

Public Environmental Awareness in the Kurdistan Region in Iraq: Factors and Policy Recommendations

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Abstract

Research Aims

The primary aim of the research was to develop an understanding of the level of public environmental awareness of people in the Kurdistan region. A secondary aim of the research was to propose relevant policy recommendations based on the knowledge and understanding developed from the primary research aim in terms of the extent of the level of public environmental awareness and the factors affecting the level of awareness.

Research Methods

The research undertook an online survey across selected respondents from the Kurdistan region to evaluate the extent of public environmental awareness among the population. Hypothesis testing was conducted using the difference between means to assess factors that influence awareness levels.

- There is a good level of public environmental awareness in Kurdistan region of Iraq
- There are different factors that impact awareness levels and these include: educational level; economic situation; geographical location; ethnographic characteristic; and, demographic characteristic
- The environmental conditions in the Kurdistan region is poor even with the high level of public awareness that exists among the population

There are two key recommendations. The Kurdistan government should:

- continue to implement educational programs in order to enhance the understanding of the impact on the environment for corporations rather than the increased educational programmes for individuals
- push for increasing the concern and care of organizations and individuals to complement the awareness levels of environmental issues and impacts already existing in the Kurdistan region

Keywords: Environment; awareness; Kurdistan region; Iraq; public; education

Introduction

Importance and Aims of the Research

Public awareness of environmental issues is a significant weakness in many countries and cities globally including developed and developing countries [1, 2]. This seems to be similarly the case for Iraq where public awareness on environmental issues such as the degradation of ecosystems and inadequate industrial waste management and the related implications on pollution and health risks are considered poor despite some efforts to enhance consciousness [3]. An aggravating factor is the lack of understanding of this problem in Iraq with no academic studies identified that have focused on an assessment of public awareness on environmental issues in the country and, in particular, on specific areas such as the Kurdistan region. This highlights the importance of this research focusing on public environmental awareness in the Kurdistan region in Iraq (KRI), an autonomous region within Iraq with separate legislative, executive and judiciary powers. While KRI is bound by Iraqi laws (including environmental laws), the Kurdistan region also has its own specific environmental legislation. The research was executed to confirm the current extent of the level of public environmental awareness in KRI.

The primary aim of the research was to develop an understanding of the level of public environmental awareness of people in the Kurdistan region. This involved, for example, the extent of public awareness of environmental issues such as air pollution, climate change and waste management. Related to the primary aim, the research determined the differences in the level of public environmental awareness of the people based on educational level, economic situation, geographical location, and ethnographic and demographic characteristics. This enabled an understanding of the impact of these factors in the resulting awareness on environmental issues and implications of the public in the Kurdistan region. Specifically, the research identified existing correlations between various factors considered and their level of environmental awareness. A secondary aim of the research was to propose relevant policy recommendations based on the knowledge and understanding developed from the primary research aim in terms of the extent of the level of public environmental awareness and the factors impacting the level of awareness. The objective was to provide policy recommendations that could enhance KRI public environmental awareness. The consequences of the study were not only the identification of the extent of the gap in public environmental awareness and the factors impacting this gap but also the determination of policy responses that could result in the enhancement of the level of public environmental awareness in the Kurdistan region.

Overview of Public Environmental Awareness in the Kurdistan Region in Iraq

There are some indications, which show that there is low public environmental awareness and, even worse, low public concern for the environment in the Kurdistan region [4,5]. In recent news, rampant development of illegal oil refineries in Iraqi Kurdistan was noted with these estimated to number 170 in operations and most blatantly disregarding environmental protection laws [6,7]. Globally, various academic studies have been executed to determine the extent of public environmental awareness in countries and cities [8,9]. It is important to note that the extent of awareness of the public does not necessarily correlate with the level of environmental concern and action of individuals and entities [10,11]. In Iraq, the Kurdistan government has not been able to minimise the extensive violation of environmental laws and has, admittedly, not been able to establish strong and relevant environmental policies for effective enforcement in the region [12,13]. Nevertheless, there has been recognition of the need to increase public environmental awareness in order to have a positive impact on the protection of the environment and the mitigation of the unfavourable implications on the environment from entity and individual actions [14,15]. From those that are aware of environmental issues, there is significant commitment in increasing public awareness with, for example, several hundred committed environmental reformers cleaning the capital city of Kurdistan and educating people during the 2016 World Environment Day celebration in the city [16,17].

From a general perspective on public awareness of environmental issues, this study relates to a large number of a priori scientific studies and works. With the increased realisation of the need for greater public awareness, there has been a plethora of academic studies evaluating public awareness on environmental issues across the globe. In India, a survey was conducted to evaluate the public knowledge and awareness on e-waste handling and management in an urban setting, specifically Delhi [18]. A key finding was the recognition of the inadequacy in the level of public education to enhance public awareness of environmental issues [19]. Another study on public environmental awareness compared the level of consciousness of environmental issues, specifically climate change, between students from the US versus China [20]. The results showed, surprisingly, almost similar levels of awareness and interest but with varying opinions and ideas on how climate change issues should be addressed [21]. These are examples of relevant a priori studies and works that have implications and are related to this research.

From a more specific perspective of Iraq and the Kurdistan region, however, there is a lack of understanding of the current level of public environmental awareness. This is primarily because there are no a priori scientific studies and works that have been identified as directly related to the issues on hand for the general population of the Kurdistan region in Iraq. Ozdemir [22] conducted an empirical study of the environmental awareness of secondary students in Erbil in KRI with the results indicating

that the students did not have positive behaviours and concerns towards environmental issues. On a positive note, the findings from Ozdemir [23] indicated that the students showed interest and keenness in being involved in environmental initiatives. The lack of defined studies on environmental awareness among the population of the Kurdistan region in Iraq forms the research gap and it the identified focus of this study. The research contributes to an understanding, even if exploratory in nature, of the public environmental awareness of the people in Iraqi Kurdistan. The findings from this research form the basis of an initial perspective and a foundational platform for further studies and understanding of the public environmental awareness in the Kurdistan region.

The research undertaken utilised a correlation research design with observational study underpinning the research approach. In particular, the hypotheses of the study focused on the factors considered as impacting the extent of the level of KRI public environmental awareness. The theoretical concept for the research was the environmental sociological theory developed by Buttel, which focused on two categories of the social phenomena on environmental concerns [24]. Environmental actions were considered to be either sub-structurally environmental which involved regular social practices or intentionally environmental which involved self-conscious environmental actions [25]. For this research, the view is that the proposed policy recommendations would begin as intentionally environmental but would transform into subs-structurally environmental when the behaviour and actions of the population and entities change as a result of the KRI environmental policies implemented.

Rationale for this Research

The rationale for the research was the identification of the relevant policy recommendations to enhance the public environmental awareness in the Kurdistan region. This is a critical outcome given the recognition of the weakness of current environmental policies and the need for increased public environmental awareness in the Kurdistan region [26]. The study has policy significance for Iraq overall and the Kurdistan region in particular. The results could also have policy implications and considerations across the wider Middle East region. While the main rationale relates to the secondary aim, this would not be possible without the successful execution of the primary aim of the research to understand the level of public environmental awareness and the factors that affect this level of awareness. The primary research conducted for this study was executed in the Kurdistan region in Iraq with the results of the survey forming the basis for the correlation of the factors with the extent of public environmental awareness, and the development of proposed policy recommendations. The details of the methodology for this study are discussed in greater detail in the next section on materials and methods.

Materials and Methods

Empirical Approach to the Research

The study undertook an empirical research approach with the use of the survey results as the data points for the analysis. Empirical research results from the use of empirical evidence [27]. In this study, the empirical evidence was formed from the responses provided by the primary research respondents to the survey conducted for the study. Empirical research can either be quantitative or qualitative in the approach taken to analyse the empirical evidence [28]. For this study, a quantitative research approach was taken with statistical analysis underpinning the evaluation of the extent of the level of public environmental awareness and the identification of the key factors influencing the level of awareness of the public in the Kurdistan region. In the statistical analysis, both descriptive statistics and linear regression were utilised in determining the outcomes of the research. In research, statistical analysis is used to not only analyse and examine the data but also interpret and form conclusions and insights [29]. With the use of statistical analysis to test the hypotheses in this study, the approach taken was that of a confirmatory data analysis with the testing of the hypothesis leading to the confirmation of data linkages referred to in the research [30].

Location of Research and Type of Investigation

The primary research was conducted through an online survey using the Survey Monkey application with the survey executed between 2nd and 9th August, 2017. The collection process for the online survey was extended for several days to follow up on incomplete responses received from the respondents. The primary research respondents were from the Kurdistan region with the survey executed for a sample of respondents that was designed to provide enough data points for an exploratory outcome even if the approach taken was of a confirmatory data analysis. This was an individual work that required the use of the survey to support the evaluation of the extent of public environmental awareness and the factors influencing the level of awareness. The survey was developed as a series of statements that related to environmental impacts and issues with the primary research respondents expected to indicate their level of awareness through the rating scale for the responses. The survey, as designed, is included in the appendix (see appendix 1). A Likert scale was utilised for the rating of the responses by the primary research respondents with the following as the extent of awareness defined by the scale:

Strongly Disagree

Disagree

Neutral

Agree

Strongly Agree

The hypotheses that were tested in this research were the following:

Hypothesis 1: Educational level does not have an impact on the extent of public environmental awareness in the Kurdistan region

Alternative hypothesis: Educational level has an impact on the extent of public environmental awareness in the Kurdistan region

Hypothesis 2: Economic situation does not have an impact on the extent of public environmental awareness in the Kurdistan region

Alternative hypothesis: Economic situation has an impact on the extent of public environmental awareness in the Kurdistan region

Hypothesis 3: Geographical location does not have an impact on the extent of public environmental awareness in the Kurdistan region

Alternative hypothesis: Geographical location has an impact on the extent of public environmental awareness in the Kurdistan region

Hypothesis 4: Ethnographic characteristic does not have an impact on the extent of public environmental awareness in the Kurdistan region

Alternative hypothesis: Ethnographic characteristic has an impact on the extent of public environmental awareness in the Kurdistan region

Hypothesis 5: Demographic characteristic does not have an impact on the extent of public environmental awareness in the Kurdistan region

Alternative hypothesis: Demographic characteristic has an impact on the extent of public environmental awareness in the Kurdistan region

A non-probability sampling approach was undertaken with the use specifically of convenience sampling. As this was an exploratory research on the extent of public environmental awareness of the people in Kurdistan, the use of the non-probability, convenience sampling technique was considered as acceptable for the research. The choice was made to ensure that a large number of primary research respondents would be included in the survey to provide a relevant level of respondents to the survey.

With the use of the convenience sampling technique, the results would not be considered as representative of the population of the Kurdistan region. Instead, the results provide an indication of the gap in the level of the public environmental awareness and the key factors that influence the awareness of the people in the Kurdistan region.

The researcher followed strict ethical research guidelines with the use of the principles of informed consent, voluntary participation, anonymity and confidentiality. The researcher provided an overview of the research to the primary research respondents to ensure that each had the proper information to make a decision on their participation. Each one had to voluntarily participate in the research for the respondents to take part in the survey. The researcher did not take specific identification from the respondents and did not attribute specific responses to the respondents to keep the respondents anonymous. The researcher also ensured confidentiality with the results of the research being shared only with key stakeholders to the research.

Statistical Tests for the Research

The statistical tests for the research to determine acceptance or rejection of the hypotheses used the t values from the linear regression models to confirm the impact of the factors on the level of public environmental awareness. For the statistical tests, 95% level of confidence was used with two-tailed hypotheses. The research utilised two steps in the evaluation of the data. The first step was in the determination of the level of public environmental awareness in the Kurdistan region. This was through descriptive statistics. The second step was in the evaluation of the factors and the statistical relevance of the factors in influencing the public environmental awareness of the population. This was through the t values of the linear regression models with the factors as independent variables and the level of public environmental awareness as the dependent variable. The use of these statistical approaches has been seen in similar evaluation of public awareness and factors influencing awareness.

In a research on the willingness of community residents to act on environmental awareness and address environmental issues, descriptive statistics were used to show the responses of the residents in Macau for the survey questions [31]. The research results highlighted the environmental issue that respondents were keen to focus on – solid waste management – and the other environmental issues that would be of lower priority – air pollution, water pollution and soil pollution [32]. In Lavergne et al [33], which assessed the level of awareness and concern by the Canadian population on environmental issues, descriptive statistics were used in representing the responses of the respondents in highlighting the environmental issues that the respondents were most concerned about. The results showed that the respondents were most concerned with use and disposal of toxic chemicals with other issues such as water quality and air quality as the next most critical environmental issues [34]. In the

evaluation of the impact of income on environmental awareness in different Italian regions, Bimonte & Stabile [35] utilised panel data regression model for the confirmation of the hypothesis. For this particular research, income was not a determinant and key factor in environmental awareness as the results did not show statistical differences in the level of awareness among Italian regions despite the disparity in income levels for the respondents [36]. These examples of academic studies show the use of the methods utilised in this research to analyse the data and present the findings.

Results and Discussion

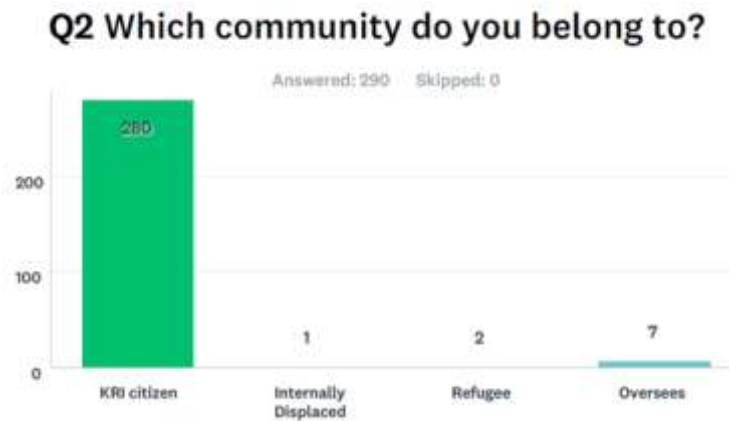
The online survey was filled in by 290 respondents from the Kurdistan region. The respondents had a significant skew of male respondents, which made up almost 80% of the total respondents (figure 1 for breakdown). 97% of the total respondents were citizens of the Kurdistan region with the remaining respondents being refugees, internally displaced people and foreigners (figure 2). In terms of the type of residence, 75% of the respondents had city dwellings with the remaining across district, sub-district, village, compound and other locations (figure 3). For the location of the residences, 75% were from Erbil and the remaining respondents were from Sulaymanyah, Duhok, Halabja and other locations (figure 4). For the economic status of the respondents, 30% were unemployed with the 70% being employed with variations in monthly income levels (figure 5). For the educational level achieved by the respondents, 70% had university and college degrees, 20% had masters' degrees and PhDs, and the remaining had up to preparatory and secondary schooling (figure 6). For the ages of the respondents, these were spread out with 38% from 26 to 35 years old, 33% from 14 to 25 years old, 22% from 35 to 44 years old, and the remaining respondents were in the 45 to 55 years old and older than 55 years old age groups (figure 7).

Figure 1 – Gender of Primary Research Respondents



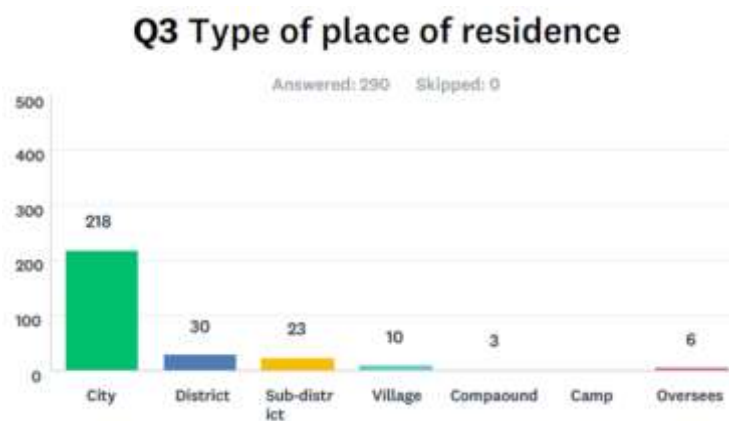
Source – Online Survey for the Research

Figure 2 – Community of Primary Research Respondents



Source – Online Survey for the Research

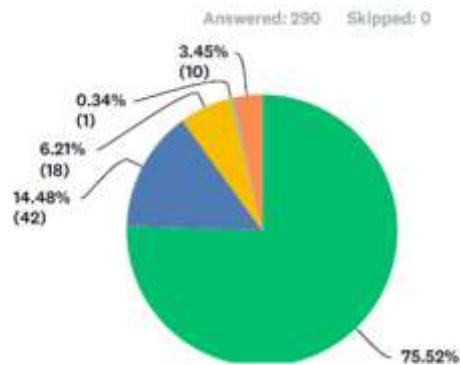
Figure 3 – Type of Residence of Primary Research Respondents



Source – Online Survey for the Research

Figure 4 – Location of Residence of Primary Research Respondents

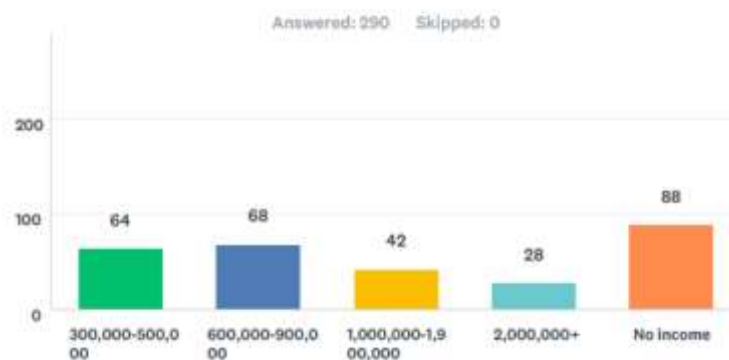
Q4 Place of residence/Governorate



Source – Online Survey for the Research

Figure 5 – Economic Status (Monthly Income) of Primary Research Respondents

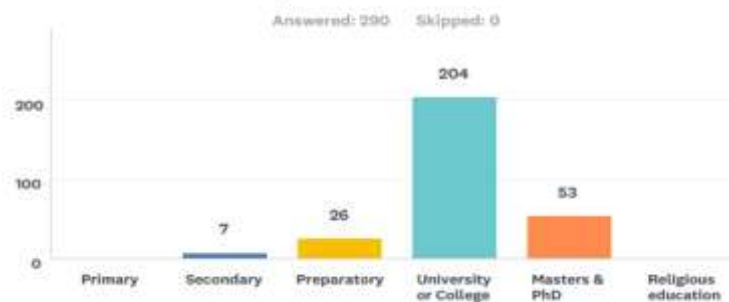
Q5 Monthly income in Iraq Dinars



Source – Online Survey for the Research

Figure 6 – Education Level of Primary Research Respondents

Q6 Education



Source – Online Survey for the Research

Figure 7 – Age Breakdown of Primary Research Respondents

Source – Online Survey for the Research

From the responses provided by the respondents, the results indicate a high level of awareness. Across most of the questions, the average ratings were more than a 4.0 average indicating that, on average, a respondent would have agreed with the statements thereby leading to a high level of awareness of the environmental issues. The average for all respondents across all of the statements on environmental issues and awareness was 4.21. The statements were designed such that agreement to the statements would indicate a good level of awareness. For the 16 statements on environmental issues, the range of the average of the ratings provided by the respondents was from a low of 3.59 to a high of 4.72. There were five statements that did not reach an average of 4.0 in the rating scale with these four statements as having the lowest average among the set of statements provided to the respondents. These statements are the following:

1. I recycle and encourage recycling by supporting products that have a recycling label in the packages (average = 3.59)
2. Industries are part of the problem with many companies being contributors to the pollution and environmental degradation (average = 3.62)
3. I am aware of the unfavourable impacts in the use of paper and take proactive actions to limit paper usage (average = 3.65)
4. I am aware of the unfavourable effects resulting from the use of consumption products such as deodorants, and other products leading to emissions impacting the Ozone (average = 3.72)
5. I participate in environmental initiatives designed to build awareness and push organisations and individuals into positive environmental actions (average = 3.97)

The fifth statement in this set is almost at 4.0 so it could be argued that the first four statements are the ones that indicate the possible lack of awareness of the respondents. However, the averages are still

above the neutral response (rating of '3'), and these statements are only four of the 16 statements in the online survey. From an overall perspective, the respondents have a high level of awareness of environmental issues in the Kurdistan region. Three of the statements above (statements 1, 3 and 4) relate to personal preferences and two of the statements above (statements 3 and 4) relate to personal use of products that have an impact on the environment.

Among the statements that provided the highest ratings overall, the following statements were considered by respondents as the statements that the respondents most agreed to:

1. I am aware of the negative environmental impacts of petroleum refineries in the Kurdistan Region (average = 4.57)
2. People are part of the problem with many individuals being contributors to the pollution and environmental degradation (average = 4.59)
3. I am aware that companies and individuals need to take positive action to help address the deterioration of the environment (average = 4.61)
4. I am aware that the Earth's environment will continue to deteriorate if no environmental measures are taken (average = 4.63)
5. I am aware that people's health are negatively affected by the environmental problems (average = 4.72)

These five statements received the highest ratings in terms of the environmental awareness of the respondents with the average from 4.57 to 4.72. The first statement is specific to the Kurdistan region and could be highly rated because of the experiences of the respondents with these petroleum refineries. The second statement is not specific to the Kurdistan region but the reference to the general population could be driven by news on how people have not been considerate in managing environmental pollution and degradation. The third to the fifth statements refer to the general awareness of people in relation to the actions needed and the impact of the environment on Earth and the health of people.

Given the generally high level of awareness overall from the Kurdistan population, an important consideration to review is whether differences in characteristics of the population have an influence on the level of awareness of the respondents. The hypotheses that were defined for this research form the views to be tested to assess whether there are differences among the different population groups based on educational level, economic situation, geographic location, ethnographic characteristic and

demographic characteristic. These are tested through the hypotheses with the use of the difference between means hypothesis test. A two-tailed test has been used in the hypothesis testing as the difference between means can have an extreme value on either side of the general average of the respondent population. A significance level of 0.05 was used in the hypothesis testing. The hypothesis statements have been defined in order to determine whether the difference between means identified among the respondent groups is significantly different from the hypothesized difference between means.

For the hypotheses testing, a comparison of the means for the various groups defined by the factors tested is used as the basis for the review. For the null hypothesis, the mean is expected to be zero indicating that the factor considered does not have an impact on environmental awareness. For the alternative hypothesis, the mean is not expected to be zero indicating that the factor does have an impact on the extent of public environmental awareness. The results of the testing of the hypothesis for the different factors are discussed further. The details from the statistical runs using the Data Analysis pack from Excel are presented in appendix 2. The key data points for each run are the t stat and the t critical two-tailed test. The null hypothesis is rejected if the t stat is greater than the t critical two-tailed test value and the null hypothesis is accepted if the t stat is lower than the t critical two-tailed test value.

Hypothesis Test on Educational Level

For this hypothesis focusing on the educational level of the respondents, the comparison is made between respondents with masters' degrees and PhDs with those having achieved secondary level of education. It was important to compare the values of the educational levels where there could be meaningful impacts and also the groups that had enough respondents. Note that the survey was not able to receive any responses from those who had attained up to primary level of education. The results from the statistical analysis show that the t stat value is 7.95 while the t critical value is 2.13. With the t stat greater than the t critical value, the null hypothesis is rejected and it is concluded with 95% confidence that the educational level of the respondents has an impact on the extent of public awareness of environmental issues. The group with the higher educational level had higher awareness than the group with the lower educational level achieved.

Hypothesis Test on Economic Situation

For the hypothesis on the economic situation, the statistical analysis is between the group with the highest income level and the group with no income. It is seen that the group with the highest income level has a higher level of public environmental awareness than the group with no income received at the moment. The statistical results for this hypothesis testing showed a t stat value of 3.00, which is greater than the t critical two-tailed test value. The outcome is that the null hypothesis is rejected and the conclusion, with 95% confidence level, is that the economic situation of the respondents has an impact on the public environmental awareness levels

Hypothesis Test on Geographical Location

For the hypothesis test on geographical location, the testing was conducted between the groups from those located overseas and from Duhok as these groups provided the extreme averages for the awareness level. The results of statistical testing provided a t stat value of 6.74, which is higher than the t critical value of 2.13 thereby supporting the rejection of the null hypothesis. This means that the geographical location of the respondents has an impact on the extent of public environmental awareness levels. As with the other results, this is presented with 95% confidence level.

Hypothesis Test on Ethnographic Characteristic

The hypothesis testing for ethnographic characteristic involved the group with the camp as the place of residence versus the group with overseas as the place of residence. The statistical result in the comparison of the means between these two groups is a t stat value of 12.02, which is higher than the t critical value of 2.13. This results in the rejection of the null hypothesis meaning that the ethnographic characteristic has an impact on the extent of level of public environmental awareness. The results have a 95% confidence level.

Hypothesis Test on Demographic Characteristic

For the demographic characteristic, the basis was the community that each respondent was a part of. The groups considered for the hypothesis testing were the group of Kurdish from overseas and the group of KRI citizens. Another grouping had a more extreme result but as this group, internally displaced people, only had one respondent and therefore one response in the online survey, this was not taken as the group for comparison for this hypothesis testing. For this factor, the t stat from the statistical analysis was 5.81, which is higher than the 2.13 t critical value. The outcome is the rejection of the null hypothesis with the conclusion, with 95% confidence, that demographic characteristic has an impact on the extent of public environmental awareness.

Open-Ended Questions

In addition to the statistical analysis from the closed-ended questions of the survey, the primary research respondents were asked to provide their thoughts on what factors would contribute to increasing public awareness on environmental issues. 43% of the respondents providing responses to the open-ended questions noted education as the primary method in which public awareness on environmental issues could be enhanced. 33% of the respondents noted that generally raising awareness would provide the opportunity to increase the awareness of the Kurdistan public on environmental issues. Media was also noted as a way in which the public awareness of environmental issues could be increased in the Kurdistan region.

The respondents were also asked for their perspectives on suggestions for the Kurdistan Regional Government to implement as policies to enhance public environmental awareness. The main suggestions of the respondents centred on implementing relevant general programmes on environmental awareness, instituting stricter regulations on environmental considerations, and improving educational programmes to environmental issues and impacts.

4.1 Conclusion

The research has concluded that the factors focused on in this study impact the extent of public environmental awareness levels. Specifically, it was identified that educational level, economic situation, geographical location, ethnographic characteristic and demographic characteristic all have an influence on the extent of environmental awareness of the Kurdistan public. This is the case even though there is an overall high level of environmental awareness that is shown by the Kurdistan public in general. The average rating coming out as 'good' for the awareness of the public of environmental issues is evidence of the general strength of public awareness. However, it should be noted that while there is a high level of environmental awareness of the public in Kurdistan, this is not a reflection that the environment in the Kurdistan region is in a good state. A rationale driving this research is the state of environment in the Kurdistan region, which is not as desired and expected. The results of this research indicates that it is not the public awareness level that is unduly impacting the environmental situation in Kurdistan as people are generally aware and have a good understanding of the environmental issues and the impact on the environment. This alludes to the situation that government environmental policies may not be effective and may not be strict enough to deter companies and individuals from taking unfavourable actions that affect the Kurdistan environment significantly.

Based on the results of this research, the general recommendation is for the government to review the environmental policies, and determine the extent of effectiveness of the government policies in

mitigating environmental impacts. In addition, from the survey outcomes, it is important for the Kurdistan government to continue to implement educational programmes in order to enhance the understanding of the impact on the environment for corporations rather than the increased educational programmes for individuals. The Kurdistan government should also push for increasing the concern and care of organisations and individuals to complement the awareness levels of environmental issues and impacts already existing in the Kurdistan region. These would be expected to have a positive impact in improving the environmental situation on Kurdistan.

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Appendixes

Appendix 1A: Survey Conducted for the Kurdistan Region (a screenshot of the first online page)



Appendix 1B: The word version of the survey

Public Environmental Awareness in the Kurdistan Region in Iraq: Factors and Policy Recommendations

Survey Design

1. Profile of Respondent

Gender

Male	Female

Age range

14-25	26-35	36-45	46-55	56+

Educational Level

Completed primary school	Completed secondary school	Completed preparatory school	Completed bachelor's degree	Completed postgraduate PhD/Masters

Economic Situation

300,000-500,000	600,000-900,000	1,000,000-1,900,000	2,000-above	No Income

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Geographical Location in Kurdistan Region in Iraq – Governorate

Duhok	Erbil	Sulaymaniya	Halabja	Overseas

Type of location

City	Town	Sub-district	Village	Oversees	Shelter camp

Community

Local resident	Refugee	Displaced people	Overseas

2. Awareness Level of Environmental Issues

I am aware of environmental issues such as air pollution, climate change, and waste management

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Global warming is a significant environmental issue facing the world

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

People are part of the problem with many individuals being contributors to the pollution and environmental degradation

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Industries are part of the problem with many companies being contributors to the pollution and environmental degradation

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

I am aware that companies and individuals need to take positive action to help address the deterioration of the environment

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

I am aware that people's health are negatively affected by the environmental problems

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

I am aware that Kurdistan's environment will continue to deteriorate if no environmental measures are taken

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

I am knowledgeable of the environmental issues and regularly inform other people about these

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

I participate in environmental initiatives in the Kurdistan Region that designed to build awareness and push organisations and individuals into positive environmental actions

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

I recycle and encourage recycling by supporting products that have a recycling label in the packages

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

I am aware of the unfavourable impacts in the use of paper and take proactive actions to limit paper usage

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

I am aware of the unfavourable effects resulting from the use of consumption products such as deodorants, and other products leading to emissions impacting the Ozone

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

I am aware of the need to separate waste types (paper, plastic, metal, glass) to achieve more recycling and to reduce the impact on human health and the environment with the removal of harmful elements of the waste

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

I am aware of the unfavourable impacts resulting from the use of plastic materials

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

I am aware of the negative impact of petroleum refineries on the Kurdistan environment

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

I have enough overall knowledge about the environment and the actions needed to ensure protection of the environment

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. Improving Environmental Awareness and Addressing Environmental Issues

Open-ended questions

- What factors contribute to increasing public awareness on environmental issues?
- What suggestions do you have for the Kurdistan Regional Government to implement as policies to enhance public environmental awareness?