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Knowledge, Attitude and Practical Response of Adult Population to Global Campaign on Climate Change in Lagos State, Nigeria

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Abstract

This study was carried out to investigate knowledge, attitude and practical response of adult population to global campaign on climate change in Lagos State, Nigeria arising from the observation that climate change or global warming as the greatest threat facing the human race. This study adopted the descriptive survey research of the Ex-post Facto Type. The population of this study comprised all the adults resident in Lagos state with specific reference to the following: Market women association (Epe division), Radio transport workers union Epe division), Academic staff unions in tertiary institutions (Michael Otedola College of Primary Education EPE Lagos), Non-Academic staff unions in tertiary institutions (Michael Otedola College of Primary Education EPE Lagos), and Secondary school teachers (international Secondary School, (Michael Otedola College of Primary Education EPE Lagos), The sample size of 600 respondents was selected through proportionate and simple random sampling techniques. The findings showed that significant proportion of the respondents of the study had a low knowledge of what climate change is as well as its causes and effects on human existence. So also, the attitudinal disposition of majority of the respondents to climate change was indifference. The findings equally showed that both the formal and informal communication channels should be used for advocacy and public awareness of climate change particularly on how to make responsible decisions and choices towards ensuring a safer environment and healthy planet. Finally, findings revealed that the most appropriate area of focus for public enlightenment is to educate people to consume less electricity, to drive cars which burn less oil or gasoline, to buy local and organic foods/farm produce close to their areas of production, to buy local and organic foods/farm produce close to their areas of production, to buy energy-efficient electronics and appliances with energy star label.

Keywords: Knowledge, Attitude, Campaign on Climate Change

1. Introduction

Man, ever since creation has always been faced with civilization, moral, health, and environmental problems (Cortese, 2007). These problems have often been created by human progress which has accelerated in the last one thousand years. The latest of these problems, which has been universally perceived as threatening human existence, is climate change or global warming. In other words, the "Earth on Fire," a phrase which has been

aptly used to describe climate change, is now generally perceived as the greatest threat facing the human race (IPCC, 1988). In the last 100 to 200 years, scientists have observed that there had been a real increase in the average temperature of the surface of the earth. In 1896, the Swedish scientist, Svante Arrhenius, made the first actual calculations of the effect of climate change or greenhouse warming in which he estimated that a doubling of carbon dioxide in the atmosphere would increase the global average temperature by 4°C to 6°C. The three main indicators of climate change according to the science of global warming (2010) are: Rise of air and ocean temperature or global surface temperature, rise of global sea level, and loss of snow and ice cover.

Scientists have estimated that since the late 19th Century, there has been a real, though irregular, increase in the global surface temperature. This was observed during the period of 1910 to 1940. However, temperatures declined slightly from 1940 through 1975. It eventually picked-up again during the 1980s. During a 100 year period of 1906 to 2005, the global average temperature rose by 0.74°C. During the last couple of decades, the planets witnessed some of the hottest years on record. For example, 11 out of the 12 years between 1995 and 2006, ranked among the 12 warmest years since 1850 (Charron, D.F., Thomas, M.K., Waltner-Toews, D., Aramini, J.J., Edge, T., Kent, R.A., Maarouf, A.R. and Wilson, J. (2004).

During the 20th Century, scientists estimated that the sea levels rose by 17cm (6.7inches). They rose faster in the second half of the century than in the first half. It has been predicted that by the end of the 21st century, the sea level may rise by 18 to 59cm (7-23inches) depending on a range of different scenarios. It is generally believed that the sea level rise is consistent with the temperature rise and general warming tendency. Loss of snow cover is another indicator of climate change. Snow cover in the Northern hemisphere of the Earth declined by 4% between 1820 and 2005. The decrease in snow cover has also been consistent with the general warming trend.

By the middle of 1980, the world began to pay more attention to the phenomenon of climate change and the potential dangers it was posing to the planet. As a result, the international community came together to establish and institutional framework that provides space for further research and development of policy recommendations for managing climate change. A scientific body known as Inter-Governmental Panel on Climate Change (IPCC) was established by the United Nations in 1988. IPCC was established for the purposes of evaluating the risk of climate change caused by human activities.

Similarly, in 1992, the United Nations convened an international conference on Environment and Development in Rio de Janeiro, Brazil at which 162 heads of state developed a 21 point action plan for human progress in the 21st century. Agenda 21 of the conference, popularly called the Earth summit, sets the international framework for sustainable development and international environment treaties the purpose of this agenda was to improve health for current and future humans, build strong, secure, and thriving communities, and provide economic opportunity for all by restoring and preserving the integrity of life support system called the biosphere. A body known as United Nations Framework Convention on Climate Change (UNFCCC) was constituted at the summit to "stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." In the same vein, a follow up agreement to the United Nations Framework Convention on Climate Change was adopted in 1977. It is called Kyoto Protocol. The purpose of the protocol is to set out 'mandatory requirements for signatories to reduce greenhouse gas emissions to certain levels.'

In Nigeria, the media have mounted different programmes to create public enlightenment on the phenomenon of climate change. For example, in Lagos State, both the government and privately-owned media organization (LTV, Channels, Silverbird, NTA 2, and MITV) have been mounting jingles, documentaries, motivational talks, and personality interviews to sensitize the public about climate change and its potential dangers to human existence. This study is being carried out to determine the knowledge level and the attitude of adults residents in Lagos State.

2. LITERATURE REVIEW

This study was comprehensively reviewed. Therefore, literature reviewed covered the following:
Similarly, the theoretical framework of this study was anchored on the theory of Constructivism.

Climate Change Impact on Public Health A Nigerian Case Scenario

Climate change affects virtually all populations globally with the highest level of vulnerability experienced by most of the world's poorest countries. The impact of climate change on the health of the public, with for instance the warming of planet is projected to have both positive and negative consequences which vary temporally and spatially. Climate change, however, may not act to introduce new causes of morbidity and mortality, but to change the distribution of factors that affect the occurrence of morbidity and mortality.

Available evidences show that climate change will be global likewise its impacts, but the biting effects will be felt more by the developing countries especially those in Africa due to their low level of coping capabilities (Mshelia, 2005; Nwafor, 2007; Jagtap, 2007). Nigeria is one of such developing countries. Researchers have shown that Nigeria is already being plagued with diverse ecological problems, which have been directly linked to the on-going climate change (Odjugo and Ikhuon, 2003; NEST, 2003; Chindu and Nyelong, 2005; Odjugo, 2005; Ikhile, 2007). Ahmad and Ahmed (2000), IPCC (2001), NEST (2003) and Hengeveld et al. (2005) provided indicators that one could use to assess the evidence of climate change in a region. These include increasing temperature, increasing evapotranspiration decreasing rainfall amount in the continental interiors,, increasing rainfall, in the coastal areas,• increasing disruption in climate patterns and increasing frequency and intensity of unusual or extreme weather-related events such as; thunderstorms, lightning, landslides, floods droughts, bush fires, unpredictable rainfall patterns, sea-level rise, increase desertification and land degradation, drying up of rivers and lakes and constant loss of forest cover and biodiversity.

Climate change affects everyone. Those already affected by poverty, malnutrition and disease will face displacement and new, hardships. All sectors of our socio-economic development, including the natural ecosystems, are vulnerable to climate change. In general, climate change presents significant threats to the achievement of the Millennium Development Goals especially those related to eliminating poverty and hunger and promoting environmental sustainability (Adefolalu et al., 2007). Climate change would increase vulnerability and hinder or reverse the development process. In Nigeria, the sectors which are considered most vulnerable to climate change are agriculture and food security, water resources, public health, and habitat (particularly the urban center's along the coast). Vulnerable regions are coastal regions (including deltas, especially those affected by storms and storm-induced floods) and erosion and desertification-prone areas in the southeastern and northern parts of the country. Vulnerable community includes farmers, fishers (especially those living in the vulnerable region), the elderly, women, children and poor people living in urban areas (Adesina et al., 2007).

The health impacts of climate change in Nigeria occur in diverse ways and as a result of the prevailing poor health care system, the impacts are observed to be highly devastating (Odekunle et al., 2008). The impact is either direct or indirect. Some of the direct impacts of climate change on health in Nigeria include illness, injury, stroke and deaths due to increased exposure to extreme weather conditions viz: heat waves and effects on respiratory systems. Indirect effects of climate change and sea-level rise include altered spread and transmission of vector-borne diseases (including malaria, etc.) and altered transmission of contagious diseases (including cholera, influenza, etc.).

The time frames over which health consequences of climate change are anticipated to manifest are sufficiently slow to allow adaptive measures to come into play that may modulate the occurrence of these effects. Data to support a broad understanding of the susceptibility and vulnerability of the populations to a wide range of diseases caused by climate change are generally lacking in Nigeria This paper therefore focuses on the prevalence of some climate-related morbidity conditions across the different ecological zones in Nigeria with a view to establishing a baseline for instituting appropriate climate adaptation strategies.

Nigeria is made up of six ecological zones, ranging from a belt of mangrove swamps and tropical forests along the coast to open woodland and savanna on the low plateau which extends through much of the central part of the country, to the semi-arid plains in the north and highlands to the east. Between the arid north and the moist south lies a Guinea Savanna Zone sometimes referred to as the middle belt. The middle belt's southern edge represents the lower limits of the northern grain-dominated economy. Rainfall is heaviest in the south where the rain forests and woodlands benefit from abundant precipitation and relatively short dry seasons. The northern third Of Nigeria experiences a dry season of five to seven months, and lies mostly in the Sudan and Sahel Savanna zones. Iloeje (2001), grouped the country into (A) forests and (B) savanna zones. These two major zones were further sub-divided into three zones each such as (A Forests that consist of (i) salt-water swamp, (ii) fresh-water swamp (iii) high forest; and (B) Savanna zone that consist of (i) Guinea savanna (ii) Sudan savanna, and (iii) Sahel savanna. Figure 1: Ecological Zones in Nigeria

Figure 1: Ecological Zones in Nigeria
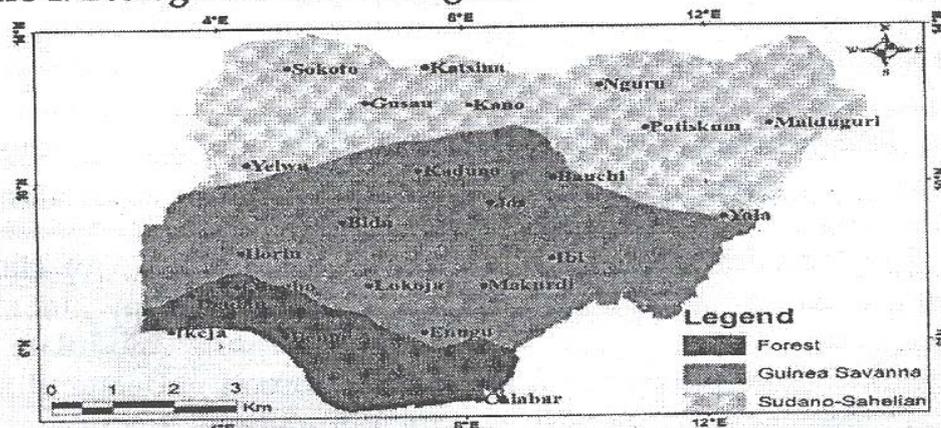
Source: Francis et al., 2011

Meteorological Characteristics

Rainfall

Trends in the total annual rainfall between 1961 and 2008 and the mean annual rainfall between 1961 and 1990 in the Sudano-Sahelian, Guinea Savanna and Forest ecological zones of Nigeria, are depicted in Figures 2a-c respectively. According to the figures, there had been declining trends since 1961 up to 1983 and upward trends thereafter till 2008. In all the ecological zones. Tests of significance show that the observed downward trends are statistically significant in the Sudano- Sahelian and Forest zones, while the upward trends were statistically significant in the Sudano-Sahelian ecological zone alone. The result of the Sudaño-Sahelian zone further confirmed the earlier findings of Haarsma et al., (2005) and Odekunle et al., (2008). Figures 3a-c depict the observations (the total annual rainfall) in 1980- 1999 and climate change scenarios predicted for 2080-2099, observations in 1980- 1999 and 2004-2008 and climate change scenarios predicted for 2080-99 and observations in 1961-1990, 1980-1999 and 2004 2008 and climate change scenarios for 2080- 2099, respectively in the three ecological zones of Nigeria.

Figure 2a: Total annual rainfall trend in Sudano-Sahelian Zone of Nigeria (1961-2008)
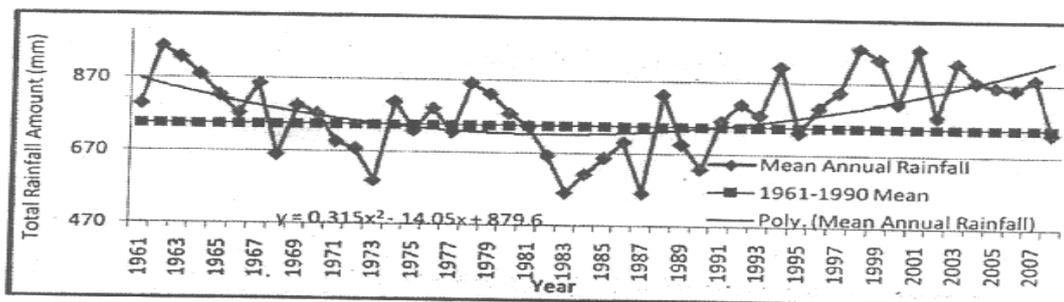

$y = 0.315x^2 - 14.05x + 879.6$

Figure 2b: Total annual rainfall trend in Guinea Savanna Zone of Nigeria (1961-2008)

$y = 0.147x^2 - 8.241x + 1362.$
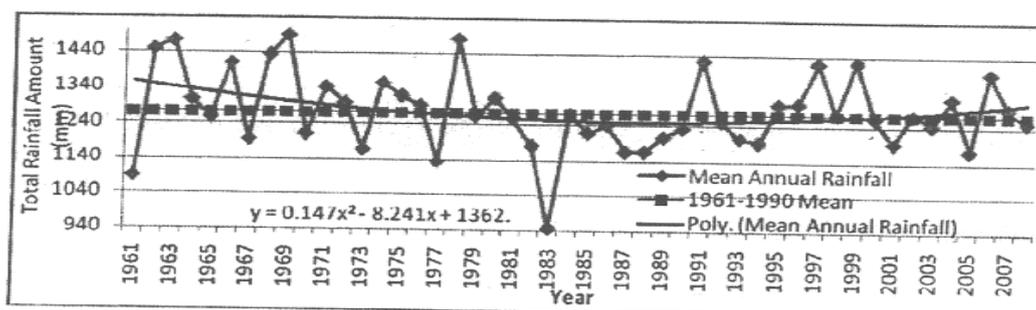
Figure 2c: Total annual rainfall trend in Forest Zone of Nigeria (1961-2008)

$y = 0.356x^2 - 18.16x + 2139$
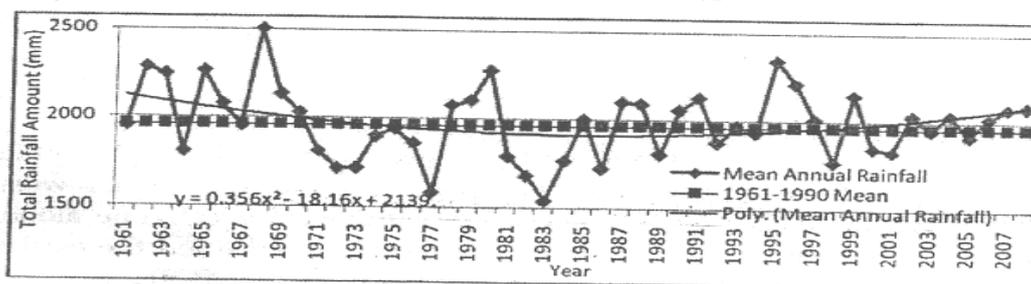
Source: Atlas on Regional Integration in West Africa, 2008

2. Result

The results indicate that there is no significant difference between 1961 to 1990 and 1980 to 1999 mean annual rainfalls in all the zones. The significant differences observed are among the averages of 1961-1990, 1980-1999 and 2004- 2008. The comparison of the 2004-2008 average with that of the base year of the projection (1980-1999), indicated increases in the annual rainfall of 12.4%, 3% and 3.4% in the Sudano Sahelian, Guinea Savanna and Forest zones, respectively. When these values are compared with the projected values, the projection is in the right direction but not right in terms of the magnitude especially, for those of the Sudano-Sahelian and Forest ecological zones. The projection of 15%, 10% and 5% rainfall increase in the respective zones are meant for a century (1980/99-2080/99), but have already been attained 12.4%,3% and 3.4% in 1ss than a decade (1980/99-2004/08).

Methodology

This study adopted the descriptive survey research of the Ex-post Facto Type. This design was chosen because both the independent variable (knowledge, attitude and practical response of the adult population) and the

dependent variable (global campaign on climate change) have already occurred. Therefore, there was no need for any manipulation of the variables. Hence, in this study, the interrelationship between the independent and dependent variables were critically observed.

3. Empirical Result

RQ1: What is the knowledge level of the respondents on the causes and effects of climate change on human existence?

Table 1

	Non-respondent	Percentages
Academic staff:		
Sufficient knowledge	87	72.5
Limited knowledge	33	27.5
Non-Academic staff:		
Sufficient knowledge	73	60.83
Limited knowledge	47	39.16
Teachers(Sec.Sch.) :		
Sufficient knowledge	44	36.66
Limited knowledge	76	63.33
Market women:		
Sufficient knowledge	118	98.33
Limited knowledge	02	1.66
Road Transport & Okada Rider Union:		
Sufficient knowledge	--	--
Limited knowledge	20	100
Total	600	100%

The findings on this research question revealed that 87 (72.5%) academic staff members selected from Akoka College of Education, Yaba Lagos.

Lagos State had sufficient knowledge of climate change as 'well as its causes and effects on human existence while the remaining 33 respondents (27.5%) had limited knowledge of the issue. Similarly, 73 respondents (60.83%) from the non- academic staff members in the institution had sufficient knowledge of the causes and effects of climate change while the remaining 47respondents (39.16%) had limited knowledge of the issue. 44 (36.66%) teachers from the institution's secondary school had sufficient knowledge of the causes and effects of climate change while the remaining 76 teachers (63.33%) had limited knowledge of the issue. 118 (98.33%) members of the Epe market women association had no idea of the causes and effects of climate change while the remaining 02 (1.66%) had limited knowledge of the issue perhaps as a result post-secondary educational background. However, all members of the Road Transport Union, Epe Division) had no idea of the causes and effects of climate change. The implication of this finding is that a significant proportion of the respondents of the study had a low knowledge of what climate change is as well as its causes and effects on human existence.

RQ 2: What is the attitudinal disposition of the respondents to climate change particularly with the knowledge that the excessive warming of the earth is significantly caused by the activities of humans?

Table 2

	Non-respondent	Percentages
Academic staff:		
Sufficient knowledge	87	72.5
Limited knowledge	33	27.5
Non-Academic staff:		
Sufficient knowledge	73	60.83
Limited knowledge	47	39.16

Teachers(Sec.Sch.) :		
Sufficient knowledge	44	36.66
Limited knowledge	76	63.33
Market women:		
Sufficient knowledge	118	98.33
Limited knowledge	02	1,66
Road Transport & Okada Rider Union:		
Sufficient knowledge	--	--
Limited knowledge	120	100
Total	600	100%

The findings on this research question showed that 87 (72.5%) members of the institution's academic staff submitted that they are aware that excessive warming of the earth is significantly caused by the activities of humans while the remaining 33 respondents (27.5%) had limited knowledge of the issue. Similarly, 73 respondents (60.83%) from the non-academic staff members in the institution had sufficient knowledge of the causes and effects of climate change while the remaining 47 respondents (39.16%) had limited knowledge of the issue. 44 (36.66%) teachers from the institution's secondary school had sufficient knowledge of the causes and effects of climate change while the remaining 76 teachers (63.33%) had limited knowledge of the issue. 118(98.33%) members of the Epe market women association had no idea of the causes and effects of climate change while the remaining 02 (1.66%) had limited knowledge of the issue perhaps as result post-secondary educational background. However, all members of the Road Transport Union, Epe Division) had no idea of the causes and effects of climate change. The implication of this finding is that significant proportion of the respondents of the study had a low knowledge of what climate change is as well as its causes and effects on human existence. The implication of this finding is that the attitudinal disposition of majority of the respondents to climate change is indifference.

RQ 3: What are the various dimensions through which the people can be enlightened to make responsible decisions and choices towards ensuring a safer environment and healthy planet?

Table 3

	Non-respondent	Percentages
Academic staff:		
Sufficient knowledge	117	19.5
Limited knowledge	3	2..5
Non-Academic staff:		
Sufficient knowledge	119	99.16
Limited knowledge	1	0.83
Teachers(Sec.Sch.) :		
Sufficient knowledge	95	79.16
Limited knowledge	25	20.83
Market women:		79.16
Sufficient knowledge	95	
Limited knowledge	25	20.83
Road Transport & Okada Rider Union:		
Sufficient knowledge	95	79.16
Limited knowledge	25	4.16
Total	600	100%

The findings on this research question showed all the respondents had different opinions on the various dimensions of enlightenment on climate change. 117 (97.5%) members of the academic union and teachers in the institution's secondary school preferred the mass media (Radio and television) as the most potent means of enlightening people on climate change while the 3 members (2.5%) preferred television alone. 119 (99.6%) members of the non-academic staff union preferred the mass media (Radio and television) as the most potent means of enlightening people on climate change while the 1 members (0.83%) preferred radio alone. 95

respondents from the markets and 95 road transport associations preferred visitation to their union's headquarters during association meetings, the use of role models in the theatre industry as well as the use of opinion leaders for advocacy and awareness creation while all the respondents from the two association preferred that these informal channels of communication should be complemented with the mass media. The implication of this finding is that both the formal and informal communication channels should be used for advocacy and public awareness of climate change particularly on how to make responsible decisions and choices towards ensuring a safer environment and healthy planet.

RQ 4: What specific areas should public enlightenment, advocacy, and awareness campaigns on climate change among the people focus on?

The findings of this research question are summarized thus:
i. 101 (16.83%) out of the total respondents contended that the most appropriate area of focus for public enlightenment is to educate people to drive cars that burn less oil or gasoline.
ii. 258 (43%) submitted that the most appropriate area of focus for public enlightenment is to educate people to consume less electricity.
iii. 52 (8.66%) submitted that the most appropriate area of focus for public enlightenment is to educate people to use compact fluorescent bulbs rather than normal bulbs since they use a quarter of the electricity and last ten times as long as nora1 bulbs.
iv. 67 (11.16%) contended that the most appropriate area of focus for public enlightenment is to educate people to plant a tree or protect a forest since tress breathe in carbon dioxide which could have been released into the air and in turn cause excessive warming of the earth.
v. 69 (11.5%) submitted that the most appropriate area of focus for public enlightenment is to educate people to buy local and organic foods/farm produce close to their areas of production.
vi. 13 (2.1%) submitted that the most appropriate area of focus for public enlightenment is to educate people to buy energy-efficient electronics and appliances with energy star label. Energy star label electronics and appliances help reduce electricity bill.
vii.6 (1%) submitted that the most appropriate area of focus for public enlightenment is to educate people to the advantages of using recycled materials to produce new products since products produced from recycled materials save 60 to 80% energy. -
The implication of this finding is that the emphasis should be placed on the specific areas of focus on climate change enlightenment campaigns.

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

This research is focused on knowledge, attitude and practical response of adult population to global campaign on climate change in Lagos State, Nigeria. As a case study, the writer chose the Market Women Association, Radio Transport Workers, and Okada Rider Union (Epe Division) Academic Staff Union in Tertiary Institution, Secondary School Teachers, MOCPED International Secondary School, College of Education Akoka Yaba Lagos.

This was geared towards ascertain the attitudinal disposition of the adult populace to climate change particularly with the knowledge that the excessive warming of the earth is significantly caused by activities of human. The implication of this finding shows indifference attitudinal disposition.

The study finds out the knowledge level of the respondents on the causes and effects of climate change on human existence. The significant proportion of the respondents of the study had low knowledge of what climate change is as well as its causes and effects on human existence.

The study identify the various dimensions through which the adult populace can be enlightened and properly educated to make responsible decision and choices toward ensuring a safer environment The implication is that both the formal and informal communication channels should be used for advocacy and public awareness of

climate change particularly on how to make responsible decisions towards ensuring a safer environment and healthy planet.

Finally, the area of focus for public enlightenment is to educate people to consume less electricity. To educate people to use compact fluorescent bulbs and to educate people to plant tree and to protect forest.

Recommendations

Based on the findings of this study, the following recommendations are made to ensure that people become more knowledgeable of the phenomenon of climate change. The recommendations are:

1. Efforts should be massively intensified towards increased public enlightenment and awareness of climate change. Everybody must be involved. The media, particularly radio, television, newspapers, news magazines, etc. must see it as a national call and duty to educate the people on the phenomenon.
2. The media organizations can make use of renowned personalities such as movie actors and actresses, opinion and community leaders in the communities, market leaders, road transport union leaders, politicians, local government chairmen, among others for the sensitization and enlightenment campaigns.
3. The specific areas of focus of the sensitization and enlightenment campaigns should follow this pattern:
    i. Enlightenment of the people to consume less electricity.
    ii. Enlightenment of the people to drive cars which burn less oil or gasoline.
    iii. Enlightenment of the people to buy local and organic foods/farm produce close to their areas of production.
    iv. Enlightenment of the people to plant a tree or protect a forest since tress breathe in carbon dioxide, which could have been released into the air and in turn cause excessive warming of the earth.
    v. Enlightenment of the people to use compact fluorescent bulbs rather that normal bulbs since they use a quarter of electricity and last ten times as long as normal bulbs.
    vi. Enlightenment of the people to buy energy-efficient electronics and appliances with energy star label. Energy star label electronics and appliances help reduce electricity bill.
    vii. Enlightenment of the people to take advantages of using recycled materials to produce new products since products produced from recycled materials save 70 to 90% energy.

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