Public awareness towards global warming with special reference to HP University, Shimla

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Abstract

Climatic change is the single best environmental and humanitarian crisis of our time. The Earth's atmosphere is overloaded with heat trapping carbon dioxide, which threatens large scale disruptions in climate with disastrous consequences. The increased volumes of carbon dioxide and other greenhouse gases released by the burning of fossil fuels, land clearing, agriculture, and other human activities, are believed to be the primary sources of the global warming that has occurred over the past 50 years. Scientists from the Intergovernmental Panel on Climate carrying out global warming research have recently predicted that average global temperatures could increase between 1.4 and 5.8 °C by the year 2100. Changes resulting from global warming may include rising sea levels due to the melting of the polar ice caps, as well as an increase in occurrence and severity of storms and other severe weather events. There is also the experience of new forms of illnesses, epidemics unheard of and increasing morbidity rate, increasing incidences of malaria *etc*. While there is any number of studies on environment related issues, very little has been studied specifically about the awareness of the public regarding their contribution towards the phenomenon of global warming, as well as of its impact on their lives. The researchers were keen to study what people of an ecologically rich and sensitive place like Shimla thought and knew about this all encompassing phenomena. The research is mainly focused on the centre of education in Shimla, the HP University itself, which is expected to have the highest level of awareness regarding such issues.

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Introduction

Global warming is the increase in the average temperature of the earth's near-surface air and oceans, the global surface temperature increased 0.74±0.18 ℃ during the last century. Green house gases are responsible for most increase in the surface temperature which was noticed by Intergovernmental Panel on Climate Change (IPCC) (IPCC, 2007). Increasing global temperature will cause sea level to rise and will change the amount and pattern of precipitation, which probably includes expansion of sub-tropical level (Gabriel & Thomas, 2007). The other effects include shrinkage of Amazon rain forest and Boreal forest, increase in the intensity of extreme weather events, change in agricultural yield and species extinction (Hegerl & Gabriele *et al.,* 2007). As the oceanic layers are disturbed, a disturbance in the food web is noticed due to which human society that depends on marine ecosystem services is also impacted (Jennifer, 2007).Border effects are expected due to global warming which includes glacial retreat, Arctic shrinkage, rise in worldwide sea level, changes in crop yield, change in the range of disease vectors, addition of new trade routes and species extinction (Jennifer, 2007). Along with this effect there also arise, scarcity of water in some regions and increased precipitation in others, changes in mountain snowpack, and adverse health effects from warmer temperatures (McMichael, Woodruff and Hales, 2006). Due to reduction in the ozone layer, the spread of the diseases such as malaria, dengue fever (Parry, 2007), lyme disease, hautavirus infection, bubonic plague

and cholera (American society of Microbiology, 2008), is noticed. A wide variety of measures have been suggested for adaptation to global warming, this includes installation of air conditioning equipments, major infra structure projects such as abandonment of settlement threatened by sea level rise, water conservation projects (John, 1997), changes in agricultural practices (Adam, *et al,* 1990), construction of flood defences (Nicholls, 2004), changes in medical care (Kovats & Martens, 2004) and interventions to protect threatened species (Hulme, 2005).

Importance of Public Awareness of the Impending Disaster

This scientific knowledge has to become part of the general awareness which alone can bring about effective remedial action with public involvement. The situation undoubtedly demands change in life-style of humanity as a whole. This requires a critical awareness of the issue and its implications.

Various steps are taken in this regard by the state, by various voluntary initiatives, and through the education system, especially at the school level. However, it is still doubtful, whether these efforts go beyond advertisements and information to the level of preventive and remedial action. Every little step in this direction counts.

Methodology

People have been experiencing differences in weather conditions in Shimla – what one calls erratic. No snowfall in 2006, last year (2008) 46 cm snowfall, no snowfall till February in

2009. The temperature in Shimla has risen by 2 to 3°C more than what is normal. 2006 recorded a temperature of 21.1°C, highest in 15 years. "In the last 20 years, a lot of years have gone by either without any snow or with minimal snowfall between December and March. It's fast becoming a common pattern," says Manmohan Singh, director of the meteorological office in Shimla (www.merinews.com).

While there is any number of studies on environment related issues, very little has been studied specifically about the awareness of the public regarding their contribution towards the phenomenon of global warming, as well as of its impact on their lives.

The research work was focused on the centre of education in Shimla, the HP University itself, which is expected to have the highest level of awareness regarding such issues. It was hoped that the university could take some initiative on the basis of the study to give lead to this vital change process.

Samples

40 students

10 faculty members

Sampling Method:

Stratified sampling. An effort was taken to ensure equal representation of the various segments of the academic community – faculty, PG, UG students; male and female; arts, science and commerce streams.

Tools of Data Collection

1. Questionnaires: A questionnaire with 14 questions was designed. While 10 questions were close ended with options to be filled in by the respondents, four questions were deliberately kept open ended, so as to get a more realistic assessment of the awareness level of the respondents.

2. Survey of Secondary data: Though, documentation by government departments was aimed to study the variations in climatic conditions of Shimla, this was not possible. The researchers had to be satisfied with the minimal information available on the net.

3. Informal Interactions: Informal interactions with key resource persons (knowledgeable and familiar with Shimla) were employed to get some qualitative dimensions of the issue under study.

4. Observation: Observation of natural environment was employed to understand the causes and/or impact of global warming.

Analysis

The responses of the respondents were given weighttage in order to arrive at a score that would be indicative of their awareness level. The weights have not been standardized; however, this was done in consultation with people having expertise in the field.

A maximum score of 54 could be obtained by a respondent. When the scores of the respondents were calculated they fell in the range of 21 to 48. Standard deviation was

calculated as 6.559 approximated to 7. Subtracting one standard deviation from the mean score of 34, score indicating lower awareness level was identified in the range of 21-27; and adding one standard deviation higher level of awareness was identified ranging between 41 and 48. The range of 28-40 was identified as the medium awareness level. The respondents were classified into high, medium and low awareness level groups based on their scores, and the various independent variables were cross tabulated with the dependent variable – awareness level - to examine their inter-relationship.
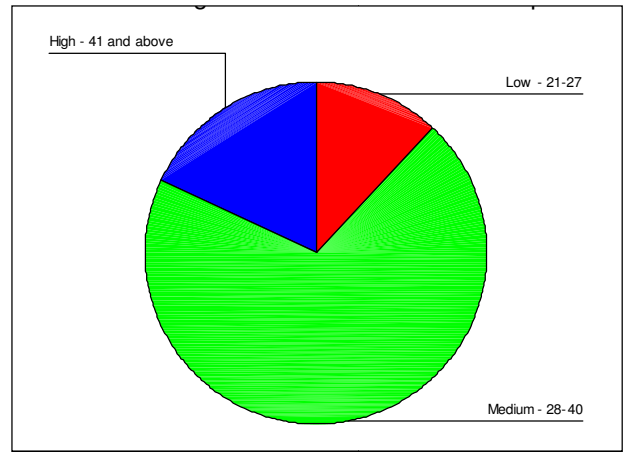

Fig. 1 Awareness Level of the Respondents

S. No	Awareness Level	Frequency	Percentage
1	Low - 21-27	6	12.0
2	Medium - 28-40	35	70.0
3	High - 41 and above	9	18.0
	Total	50	100.0

Table 1: Awareness Level

The vast majority of the respondents fall in the category of medium awareness; a high level of awareness is found in 18% of the respondents, and 12% of the respondents showed low awareness level.

S. No	Academic Stream		Awareness Level			
			Low	Medium	High	TOTAL
1	SCIENCE	Frequency	1	14	4	19
		Percentage	5.3%	73.7%	21.1%	100.0%
2	COMMERCE	Frequency	1	9	4	14
		Percentage	7.1%	64.3%	28.6%	100.0%
3	ARTS	Frequency	4	12	1	17
		Percentage	23.5%	70.6%	5.9%	100.0%
	TOTAL	Frequency	6	35	9	50
		Percentage	12.0%	70.0%	18.0%	100.0%

Table 2: Academic Stream and Awareness Level

The various academic streams at higher education level did not seem to significantly influence the awareness level. However, the data show that there were more of arts students in the low awareness category, and more of science as well as commerce students in the higher awareness category. When it comes to the medium level awareness, the three streams appeared more or less at par.

A one-way ANOVA test was conducted in this regard, to examine whether there is a statistically significant difference between the awareness levels of the three groups.

S. No	Academic Streams	N	Mean	S.D	F ratio	Stat. Significance
1	Science	19	2.1579	.5015		
2	Commerce	14	2.2143	.5789	2.580	P>0.05 Not Significant
3	Arts	17	1.8235	.5286		
	Total	50	2.0600	.5500		

Table 3: One way anova awareness level and the academic streams

P value is > .05, implying that the difference in the awareness level among the three groups is not statistically significant.

Thus, the hypothesis, that there will be a significant difference between the awareness level of the respondents belonging to different streams of studies is found to be not valid in this case, and hence rejected.

Sl. No	Occupational Status		Awareness Level			
			Low	Medium	High	TOTAL
1	Faculty	Frequency	1	4	5	10
		Percentage	10.0%	40.0%	50.0%	100.0%
2	PG (& Post PG) Students	Frequency	3	18	4	25
		Percentage	12.0%	72.0%	16.0%	100.0%
3	UG Students	Frequency	2	13	0	15
		Percentage	13.3%	86.7%	0.00%	100.0%
	Total	Frequency	6	35	9	50
		Percentage	12.0%	70.0%	18.0%	100.0%

Table 4: Occupational Status and Awareness Level

The data indicated a relatively high level of awareness among the faculty members (high 50% & medium 40%). The PG & Post-PG section also showed a relatively higher percentage of deeper awareness, with 16% at

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the higher awareness level. The UG students had no body in the higher awareness level category, and had a relatively higher percentage in the lower awareness level category

S. No	Age Group		Awareness Level			
			Low	Medium	High	TOTAL
1	18 -25	Frequency	4	26	3	33
		Percentage	12.1%	78.8%	9.1%	100.0%
2	26 – 35	Frequency		5	2	7
		Percentage		71.4%	28.6%	100.0%
3	36 and above	Frequency	2	4	4	10
		Percentage	20.0%	40.0%	40.0%	100.0%
	TOTAL	Frequency	6	35	9	50
		Percentage	12.0%	70.0%	18.0%	100.0%

Table 5: Age Group and Awareness Level

While overall, age-wise groupings did not show significant difference in their awareness level, it can be observed that the higher age group among the respondents showed a higher level of awareness (40%), while for the younger group it was only 9.1%.

A plausible explanation could be that as most of the senior group respondents were academicians, it was likely that they were more alert towards this matter.

S. No	AGE GROUPS	N	Mean	S.D	F ratio	Stat. Significance
1	18 – 25	33	1.9697	.4667		
2	26 – 35	7	2.2857	.4880	1.380	P>0.05 Not Significant
3	36 and above	10	2.2000	.7888		
	Total	50	2.0600	.5500		

Table 6: Awareness level and the age group

Based on 't' test, the hypothesis, that there will be a significant difference between the awareness level of the respondents based on their age groups.

S. No	Gender		Awareness Level			
			Low	Medium	High	TOTAL
1	Female	Frequency	4	17	4	25
		Percentage	16.0%	68.0%	16.0%	100.0%
2	Male	Frequency	2	18	5	25
		Percentage	8.0%	72.0%	20.0%	100.0%
	Total	Frequency	6	35	9	50
		Percentage	12.0%	70.0%	18.0%	100.0%

Table 7: Gender and Awareness Level

In the higher awareness level, male respondents were found to be slightly more than female respondents, and vice-versa, in the case of lower awareness level. However, in general, the group had a relatively high awareness level, with around 88% having a score above 50% of the total score.

Sl. No	Groups	N	Mean	S.D	t-value	Stat. Result
1	Male	25	2.1200	.5260	.768	P > 0.05
2	Female	25	2.0000	.5774		Not Significant

Table 8: Awareness level of the respondents male-female

Based on 't' test, the hypothesis, that there will be a significant difference between the awareness level of the respondents based on their gender, is rejected.

Conclusion

The awareness level of the HP University Campus, Shimla, as indicated by the responses of the sample of this study, shows a high awareness level on the whole, i.e., having an awareness score of more than 60% for more than 60% of the respondents. The various category wise calculations show that variables such as academic stream, age-group, gender

etc. did not have much influence on the awareness level of the respondent group. The statistical tests of 't' and 'anova' rule out such influences in this study.

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