

COMMUNITY ENVIRONMENT- A STUDY ON ENVIRONMENTAL ISSUES IN AL KHARJ

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ABSTRACT: *The study of environment is inherently multidisciplinary and international and plays a very crucial role in not only raising the standard of living by bringing healthy atmosphere in society but also provides opportunities for employment. The focus of the research paper is to develop healthy minds, healthy people and healthy nation through environment friendly initiatives for sustainable human and economic development which would be accomplished through green cover, energy conservation, pollution control, health and hygiene and waste management with mass involvement. The goal of the research is to identify challenges associated with awareness and training components of environmental issues and to propose training initiatives that may help society and the Al Kharj region of Kingdom of Saudi Arabia to address to environmental issues plaguing the region. It has also proposed an awareness-based approach towards environment of the region which may help the stakeholders monitor an organization's success with integrating environmental policies into its day-to-day operations.*

Key Words: Environment, Conservation, Pollution Control, Health , Community.

INTRODUCTION

The environment of a place plays a very crucial role in not only raising the standard of living by bringing healthy atmospherics in society but also provides opportunity for employment. The Al Kharj city is facing many environmental problems which are not only affecting the health of the residents but also affecting the image of the region as such requires urgent attention. It is important to foster sustainable livelihoods and protect biodiversity. Developing the healthy minds, healthy people and healthy nation through environment friendly initiatives for sustainable human and economic development which would be accomplished through green cover, energy conservation, pollution control, health and hygiene and waste management with mass involvement is the most important need of the hour. This research paper has attempted to bridge the gap between environmental theory and social practices by way of suggestions to tackle the environmental problem in Al Kharj. The entire research paper is divided into two parts. Part-I is mainly confined to the demographic profile of respondents and delineated on its nature and scope. Also the attributes of degree of awareness and their respective dimensions have been diagrammatically represented and textually explained at length. The various factors included in each attribute that capture and reflect the characteristics of the respondents taken and have been identified for use in the collection of data for the purpose of this study. Demographic factors are: employment status, sector, educational qualification, nationality and monthly family income.

The present Part-II is accordingly ear-marked for collection of data. The analysis and interpretation of data with the help of statistical tools has also been carried out in this section. On the basis of logical inferences drawn from the analysis and interpretation of facts and figures, the hypothesis formulated for the study has been tested at the end. Factors are air

pollution, water pollution, noise pollution, waste related issues, transport related issues, energy related problems, climate change and vegetation, ecology and geology and their sub variables.

REVIEW OF LITERATURE

The development of environmental management systems in the world came into existence in the year 1990 and since than a number of researches has been conducted in the field of environment. Chavis and Wanderman [2] , "empirically explored a model which posits that three important components namely, perception of environment, one's social relations and one's perceived control and empowerment within the community influence an individual's participation in voluntary neighbourhood organisations". Daniel [4] observed that earlier research on health promotion has emphasized behavior change strategies rather than environmentally focused interventions. The author emphasized the transactions between individual or collective behavior and the health resources and constraints that exist in specific environmental settings. Henriques and Sadorsky [6] asked a pertinent question in their research, 'Do firms committed to stewardship of the natural environment differ from less environmentally committed firms in their perceptions of the relative importance of different stakeholders in influencing their environmental practices? Using cluster analysis on six responses to questions describing a firm's practices, they classified 400 firms into four environmental profiles: reactive, defensive, accommodative, and proactive. Results indicate that firms with more proactive profiles do differ from less environmentally committed firms in their perceptions of the relative importance of different stakeholders. Dalby and Mackenzie [3], "draws on contemporary geopolitical literature to theorise community identity as partly formulated in response to external 'threats'. A comparative study of

community mobilisation in response to proposals to locate coastal super quarries on the Isle of Harris, Outer Hebrides, Scotland, and Cape Breton, Nova Scotia, Canada, suggests the applicability of this theoretical framework for extending geographical analysis of community identity and the politics of place”.

Deegan and Gordon [5] analysed the environmental disclosure practices of Australian corporate entities. The paper documents three separate but related investigations. First, is a review of a sample of annual reports for the 1991 financial year, it is apparent that environmental disclosure practices adopted by the sample are self-laudatory, with companies promoting positive aspects of their environmental performance, but failing to disclose negative aspects. Second, is a review of corporate disclosure practices in the period 1980 to 1991, environmental disclosure made by the sample significantly increases across time. This change is linked to an apparent increase in societal concern relating to environmental issues. Finally, using a questionnaire administered to environmental lobby groups, it appears that the extent of corporate environmental disclosure is positively associated with the environmental lobby groups' concern about the environmental performance of companies within particular industries. Pillai [8] studied the “environmental awareness of Higher Secondary School students in Cuddalore District, Tamil Nadu, India. The result revealed that male and female students, rural and urban area students, arts and science group students had significant difference in respect of their environmental awareness”.

The foregoing review of literature sheds light on various gaps in the previous researches carried out in this field of community environment all over the world. Most of the studies on community environment have examined only a few aspects of environment. Moreover, students' participation in particular has not been undertaken by anybody till date. This gives the Researchers an opportunity to assess the community environment of Al Kharj city by measuring almost all environmental issues.

OBJECTIVES OF THE STUDY

The present study has been carried out to attain the following objectives:

- To find out the environmental factors detrimental to the community in Al Kharj, Saudi Arabia;
- To find out the awareness of community about environmental issues in Al Kharj, Saudi Arabia;
- To study the feasibility of involving students of Prince Sattam bin Abdul Aziz University in environmental initiatives in Al Kharj, Saudi Arabia; and
- To come out with remedial measures to tackle the environmental issues of Al Kharj, Saudi Arabia.

HYPOTHESES

The following are the hypotheses of the present construct:

Null Hypothesis:

There is no awareness about environmental issues in Al Kharj Community.

Alternate Hypothesis:

There is awareness about environmental issues in Al Kharj Community.

Following Hypotheses have been set for the purpose of testing:

H₀₁: There is no awareness about pollution in Al Kharj Community.

H_{A1}: There is awareness about pollution in Al Kharj Community.

H₀₂: There is no awareness about waste management in Al Kharj Community.

H_{A2}: There is awareness about waste management in Al Kharj Community.

H₀₃: There is no awareness about transportation issues in Al Kharj Community.

H_{A3}: There is awareness about transportation issues in Al Kharj Community.

H₀₄: There is no awareness about energy issues in Al Kharj Community.

H_{A4}: There is awareness about energy issues in Al Kharj Community.

H₀₅: There is no awareness about global warming/climate change in Al Kharj Community.

H_{A5}: There is awareness about global warming/climate change in Al Kharj Community.

H₀₆: There is no awareness about vegetation, ecology and geology in Al Kharj community regarding.

H_{A6}: There is no awareness about vegetation, ecology and geology in Al Kharj Community regarding vegetation, ecology and geology.

RESEARCH METHODOLOGY

The present study is based on primary as well as secondary data. Primary data has been collected through questionnaire, which was administered to different respondents while secondary data has been gathered mainly from various sources such as official resources during period 2003-2014. The data collected during survey of the study has been put to appropriate statistical tests such as F-test, T-test and R-square have been analysed using statistical tools. The findings and observations have been analysed and evaluated to derive pragmatic recommendations in the form of suitable suggestions.

The following statistical tools have also been used:

- For analysing the results of the Community Environmental issues in Al Kharj city, the item wise responses is converted into percentage form for its interpretation according to the scoring scale.
- Mean and Standard Deviation have also been calculated to know the nature of distribution of the dimensions selected.

To further determine the veracity of the results obtained, t-test has been applied to find out the awareness levels of the various environmental aspects in Al Kharj and to compare their results.

SAMPLE OF THE STUDY

As stated above, that a survey questionnaire has been administered among the 400 respondents but some of them have not reverted, therefore, the ones whose responses were found to be appropriate and complete has been consulted for analysis purpose. Thus, the sample frame of the work is confined to 351 respondents. The respondents chosen for the study include the general public as well as the student community; especially the students of Prince Sattam bin Abdulaziz University, Al Kharj.

**Part I
GENERAL INFORMATION**

It is very essential to reveal the demographic profile of the respondents. The profile of the respondents includes employment status, sector, educational qualification, nationality and monthly family income.

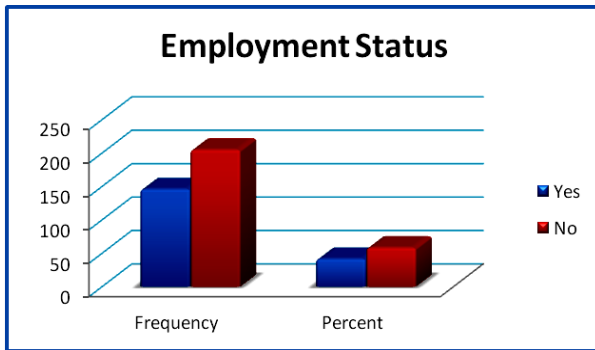
1. Employment Status

Table (1): Are you employed?

	Frequency	Percent
Yes	146	41.59
No	205	58.40
Total	351	100.00

Source: Compiled from the data in questionnaire using SPSS.

The above data calculated from the questionnaire reveals the status of “Employed” and “Not Employed”. Number of employees who were calculated as “Employed” respondents were 146 (41.59 percent) and who were calculated in the category of “Not Employed” respondents were 205 respondents (58.4 percent). So, with the output of the data regarding the employment status, it is concluded that more than half of the sample contains Unemployed respondents. Graphical form of the Employment Status of the respondents in Al Kharj is given below:



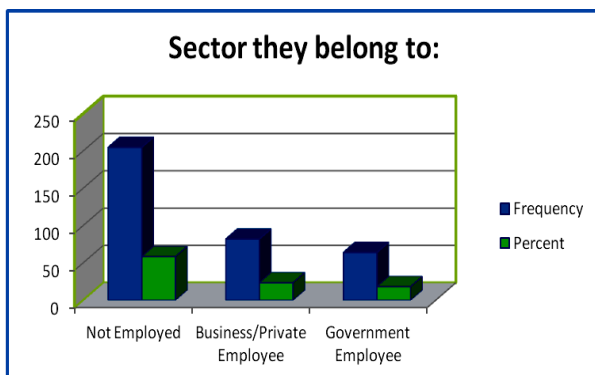
Source: Compiled from the data in questionnaire using SPSS.

2. Sector of the Respondents

Table (2): Occupation you belong to:

	Frequency	Percent
Not Employed	205	58.4
Business/Private Employee	82	23.4
Government Employee	64	18.2
Total	351	100.0

Source: Compiled from the data in questionnaire using SPSS.



Source: Compiled from the data in questionnaire using SPSS. When the profile of the respondents was generated on the basis of the sector they belong to, it was observed that majority of the respondents were in the category of “Not Employed” (205 respondents). 82 respondents (23.4 percent) were found in the category of “Private Employees” and 64 respondents (18.2 percent) were having government jobs. This calculation shows that more than half of the sample contains respondents not doing any job.

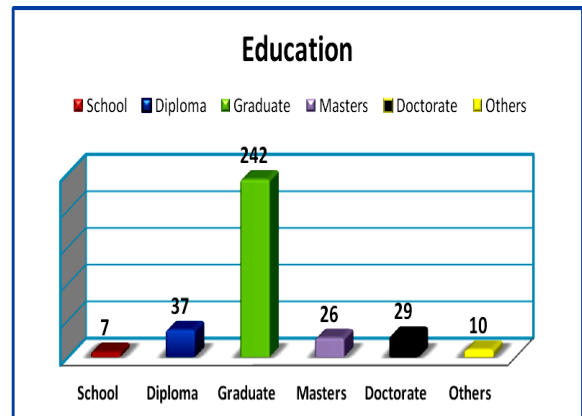
3. Qualification of the Respondents

Table below shows the education level of respondents, out of total respondents, 245 are Graduates i.e. 68.9 percent, number of school passed respondents is only 7 (2 percent), Diploma holders respondents are 37 (10.5 respondents) of total, Masters are 26 respondents (7.4 percent), Doctorate are 29 respondents (8.3 percent) and for other courses there are 10 respondents (2.8 percent) out of the total 351. Thus the analysed data of educational level of respondents reveal that educational level is quite good in Al Kharj. Majority of the respondents are graduate, which can be a good indicator of awareness as education makes citizens more concerned for the surroundings.

Table (3): Education

	Frequency	Percent
School	7	2.0
Diploma	37	10.5
Graduate	242	68.9
Masters	26	7.4
Doctorate	29	8.3
Others	10	2.8
Total	351	100.0

Source: Compiled from the data in questionnaire using SPSS.



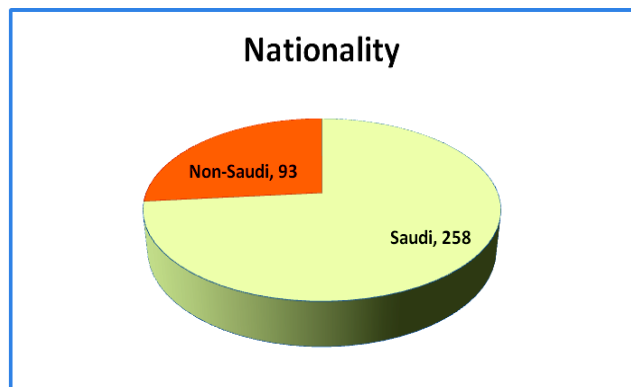
Source: Compiled from the data in questionnaire using SPSS.

4. Nationality of the Respondents

Table (4): Nationality

	Frequency	Percent
Saudi	258	73.5
Non-Saudi	93	26.5
Total	351	100.0

Source: Compiled from the data in questionnaire using SPSS. From the above table it is clear that 258 respondents (73.5 percent) are “Saudi” out of the 351 respondents and 93 respondents (26.5 percent) are “Non-Saudi”.



Source: Compiled from the data in questionnaire using SPSS.

5. Monthly Family Income of the Respondents

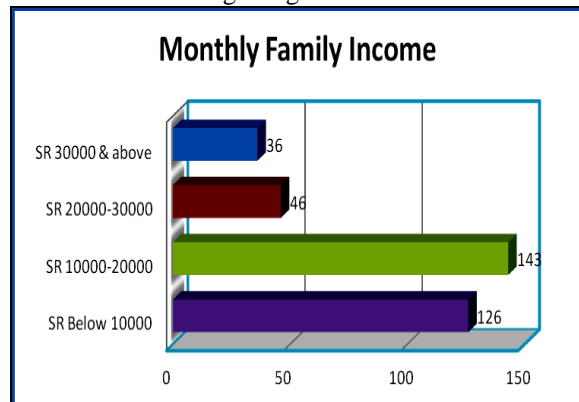
Table (5): Monthly Family Income

	Frequency	Percent
SR Below 10000	126	35.9
SR 10000-20000	143	40.7
SR 20000-30000	46	13.1
SR 30000 & above	36	10.3
Total	351	100.0

Source: Compiled from the data in questionnaire using SPSS.

Source: Compiled from the data in questionnaire using SPSS.

The above table shows the Monthly Family Income of the respondents. It is included as one of the demographic profile variables in the analysis to the degree of environmental awareness. The Monthly Family Income of the respondents is confined to the following categories like SR below 10000, SR



10000-20000, SR 20000-30000 and SR 30000 & above. It is clearly noted that first category is "SR below 1000" which constitutes 126 respondents (35.9 percent), second category is SR 10000-20000 which contains 143 respondents (40.7 percent), third category is "SR 20000-30000" having 46 respondents (13.1 percent) and finally the last category "SR 30000 and above" contains only 36 respondents (10.3 percent). As the above table revealed the employment status of the respondents in which 5.4 percent of the total respondents were found in the category of "Not- Employed". So, it is examined that the reason behind low monthly income is the same as the sample contains majority of the respondents who are not doing any job.

DATA ANALYSIS

Mean Score

In order to identify the degree of awareness of the statement across various demographics, the variables were summed up and divided by the total number of respondents (i.e., 351) to get the mean score of each statement. Annexure I summarize the mean of all the statements used for the data collection. The highest mean score of 4.27 is of the statement that " Lot of gas emissions [like smoke from industries, vehicles etc.] in air" and lowest mean score is 3.17 of the statement that "overall air quality". There is small variation in the mean score of various heads of pollution. As far as perception of degree of effectiveness is concerned towards various products, the mean score obtained was also somewhat same for them. This may be because of the any reason but it can be said whether the respondents lied in the category of employment or unemployment, they are aware of their environmental conditions. This has been seen from the Annexure I that respondents of every kind of educational status showed high mean value. This means they also hold a positive perception towards the achievements of objectives that they know their surroundings. This finding is further supported by high mean value of respondents as 4.40 in pollution head. Lot of gas emissions [like smoke from industries, vehicles etc.] in air (4.40), Unpleasant odour of air (4.20) and Dust in air due to sand storm (4.04) for the Air Pollution. Water pollution also contains comparatively good mean score, Problem of sanitation (hygiene) due to waste water (4.30), Littering waste into water (4.36), Waste water from industries (4.27), Poor quality of drinking water due to water pollution (4.20), Most pollutants ending up into water source (4.22).

On the other hand, Vegetation, ecology and geology contains less mean values as compared to other heads, Reduced Green area due to urbanization (3.86), Food problem due to reduced cultivated area or reduced agricultural output (3.98), Species of animals and birds getting reduced (3.86), More desertification (4.02), Reduced quality of soil because of pollutants getting into soil (4.05), Problems due to use and disposal of non-biodegradable packaging materials as plastic (3.96), Increased use of chemical fertilizers in agriculture (3.94), Decreased use of organic products (3.82), Flood related problems (3.89) and Overall Vegetation, Ecology and Geology Related Problems (3.71).

Reliability of Data

Reliability is the consistency of the measurement; or the degree to which an instrument measure the same way each time it is used under the same conditions with the same object .In the present study Cronbach's alpha is used to measure the reliability of data. The Annexure II shows the reliability of scale by calculating Cronbach's alpha. The items where the value of alpha is more than 0.7 are considered significant for further research. The reliability table shows the statement wise values of alpha, which is more than 0.7 in each statement.

Validity Test

Validity is the strength of our conclusions, inferences or propositions. Cook and Campbell define it as the "best available approximation to the truth or falsity of a given inferences, proposition or conclusion". The test of validity of data for factor analysis has been conducted with the help of KMO measure and Bartlett's test of Sphericity.

The Kaiser-Meyer-Olkin (KMO) measures the validity of the dimensions for factor analysis. The KMO statistics varies between 0 and 1. The “o” value indicates that the sum of partial correlations is large relative to the sum of correlations, indicating diffusion in the pattern of correlations. A value close to 1 indicates that patterns of correlation are relatively compact and so factor analysis should yield distinct and reliable factors.

Kaiser- Mayer- Olkin measures of sampling Adequacy			0.913
Bartlett’s Test of Sphericity	1.358E4	1.358E4	
	2016	2016	
	.000	.000	

Source: Compiled from the data in questionnaire using SPSS.

The above table shows the results of Kaiser-Mayer-Olkin (KMO) measures of sampling Adequacy of the data. Kaiser [7] recommends accepting values greater than 0.5 as acceptable, values between 0.5 and 0.7 are mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great and values above 0.9 are superb. For these data the values is 0.913 which falls in the range of being good. So the validity of data is confirmed.

Bartlett’s [1] measure tests the null hypotheses that the original correlation matrix is an identity matrix. For factor analysis to work we used some relationships between variables and if the R- matrix were an identity matrix then all correlation coefficient would be zero. Therefore, we want those tests to be significant (i.e. have a significant value less than 0.05). A significant test tells us that the R –matrix is not an identity matrix. Therefore, there is some relationship between the variables to include in the analysis. For these data, Bartlett’s test is highly significant (P<0.001), and therefore, factor analysis is approximate.

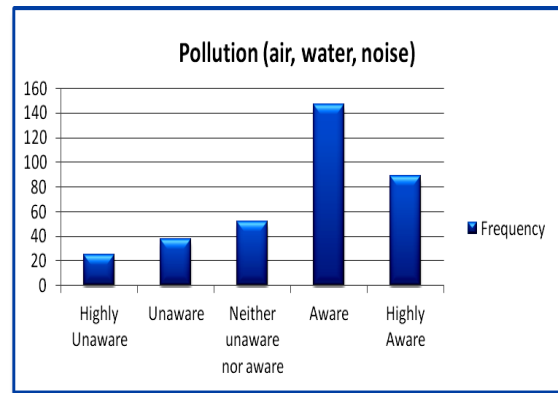
Annexure III shows the results of rotated component matrix. All the values of extraction are more than 0.40. Therefore, the data is found suitable for further analysis.

**Part II:
DEGREE OF AWARENESS**

**Table (7): Pollution
[Air, Water and Noise]**

	Frequency	Percent
Highly Unaware	25	7.1
Unaware	38	10.8
Neither unaware nor aware	52	14.8
Aware	147	41.9
Highly Aware	89	25.4
Total	351	100

Source: Compiled from the data in questionnaire using SPSS.



Source: Compiled from the data in questionnaire using SPSS.

When the degree of awareness was checked on the basis of pollution (air, water, noise), it was observed that being educated, every person has knowledge of his surroundings. As the demographic profile revealed that majority of the respondents have good educational qualification, so the degree of awareness revealed that 147 respondents are aware of the pollution (air, water, noise) and only 25 respondents revealed that they are highly unaware of the pollution. 89 respondents revealed that they are highly aware of the pollution. But the degree of awareness regarding pollution was calculated nil by 52 respondents.

Source: Compiled from the data in questionnaire using SPSS. Awareness related to waste issues shows that 116 respondents are aware, 112 respondents are highly aware. So, majority of

**Table (8): Waste Issues
[Industrial Waste, Household waste etc.]**

	Frequency	Percent
Highly Unaware	11	3.1
Unaware	64	18.2
Neither unaware nor aware	48	13.7
Aware	116	33.0
Highly Aware	112	31.9
Total	351	100

Source: Compiled from the data in questionnaire using SPSS.

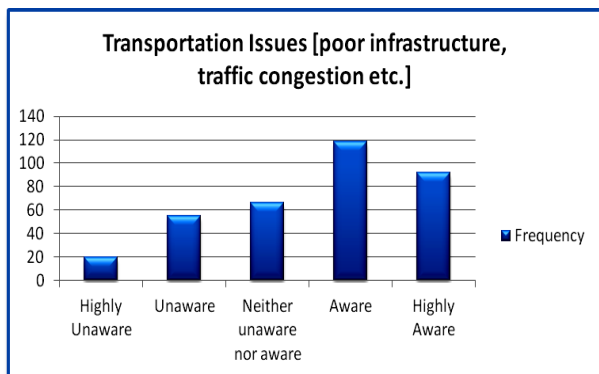


the respondents revealed that one way or the other, they are concerned about the waste related issues of the surroundings. Waste related issues are never unseen; they are the concerned topics for every citizen living in a society as every citizen has to deal these issues in their daily life.

Table (9): Transportation Issues [Poor Infrastructure, Traffic Congestion etc.]

	Frequency	Percent
Highly Unaware	20	5.7
Unaware	55	15.7
Neither unaware nor aware	66	18.8
Aware	118	33.6
Highly Aware	92	26.2
Total	351	100

Source: Compiled from the data in questionnaire using SPSS.



Source: Compiled from the data in questionnaire using SPSS.

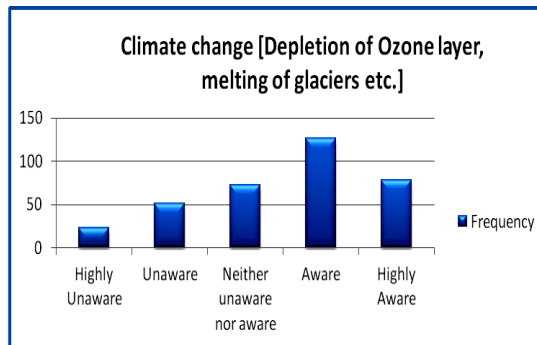
Transportation issue is like every one’s business. Every citizen has to use facilities regarding transportation. Here, according to the sample, 118 respondents showed awareness regarding transportation issues, 92 respondents revealed high awareness towards this issue, 66 respondents were nil towards this and only 55 respondents were calculated in the category if “unaware”. Transportation issues include poor infrastructure, traffic congestion etc. These types of issues are faced by every category of citizen, whether employed or unemployed, educated or uneducated. So, awareness for this is somehow common for everyone.

Table (10): Climate Change [Depletion of Ozone Layer, Melting of Glaciers etc.]

	Frequency	Percent
Highly Unaware	23	6.6
Unaware	51	14.5
Neither unaware nor aware	73	20.8
Aware	126	35.9
Highly Aware	78	22.2
Total	351	100

Source: Compiled from the data in questionnaire using SPSS.

Climatic issues like depletion of ozone layer, melting of glaciers etc. are somewhat technical issues. And every citizen is not aware of these types of issues. Educated class and other groups who work for the environment are aware of these statistics. Here the analysis shows that 126 out 351 respondents are aware of climatic conditions and related issues, 78 respondents were showing high awareness for climatic changes. And it was obvious that 20 percent of the respondents were nil towards their issues as stated above, further, 51 respondents were unaware of these issues and 23 respondents were highly unaware of climatic changes. This can be because of the low educational status of the respondents.



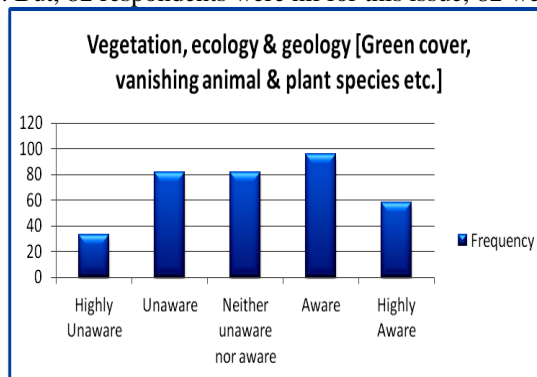
Source: Compiled from the data in questionnaire using SPSS.

Table (11): Vegetation, ecology & geology [Green Cover, Vanishing Animal & Plant Species etc.]

	Frequency	Percent
Highly Unaware	33	9.4
Unaware	82	23.4
Neither unaware nor aware	82	23.4
Aware	96	27.4
Highly Aware	58	16.5
Total	351	100

Source: Compiled from the data in questionnaire using SPSS.

As stated above for the climatic changes that educated class shows more awareness towards the technical issues of the environment. So is the case with vegetation, ecology and geology. People with good education level, shows more concerns and keep more knowledge about the greenery, animal species, plant species etc. Here, the analysis showed that only 58 respondents showed high degree of awareness and 96 respondents showed comparatively good awareness scale. But, 82 respondents were nil for this issue, 82 were



Source: Compiled from the data in questionnaire using SPSS.

unaware and 33 respondents were highly unaware for vegetation, ecology and geology.

CONCLUSION AND RECOMMENDATIONS

In fine, it may be concluded that present research paper has brought into light some important facts about the environmental issues about the Al Kharj district. The researchers provided an analysis of the results of testing the two major hypotheses for this study. To test the hypotheses, a questionnaire developed by the researchers, was used to check the degree of awareness towards the environment and its related issues. In the examination of population

characteristics, demographic data were explored to investigate the differences between participants on overall degree of awareness. In conclusion, there were significant differences at the (0.05) level between respondents. Statistically significant differences between participants were not found for (1) Air Pollution, (2) Water Pollution, (3) Noise Pollution, (4) Waste Related Issues, (5) Transport Related Issues, (6) Energy Related Problems, (7) Climate Change and (8) Vegetation, Ecology and Geology (at the 0.05 level). In conclusion, the analysis did support both the hypotheses and it showed very less variation in terms of awareness.

In the light of the findings of the present study, the researchers recommend that it is very essential to bring environmental education to make awareness of environmental concerns. Seminars, workshops, debates, booster programs, interactive programmes, organizing may be conducted about creating environmental awareness among the students. Camp activities like cleaning; planting trees, bringing awareness among illiterate people through trainees will surely increase aptitude and attitude of people towards environment. Moreover, World Earth Day, World Population Day, World Wild Life Day should be organised in schools and colleges to increase the pace of awareness among youth. It is the commitment of an organization and its employees, driven by environmental concerns and expectations from stakeholders, which determine the extent to which an organization will achieve leading-edge environmental management for the society and the region and thereby the University has a role to play in addressing the environmental issues of the region.

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ANNEXURE (I)

Mean Score

	Statements	Mean
1.	Degree of Awareness:	
	Pollution (air, water, noise)	3.68
	Waste Issues [industrial waste, household waste etc.]	3.72
	Transportation Issues [poor infrastructure, traffic congestion etc.]	3.59
	Climate change [Depletion of Ozone layer, melting of glaciers etc.]	3.53
	Vegetation, ecology & geology [Green cover, vanishing animal & plant species etc.]	3.18
2.	Pollution:	
	Air Pollution	
	Lot of gas emissions [like smoke from industries, vehicles etc.] in air	4.40
	Unpleasant odour of air	4.20
	Dust in air due to sand storm	4.04
	Overall air quality	3.17
	Water Pollution	
	Problem of sanitation (hygiene) due to waste water	4.30
	Littering waste into water	4.36
	Waste water from industries	4.27
	Poor quality of drinking water due to water pollution	4.20
	Most pollutants ending up into water source	4.22
	Overall of water quality	3.25
	Noise Pollution	
	Noise effecting lifestyle	3.93
	Noise because of vehicles	4.01
	Noise due to businesses near your residence	3.95
	Overall noise pollution	3.64
	Over Pollution in Al Kharj	4.22
	Water Related Issues:	
	Increased waste accumulation in your area	4.18
	Deterioration of environment due to waste	4.18
	Shortage of sewerage, drainage and sanitation systems	4.23
	Spread of health problems due to waste	4.02
	Waste from households	4.27
	Waste from industries	4.14
	Waste from oil spillages, defence wastes	4.09
	Waste Related Issues Overall	3.92
	Transport Related Issues:	
	Transportation congestion	3.95
	Poor quality of transportation infrastructure	4.16
	Insufficient public transportation	4.01
	Frequent Accidents	4.27
	Overall transportation	3.85
	Energy Relate Problems:	
	Pollution due to presence of oil industry	4.15
	Pollution due to presence of power plant	3.98
	Lack of alternative source of energy like solar/wind/biomass energy	3.94
	Overall Energy Related Problems	3.65
	Climate Change:	
	Increase in temperature	4.06
	Greenhouse gases effecting environment adversely	3.96
	Overall climate change effecting your life adversely	3.93
	Vegetation, Ecology and Geology [Green cover, vanishing animal and plant species]	
	Reduced Green area due to urbanization	3.86
	Food problem due to reduced cultivated area or reduced agricultural output	3.98
	Species of animals and birds getting reduced	3.86
	More desertification	4.02
	Reduced quality of soil because of pollutants getting into soil	4.05
	Problems due to use and disposal of non-biodegradable packaging materials as plastic	3.96
	Increased use of chemical fertilizers in agriculture	3.94
	Decreased use of organic products	3.82
	Flood related problems	3.89

	Overall Vegetation, Ecology and Geology Related Problems	3.71
3.	Whom among the following due you think can play a vital role in protecting environment.	2.83
4.	The degree of effectiveness of the students of Prince Sattam bin Abdulaziz University in playing a role in coming out with environmental protection initiatives:	2.93
5.	Do you think the students of Prince Sattam bin Abdulaziz University would be helpful in coming out with environmental protection initiatives?	1.42
6.	Degree of Effectiveness:	
	Reducing the usage of non-biodegradable materials like plastics	3.89
	Spreading awareness about Environment	4.06
	Using recycled products	4.01
	Planting plants and trees	4.20
	Controlling waste spread in and around living, work and recreational areas.	4.00
	Volunteering for environmental initiatives Like cleaning gardens, public places etc.	3.96
	By conserving energy and water	3.96
	By donations to environment protection agencies to save environment	3.77
	By organizing and participating in training programs, seminars, conferences related to environment.	3.74
	Overall Effectiveness rating of student in protecting environment	3.85

Source: Compiled from the data in questionnaire using SPSS.

**ANNEXURE (II)
Reliability Analysis**

	Statements	Cronbach's Alpha if Item Deleted
1.	Degree of Awareness:	
	Pollution (air, water, noise)	.953
	Waste Issues [industrial waste, household waste etc.]	.953
	Transportation Issues [poor infrastructure, traffic congestion etc.]	.953
	Climate change [Depletion of Ozone layer, melting of glaciers etc.]	.954
	Vegetation, ecology & geology [Green cover, vanishing animal & plant species etc.]	.954
2.	Pollution:	
	Air Pollution	
	Lot of gas emissions [like smoke from industries, vehicles etc.] in air	.952
	Unpleasant odour of air	.952
	Dust in air due to sand storm	.953
	Overall air quality	.953
	Water Pollution	
	Problem of sanitation (hygiene) due to waste water	.952
	Littering waste into water	.952
	Waste water from industries	.952
	Poor quality of drinking water due to water pollution	.952
	Most pollutants ending up into water source	.952
	Overall of water quality	.953
	Noise Pollution	
	Noise effecting lifestyle	.953
	Noise because of vehicles	.952
	Noise due to businesses near your residence	.953
	Overall noise pollution	.953
	Over Pollution in Al Kharj	.952
	Water Related Issues:	
	Increased waste accumulation in your area	.952
	Deterioration of environment due to waste	.952
	Shortage of sewerage, drainage and sanitation systems	.952
	Spread of health problems due to waste	.952
	Waste from households	.952
	Waste from industries	.952
	Waste from oil spillages, defence wastes	.952
	Waste Related Issues Overall	.952
	Transport Related Issues:	
	Transportation congestion	.952
	Poor quality of transportation infrastructure	.952
	Insufficient public transportation	.952
	Frequent Accidents	.952

	Overall transportation	.952
	Energy Relate Problems:	
	Pollution due to presence of oil industry	.952
	Pollution due to presence of power plant	.952
	Lack of alternative source of energy like solar/wind/biomass energy	.952
	Overall Energy Related Problems	.953
	Climate Change:	
	Increase in temperature	.952
	Greenhouse gases effecting environment adversely	.952
	Overall climate change effecting your life adversely	.952
	Vegetation, Ecology and Geology [Green cover, vanishing animal and plant species]	
	Reduced Green area due to urbanization	.953
	Food problem due to reduced cultivated area or reduced agricultural output	.952
	Species of animals and birds getting reduced	.952
	More desertification	.952
	Reduced quality of soil because of pollutants getting into soil	.952
	Problems due to use and disposal of non-biodegradable packaging materials as plastic	.952
	Increased use of chemical fertilizers in agriculture	.952
	Decreased use of organic products	.952
	Flood related problems	.952
	Overall Vegetation, Ecology and Geology Related Problems	.952
6.	Degree of Effectiveness:	
	Reducing the usage of non-biodegradable materials like plastics	.953
	Spreading awareness about Environment	.952
	Using recycled products	.953
	Planting plants and trees	.953
	Controlling waste spread in and around living, work and recreational areas.	.952
	Volunteering for environmental initiatives Like cleaning gardens, public places etc.	.952
	By conserving energy and water	.952
	By donations to environment protection agencies to save environment	.952
	By organizing and participating in training programs, seminars, conferences related to environment.	.952
	Overall Effectiveness rating of student in protecting environment	.952

Source: Compiled from the data in questionnaire using SPSS.

ANNEXURE (III) Component Matrix

	Extraction
Pollution (air, water, noise)	.675
Waste Issues [industrial waste, household waste etc.]	.709
Transportation Issues [poor infrastructure, traffic congestion etc.]	.621
Climate change [Depletion of Ozone layer, melting of glaciers etc.]	.696
Vegetation, ecology & geology [Green cover, vanishing animal & plant species etc.]	.635
Lot of gas emissions [like smoke from industries, vehicles etc.] in air	.673
Unpleasant odour of air	.643
Dust in air due to sand storm	.616
Overall air quality	.668
Problem of sanitation (hygiene) due to waste water	.667
Littering waste into water	.680
Waste water from industries	.666
Poor quality of drinking water due to water pollution	.779
Most pollutants ending up into water source	.758
Overall of water quality	.684
Noise effecting lifestyle	.704
Noise because of vehicles	.735
Noise due to businesses near your residence	.617
Overall noise pollution	.696
Over Pollution in Al Kharj	.670

Increased waste accumulation in your area	.723
Deterioration of environment due to waste	.682
Shortage of sewerage, drainage and sanitation systems	.758
Spread of health problems due to waste	.599
Waste from households	.730
Waste from industries	.728
Waste from oil spillages, defence wastes	.682
Waste Related Issues Overall	.653
Transportation congestion	.657
Poor quality of transportation infrastructure	.731
Insufficient public transportation	.697
Frequent Accidents	.634
Overall transportation	.719
Pollution due to presence of oil industry	.763
Pollution due to presence of power plant	.788
Lack of alternative source of energy like solar/wind/biomass energy	.691
Overall Energy Related Problems	.627
Increase in temperature	.717
Greenhouse gases effecting environment adversely	.682
Overall climate change effecting your life adversely	.721
Reduced Green area due to urbanization	.602
Food problem due to reduced cultivated area or reduced agricultural output	.682
Species of animals and birds getting reduced	.643
More desertification	.743
Reduced quality of soil because of pollutants getting into soil	.746
Problems due to use and disposal of non-biodegradable packaging materials as plastic	.659
Increased use of chemical fertilizers in agriculture	.633
Decreased use of organic products	.625
Flood related problems	.626
Overall Vegetation, Ecology and Geology Related Problems	.650
Whom among the following due you think can play a vital role in protecting environment.	.805
Do you think the students of Prince Sattam bin Abdulaziz University would be helpful in coming out with environmental protection initiatives?	.756
The degree of effectiveness of the students of Prince Sattam bin Abdulaziz University in playing a role in coming out with environmental protection initiatives:	.694
What is the extent of the effectiveness of initiatives of university students in the protection of environment?	.637
Reducing the usage of non-biodegradable materials like plastics	.655
Spreading awareness about Environment	.724
Using recycled products	.717
Planting plants and trees	.727
Controlling waste spread in and around living, work and recreational areas.	.777
Volunteering for environmental initiatives Like cleaning gardens, public places etc.	.775
By conserving energy and water	.812
By donations to environment protection agencies to save environment	.805
By organizing and participating in training programs, seminars, conferences related to environment.	.779
Overall Effectiveness rating of student in protecting environment	.796

Source: Compiled from the data in questionnaire using SPSS