitigate climate change impacts.

b. The student and non-teaching sectors have a significantly lower level of awareness compared with the other two sectors on the difference that the university can make to the projected impacts of climate change.

Conclusions

Based on the results of this study, the fol-lowing conclusions are drawn.

1. There is a general view on climate change which is true for all regardless of sector. With this view, it is now easier to involve everyone in developing, planning, implementing and promot-ing programs that are geared to alleviating the impacts of climate change.

2. There seems to be room for improvement with respect to what BSU is doing to address climate change. This is indicated by the low percentage of respondents, especially the student sector, who believe BSU is doing its part to address cli-mate change and is further shown by the moder-ate awareness of the student and non-teaching sectors on the difference that BSU can make on the projected impacts of climate change. The university is doing its part to somehow contrib-ute in the alleviation of climate change impacts as shown by its efforts to manage its wastes through its Eco-Waste Management Program. But no matter how good the conception of a pro-gram is, the implementation of such program would be ineffective if the participants are not well-informed of their roles.

3. Significant differences on the perceptions among the sectors were noted to be according to their level/amount of exposure, basis of be-lief and access to information. Administrators are more updated and knowledgable about cli-mate change. Administrator and faculty sectors rely on personal observation and exposure as influences to their beliefs. Student and the non-teaching sectors have less access to information about climate change and what BSU is doing to mitigate climate change.

Recommendations

Based on the conclusions, the following recommendations are offered:

1. BSU as an academic institution has an important role to play in alleviating the effects of climate change within the community and the municipality. Result of the study show that the different sectors consider waste segregation as the number one action they can do to help mitigate climate change impacts. They are also aware of their role in educating others. Having this kind of mind-set, BSU should capitalize on this and create more avenues for the involvement of all the sectors in its campaign on climate change mitigation especially in its Eco-Waste Management Program and allow for better participation on the Information, Education, and Communication (IEC) arm of the said program.

2. The university should try harder to increase the awareness of the different sectors especially the students of its programs to mitigate the impact of climate change within the region if it wants to be successful in its campaign. It must involve not only certain groups of students but must include everyone. Furthermore students, through their organizations, can spearhead information drive on climate change in and out of the campus.

3. A similar study could be done with more respondents/different set of respondents to validate the findings of this present

study as well as making use of a different survey questionnaire that can measure other aspects such as sources of information, etc.

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