

# What is the Perception of Students towards Environmental Sustainability?

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## Abstract

The article aims at contributing to the body of knowledge that exists in the area of sustainable development by examining respondent's knowledge, perception, behaviour and attitude towards sustainable environment among students of Sunyani Polytechnic in the departments of Agriculture and Marketing. A sample of 259 respondents selected using convenient sample method was used. Primary data was collected using self designed questionnaire, administered during lectures. Respondents have excellent knowledge of environmental sustainability, have positive attitude towards sustainable environment and are prepared to embark on behaviours that will promote sustainable environment. Causal study must be done in future research using structural modeling.

**Key Words:** Sustainable Environment; Abuse of Environment; Greenhouse Effect; Ozone

## 1. Introduction

There has been a lot of concern in recent times on the issue of environmental sustainability. Researchers in various fields of studies (Economics, Management, Agriculture, Environmental science) and policy makers are worried of the impact of humans' activity on the environment in the area of global warming, air pollution, land pollution, environmental degradation, and noise pollution (Du Plessis et al., 2012).

Du Plessis et al. (2012) defined sustainability as the "preservation of the global resource base through conservation of natural resource consumption". According to Du Plessis et al. (2012) sustainable development of the natural resources "involves keeping a check on our current consumption patterns and saving the resources and assets for future generations".

Emanuel and Adams (2011) in Du Plessis et al. (2012) also consider sustainable development to include "conservation of natural resources through recycling, waste and water management, using renewable energy resources and developing environmental friendly land and property assets".

Stakeholders in sustainable environment are of the view that people should adopt behaviours and attitudes that will "create a society where people consider and evaluate the consequences of their actions based on a long term impact on the environmental well being" (Arbuthnott, 2009).

For man's survival both renewable and non renewable resources are used thereby making the environment not sustainable (Bonevac, 2010). Studies has shown that without preserving the natural capital man's survival cannot be guaranteed given the several recent disasters (Floods; Tsunami; Hurricane Katrina) (Ni et al., 2010; Khandlhela & May, 2006).

Man's consumption over the years have not been sustainable and according to researchers sustainable consumption could result in sustainable environment (Huang and Rust, 2010; Peattie and Collins, 2009). Researchers indicate that when the environment become unsustainable it leads to various serious problems such as deteriorating atmospheric conditions; erratic changes in the climate; increased costs to produce food worldwide; increasing inequity among nations; and unrelenting economic conditions (Keys et al. 2010).

Literature on students perceptions, attitudes and behaviour towards environmental sustainability is limited (Du Plessis et al., 2012). In a study by Du Plessis et al. (2012) it was established that respondents with different cultures and varied personal and professional backgrounds have different approaches towards sustainability and they feel differently about the environment and also behave differently in the case of "green" behaviours.

They associate the concept of sustainability with their environment. Respondents linked their attitude to saving energy and environments with their attitude to enhance their social life with other traditions and cultures. Respondents do not relate resources to energy in the study and that they feel that they are already saving as much energy as they could.

In a study by Rahman et al. (2011) it was established that respondents are concerned about the environment, that they do recycle material used and that they are aware of their contribution to the future of the environment. In

another study by Rahman (2012) study it was established that for age group under 20 years old, 54 percent agree that humans destroy nature but the same group does not believe that mankind is abusing the environment or that pollution is affecting them (15% respectively).

Majority (62%) agree that they have to save energy and must save resources for the future. Significant majority of the respondents agree that they have to save energy (75%) and that they have to save resources for the future (75%). Some respondents (63%) agree to save energy and 75 percent agree to save resources for the future.

Majority of the respondents (70%) who were in the age group 20-39 years agreed that they needed to save resources for the future with few respondents (20%) indicating that pollution does not affect them, while 22 percent of them agreeing that mankind is abusing the environment. Significant majority (85%) of the respondents disagrees that mankind is abusing the environment; very few (15%) believe that pollution does not affect them.

Incekara and Tuna (2011) analysis on student's perception established that 60% of the students "sometimes" are concerned about environmental problems. Majority (75%) replied that they "sometimes" talk about the environmental problems with their family or friends. Most (69.38%) of the students "sometimes" read the newspapers for articles about environmental problems. Few respondents (30.62%) of the students never separate their wastes, with 36.73% respondents believing that individuals need to contribute to the reduction of environmental problems.

Studies by researchers such as Du Plessis et al. (2012), Incekara and Tuna (2011), Ma and Trigo (2008), Kahyaoğlu et al. (2008), Erol and Gezer (2006), and Özmen et al. (2005) have also revealed that demographic variables (age and gender) affect respondent's perception, attitude and behaviour towards environmental sustainability. Some of these studies have established that females have high attitude towards environmental issues than males.

#### **Statement of Problem/Significance/Justification**

Ghana like any of the developing economies is faced with numerous environmental issues that threaten sustainability. There are issues of non-recycling of waste, air pollution, water pollution, noise pollution, deforestation and unpredicted climatic change. The view of researchers is that sustainable development programmes will change the attitude and perception towards sustainable environment. The paper intends to explore and describe the perception and attitude of students towards sustainable environment since they are future leaders of the economy.

The findings provide further understanding on the theories underlying the paper. Policy makers in the area of sustainable environment are provided with a policy guide on changing attitude and perception on sustainable environment. Researchers will also find the findings relevant in doing research in the area of sustainable environment.

In the knowledge of the researchers little empirical works has been done to analyze students' perceptions of environmental sustainability in many economies and no such empirical works exist in the study area. The paper fills in the literature gap.

#### **General objective/Specific objective**

The global objective of the paper is to contribute to the body of knowledge that exists in the area of sustainable development by examining the perception and attitude of students towards sustainable environment. Specifically, the paper

- Examine respondent perception and attitude of sustainable environment,
- Analysis the demographic factors that influence their perception and attitude,

#### **Research Questions**

The paper is based on these research questions.

- What are the perceptions of respondents about sustainable environment?
- What is the effect of demographic variables on perception and attitude towards sustainable environment?

#### **Hypotheses**

These hypotheses are tested in the paper.

- Respondent have positive perception of sustainable environment.
- Demographic variables have statistical significant effect on respondent's perception of sustainable environment.

### **Limitation/Scope**

The findings are limited to the responses of respondents. Errors in responses may not be known by the researchers (respondent's biases). Sample is based on convenient sample and as such the findings may lack external validity. The focus of the paper is perception of environmental sustainability. The focus is not on solutions to environmental problems or the causes of environmental problems. Papers in the area of causes of environmental problems and solutions to environmental problems are not reviewed in the paper.

## **2. RESEARCH METHODOLOGY**

The paper is based on descriptive, quantitative, and cross-sectional survey design of higher national diploma students of Sunyani Polytechnic. The sample of the study is based on convenient sample method of 259 respondents. Primary data was collected using self-designed questionnaire administered during lecture hours. Primary data was analysed using percentages, frequencies One Way Analysis of Variance (ANOVA). Results are presented in tables and charts.

## **3. RESULTS AND DISCUSSION**

### **3.1: Demographic features of respondents**

The survey comprises 181(69.9%) males and 78(30.1%) females. Majority 140(54.1%) belong to the age group of 18-22years, followed by 103(39.8%) in the age group of 23-27years, then 10(3.9%) in the age group of 28-32years with 2(0.8%) between 38-42years and 2(0.8%) above 42years while 1(0.4%) is less than 18years and 1(0.4%) missing response.

Majority 214(82.6%) of them were Christians, followed by Muslims 33(12.7%) then those who are not in any religious group 7(2.7%) with 1(0.4%) belonging to other faith and 4(1.5%) missing responses. On class levels majority 232(89.6%) are in first year; 22(8.5%) in third year; 3(1.2%) in second year and 2(0.8%) missing responses. On programme of study majority 191(73.7%) are in Marketing one while 68(26.3%) are agriculture students in first year, second year and third year.

On family income status most 124(47.9%) belong to medium income group followed by those who played neutral 48(18.5%) then lower income group 46(17.8%) and those in high income group 41(15.8%). The distributions of educational level of the fathers of respondents are as follows: 89(34.4%) respondents have no post secondary education; 94(36.3%) tertiary education; 75(29%) post secondary education with 1(0.4%) missing response. On mothers education mothers of majority 119(45.9%) have no post secondary education followed by those who have post secondary education 87(33.6%) with 52(20.1%) having tertiary education and 1(0.4%) missing response.

Personality types of respondents were identified. Majority 132(51%) of the respondents are individualistic followed by collectivistic group 101(39%) and those who played neutral 24(9.3%) with 2(0.8%) missing responses. Respondents belong to various regions in the country. The distribution is as follows; 53(20.5%) of the respondents are Brong Ahafo; Ashanti 87(33.6%). The rest of the distribution are Western region 26(10%) and Upper East 13(5%) and Eastern 22(8.5%). The other groups are Northern region 21(8.1%), Upper West 13(5%), Volta 11(4.2%); Central 8(3.1%); Greater Accra 4(1.5%) with 1(0.4%) missing response.

### **3.2: Respondent's knowledge of Sustainable Environment**

The knowledge level of respondents on sustainable environment was investigated using Likert Scale. The results are shown in Table 1. Most 137(52.8%) agreed that the melting of the polar ice caps may result in the flooding of Shores and Islands.

Significant majority 209(80.7%) agreed that the burning of fossil fuels produce carbon dioxide (CO<sub>2</sub>) into the atmosphere while another majority 162(62.5%) agreed that Ozone near the ground may cause respiratory problem, majority 186(71.9%) also agreed that Greenhouse effect is caused by the release of more CO<sub>2</sub> into the atmosphere.

Most 177(68.3%) agreed that world climate will probably change massively if CO<sub>2</sub> continues to be emitted into the atmosphere in as huge amount as it is now. But most 97(37.5%) are neutral in relation to whether the greenhouse effect does results in the melting of glaciers in central Europe.

Significant majority 235(90.8%) agreed that all living beings are interdependent with one another. Respondents 178(68.7%) agreed that a reduced number of species may interrupt the food chain, affecting some subsequent species in the food chain. Most 144(55.6%) agreed that poisonous metals are introduced into the food chain through ground water. However, less than half of the respondents disagreed that poisonous metal remain in the soil 127(49.1%). From these results respondents have excellent knowledge on sustainable environment which is

consistent with the findings of Incekara et al. (2011) that respondents understand environmental issues through the reading of environmental issues in newspapers.

### 3.3: Respondent's behaviour, perception and attitude towards sustainable environment

The respondent's perception and attitude towards sustainable environment was examined using Likert scale. Significant majority 229(88.4%) are of the view that humans destroy nature which is in support of the findings of Rahman (2012). Another majority 215(83%) agreed that mankind is abusing the environment. This is however inconsistent with the findings of Rahman (2012) who established that majority did not agree that mankind is destroying the environment.

Very significant majority 240(92.6%) agreed that industrial growth is necessary for economic development. Majority of the respondents 234(90.4%) agreed that they need to save energy where possible and also save resources 245(94.6%) for future. These findings are consistent with the findings of researchers such as Rahman (2012) who established similar results.

Majority 227(87.7%) agreed that pollution affect them which is consistent with the findings of Rahman (2012) study in which very few (15%) believe that pollution does not affect them. These results indicate that respondents have positive attitude towards sustainable environment and that is good for sustainable environment. The positive attitude may results from the excellent knowledge in sustainable environment. The results are shown in Table 2.

### 3.3: ONE WAY ANALYSIS OF VARIANCE

Analysis of variance was performed to determine if there is statistical difference in the responses provided by respondents. The results on One Way analysis of variance revealed that demographic and social variables such as gender, age, year in school, religion, fathers educational level, mother educational level, personality type, programme of study has statistical significant effect on attitude and perception of respondents.

There is a significant difference between age and the means of the response given by respondents on statements such as: 'mankind is abusing the environment' ( $F=2.103$ ;  $p=0.066$ ); 'poisonous metals are introduced into the food chain, for instance via ground water' ( $F=3.315$ ;  $p=0.006$ ) and 'A reduced number of species may interrupt the food chain, affecting some subsequent species in the chain' ( $F=2.514$ ;  $p=0.030$ ).

Gender significantly affected response on three questions which are 'industrial growth is necessary for economic development' ( $F=3.342$ ;  $p=0.069$ ); 'melting of the polar ice caps may result in a flooding of shores and Islands' ( $F=2.893$ ;  $p=0.090$ ) and 'fossil fuels produce CO<sub>2</sub> in the atmosphere when burned' ( $F=5.552$ ;  $p=0.019$ ).

There is a statistical significant difference between mother's educational level and the means of the response given by respondents on statement such as 'industrial growth is necessary for economic development' ( $F=9.418$ ;  $p=0.000$ ) whereas father's educational level significantly affects statement such as 'industrial growth is necessary for economic development' ( $F=8.473$ ;  $p=0.000$ ) and 'All living beings are interdependent with one another' ( $F=2.700$ ;  $p=0.069$ ).

There is also a statistical significant difference between family income status and the means of the response given by respondents on statement such as 'industrial growth is necessary for economic development' ( $F=2.176$ ;  $p=0.091$ ); 'mankind is abusing the environment' ( $F=2.564$ ;  $p=0.055$ ); 'I must save resources for the future' ( $F=2.778$ ;  $p=0.042$ ); 'poisonous metals are introduced into the food chain, for instance via ground water' ( $F=3.229$ ;  $p=0.023$ ) and 'A reduced number of species may interrupt the food chain, affecting some subsequent species in the chain' ( $F=3.156$ ;  $p=0.025$ ).

There is a statistical significant difference between region and the means of the response given by respondents on 'All living beings are interdependent with one another' ( $F=1.710$ ;  $p=0.087$ ). Religion also statistically affected the responses on two statements which are 'Ozone near the ground may cause respiration problem' ( $F=4.589$ ;  $p=0.004$ ); 'Poisonous metal remain in the soil' ( $F=3.604$ ;  $p=0.014$ ) and 'The greenhouse effect does not result in the melting of glaciers in Central Europe' ( $F=2.156$ ;  $p=0.094$ ).

The analysis revealed statistical significance between programme of study (agriculture and marketing) and the means of responses on seven questions asked. These are: 'industrial growth is necessary for economic development' ( $F=7.490$ ;  $p=0.007$ ); 'I have to save energy where possible' ( $F=4.451$ ;  $p=0.036$ ); 'I must save resources for the future' ( $F=3.813$ ;  $p=0.052$ ); 'fossil fuels produce CO<sub>2</sub> in the atmosphere when burned' ( $F=20.128$ ;  $p=0.000$ ); 'poisonous metals are introduced into the food chain, for instance via ground water' ( $F=5.194$ ;  $p=0.023$ ); 'A reduced number of species may interrupt the food chain, affecting some subsequent

species in the chain' (F=3.532; p=0.061) and 'Ozone near the ground' (F=3.982; p=0.047).

Year in school has significant effect on the means of responses given by respondents on six questions asked in the survey. These are 'industrial growth is necessary for economic development' (F=2.589; p=0.077); 'melting of the polar ice caps may result in a flooding of shores and Islands' (F=3.315; p=0.038); 'fossil fuels produce CO<sub>2</sub> in the atmosphere when burned' (F=7.148; p=0.001); 'poisonous metals are introduced into the food chain, for instance via ground water' (F=6.394; p=0.002); 'Ozone near the ground may cause respiration problem' (F=5.266; p=0.002) and 'Poisonous metal remain in the soil' (F=2.330; p=0.099).

#### 4. CONCLUSION AND POLICY IMPLICATION

In the article it has been established that respondents have excellent knowledge on sustainable environment and understand the role of various issues in sustainable environment. Respondent understand various measures to preserve the environment to make it sustainable and what when done make the environment unsustainable.

Respondents perceive various behaviours as harming the environment and agreed that mankind destroy the environment and render the environment unsustainable. Respondents have positive attitudes towards sustainable environment and are prepared to embark on various behaviour that promote sustainable environment in order to ensure sustainable development. They are prepared to save energy and resources for future generation.

Demographic and social variables influenced respondents responses to some of the issues dealt with in the article. The variables are gender, age, programme of study, years in school, father's and mother's educational level, family social class, region and religion.

Policy makers in sustainable environment should target these variables in providing policies to address environmental issues. Future research should focus on the issue of causality using structural modeling. The study should be done in a comparative manner by including students in other departments as well as staff of the institution to assess if the findings will be replicated.

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Table 1: Knowledge level of respondents on sustainable environment

STATEMENTS	Strongly Agree Freq.%	Agree Freq.%	Neutral Freq.%	Disagree Freq.%	Strongly Disagree Freq.%	Missing response Freq.%	Total Freq.%
Melting of the polar ice caps may result in a flooding of shore and Island	54(20.8%)	83(32%)	90(34.7%)	23(8.9%)	9(3.5%)	n.a	259(100%)
Fossil fuels produce CO <sub>2</sub> in the atmosphere where burned	103(39.8%)	106(40.9%)	28(10.8%)	12(4.6%)	9(3.5%)	1(0.4%)	259(100%)
All living beings are interdependent with one another	154(59.5%)	81(31.3%)	15(5.8%)	7(2.7%)	2(0.8%)	n.a	259(100%)
Poisonous metals are introduced into the food chain, for instance via ground water	47(18.1%)	97(37.5%)	66(25.5%)	34(13.1%)	14(5.4%)	1(0.4%)	259(100%)
Ozone near the ground may cause respiration problem	62(23.9%)	100(38.6%)					

61(23.6%)  
 23(8.9%)  
 12(4.6%)  
 1(0.4%)  
 259(100%)

Greenhouse effect is caused by the release of more CO<sub>2</sub> into the atmosphere

89(34.4%)  
 97(37.5%)  
 45(17.4%)  
 22(8.5%)  
 6(2.3%)  
 n.a  
 259(100%)

Poisonous metal remain in the soil

18(6.9%)  
 47(18.1%)  
 67(25.9%)  
 81(31.3%)  
 46(17.8%)  
 n.a  
 259(100%)

World climate will probably massively change if CO<sub>2</sub> continues to be emitted into the atmosphere in as huge amounts as it is

now  
 71(27.4%)  
 106(40.9%)  
 55(21.2%)  
 17(6.6%)  
 10(3.9%)  
 n.a  
 259(100%)

A reduced number of species may interrupt the food chain, affecting some subsequent species in the chain

57(22%)  
 121(46.7%)  
 60(23.2%)  
 16(6.2%)  
 5(1.9%)  
 n.a  
 259(100%)

The greenhouse effect does not result in the melting of glaciers in Central Europe

19(7.3%)  
 58(22.4%)  
 97(37.5%)  
 54(20.8%)  
 31(12%)  
 n.a  
 259(100%)

(Source: Field survey, November, 2012)

**Table 2: Respondents Behaviour, Perception and Attitude towards Sustainable Environment**

**STATEMENTS**

**Strongly Agree**

**Freq.%**

**Agree**

**Freq.%**

**Neutral**

**Freq.%**

**Disagree**

**Freq.%**

	<b>Strongly Disagree</b>	<b>Freq.%</b>	<b>Missing response</b>	<b>Freq.%</b>	<b>Total</b>	<b>Freq.%</b>
Human destroy nature	143	(55.2%)	86	(33.2%)	13	(5%)
	9	(3.5%)	8	(3.1%)	n.a	
	259	(100%)				
Industrial growth is necessary for economic development	142	(54.8%)	98	(37.8%)	10	(3.9%)
	6	(2.3%)	3	(1.2%)	n.a	
	259	(100%)				
Mankind is abusing the environment	109	(42.1%)	106	(40.9%)	18	(6.9%)
	14	(5.4%)	10	(3.9%)	2	(0.8%)
	259	(100%)				
Pollution does not affect me	11	(4.2%)	12	(4.6%)	5	(1.9%)
	66	(25.5%)	161	(62.2%)	3	(1.2%)
	259	(100%)				
I have to save energy where possible	111	(42.9%)	123	(47.5%)	16	(6.2%)
	6	(2.3%)	3	(1.2%)	n.a	
	259	(100%)				
I must save resources for the future	172	(66.4%)	73	(28.2%)	9	(3.5%)
	2	(0.8%)	1	(0.4%)	2	(0.8%)
	259	(100%)				

(Source: Field survey, November, 2012)



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