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Environmental Awareness Among Secondary School Students in Mairang, Eastern West Khasi Hills District, Meghalaya

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Abstract: This study was done to analyse the degree of environmental awareness among the students studying in the secondary schools in Mairang of Eastern West Khasi Hills District, Meghalaya. In addition to this, this study was also done to identify whether there are any significant differences in environmental awareness of the students based on gender, school management and class level. Descriptive survey design has been used for this study. Stratified random sampling technique was used for the selection of the 280 secondary school students who have been studied in this research. The Environment Awareness Ability Measure (EAAM-J) test designed by Dr. Praveen Kumar Jha (2005) was used for data collection. The collected data were analysed with the help of percentage, mean, standard deviation and t-test. It has been found that most of the secondary school students had an average level of environmental awareness. No significant differences have been found in the environmental awareness of the students based on gender and school management. However, significant difference has been identified in the case of Class IX and Class X students in terms of their environmental awareness.

Keywords: *Environmental Awareness, Secondary School Students, Environmental Education, School Management, Gender, Class Level, Mairang, Meghalaya.*

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I. INTRODUCTION

The Environment means all the external stuff that affects living things, helping them grow, develop, and survive. As human societies progress, our surroundings change too because of what we do socially, economically, and technologically. We have different kinds of environments like physical, biological, abiotic, biotic, human, and social ones. People have always known how important the environment is. Way back in the time of Puranas, they'd teach students in quiet places in nature. They thought this helped kids learn better and grow up properly. Our environment is made up of lots of parts that all linked and change together over time. It includes both physical and social aspects, which shape our everyday lives, jobs, actions, and general health. Getting people to understand these links is key to boosting environmental awareness and pushing sustainable living (Sammaiah, 2012).

The Environment refers to the total surroundings in which living organisms live and interact with one another (Eugene P. Odum, 1971). It includes natural components such as air, water, soil, plants, animals, and climate, along with human-made features like building, roads, industries, and social systems (Erach Bharucha, 2005). All these elements function together to sustain life and maintain the natural balance that is essential for survival (Eugene P. Odum, 1971).

In the present time, the environment has been facing serious challenges due to human activities such as rapid industrialization, urban growth, deforestation, and various types of pollution (Erach Bharucha, 2005). These actions have led major environmental problems, including climate changes, loss of biodiversity, and the overuse of natural resources (Intergovernmental Panel on Climate Change,2014). Therefore, protecting and conserving the environment has become significant responsibility shared by people across the world (UNEP,2020).

- *Concept of Environmental Awareness*

Environmental Awareness shows how much people care about and act on environmental issues. It combines what folks think and do regarding earth problems. This awareness affects choices, likes, and how info on saving the planet is used. So, it shapes efforts towards conservation and sustainability in daily life too (Claudy et al., 2013).

Environmental awareness refers to the understandings and knowledge that people have about environmental issues and the need to protect natural resources (William B. stapp, 1969). It includes being informed about challenges such as

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pollution, climate change, deforestation, and the loss of wildlife, while also encouraging responsible attitudes and behaviours that support environmental protection (Ram Ahuja, 2011).

Today, environmental challenges have increased significantly due to factors such as industrial development, rapid urban growth, and population expansion (Erach Bharucha, 2005). These problems negatively influence human well-being, natural resources, and the stability of ecosystems (Eugene p. Odum, 1971). Therefore, promoting environmental awareness has become increasingly important, particularly among young learners who will play a key role in shaping the future (William B. Stapp, 1969).

Secondary school students are at important stage of developing knowledge, attitudes, and values (Jean Piaget, 1972). Educational institutions play a vital role in developing environmental awareness by including environmental topic in the curriculum and organizing activities such as tree plantation, waste management, and environmental campaigns. Through these efforts, students can develop a sense of responsibility and become active participants in protecting and conserving the environment in their daily lives (Joy A. Palmer, 1998).

➢ *Definition*

According to Mahanta and Sarkar (2025) Environmental awareness refers to the level of knowledge and understanding people have about the environment, as well as the values and attitudes that support efforts to protect and improve the natural environment.

According to Ram Ahuja (2016) Defined environmental awareness as the understanding of environmental problems and the development of attitudes and behaviours, necessary for the protection and improvement of the environment.

According to K.K. Aggarwal (2017) Environmental awareness refers to knowledge about environmental concepts, issues, and conservation practices that help individuals participate in environmental protection.

➢ *Importance of Environmental Awareness*

Environmental awareness is important because it helps people understand the impact of human activities on the natural environment and the need to protect it. It increases knowledge about environmental problems such as pollution, climate change, deforestation, and biodiversity loss, and encourages individuals to adopt responsible and eco-friendly behaviours. Through environmental awareness, people learn the importance of conserving natural resources and maintaining ecological balance for sustainable development. It is especially important for the students, as awareness at an early stage helps develop positive values, attitudes, and habits toward environmental protection. Moreover, environmental awareness motivates individuals and communities to participate in environmental conservation programs and activities (UNESCO, 2021; United Nations Environment Programme, 2022; Intergovernmental panel on climate change, 2023).

- Helps people understand environmental issues and their effects (UNESCO,2021).
- Encourages conservation and proper use of natural resources (UNEP,2022).
- Promotes sustainable development for present and future generations (UNESCO, 2021).
- Develops responsible attitudes and eco-friendly behaviour among students (UNEP, 2022).
- Encourages participation in environmental protection activities (UNESCO,2021).
- Strengthens community involvement in maintaining a healthy environment (UNEP, 2022).

➢ *Role of Education in Environmental Awareness*

Education is one of the most important tools for developing environmental awareness among people. Environmental awareness refers to understanding the value of the environment and recognizing how human actions influence nature. Through education, students learn about environmental challenges and develop a sense of responsibility to protect natural resources for both present and future generations (UNESCO, 2021; UNEP, 2022).

According to UNESCO (2023), environmental education helps individuals understand the relationship between humans and the environment and encourages active participation in solving environmental problems. Schools and other educational institutions play a major role because they introduce environmental concepts to learners from the early stages of education. Education helps students gain knowledge about environmental issues such as air and water pollution, climate change, deforestation, and biodiversity conservation (UNESCO,2021; UNEP, 2022).

Another important role of education is developing positive attitudes toward nature. Through activities such as tree plantation programs, cleanliness campaigns, and environmental projects, students learn to respect the environment and realize their responsibility in conserving it. Education also develops practical skills for addressing environmental problems. Students can adopt practical environmental habits such as reducing waste, reusing materials, and recycling resources, which help decrease environmental damage and support sustainable living (UNESCO, 2021; UNEP, 2022). Environmental education also encourages responsible behaviour, including conserving water and energy, reducing plastic use, and raising awareness within families and communities, allowing environmental knowledge to benefit society beyond the classroom (UNESCO, 2021; UNEP, 2022).

➢ *Importance for Secondary School Students*

Environmental awareness is extremely crucial for secondary school students because this phase of learning impacts their knowledge, attitude, and behaviours for the future. In the secondary stage, students can gain an enhanced understanding of the environmental problems and consider the consequences on society and nature. The process of educating young people about the environment and its protection fosters sustainable behaviours. Learning about the

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environment includes gaining information about pollution, climate change, deforestation, loss of biodiversity, and so forth. This inclusion of such concepts into subjects become aware of human impact on the environment. As pointed out by UNESCO (2023), education for sustainable development contributes to developing the required skills and knowledge that are necessary for environmental protection and improvement in quality of life. The process of learning about environmental protection promotes the development of attitudes towards the environment among secondary school students. Participation in eco clubs, planting trees, and cleanliness campaigns helps students understand the importance of protecting nature.

Additionally, environmental awareness is important in improving student ability to make decisions. Environmental awareness enables students to be more considerate when using water, conserving energy, avoiding wastage, and engaging in activities that can affect the environment.

➢ *Need and Justification of the Study*

Today, environmental issues like pollution, climate changes, deforestation, and improper waste disposal have increased on a daily basis. Most of the problems are mainly caused by human ignorance regarding their environmental impact. It is therefore necessary to create environmental awareness among learners and know how knowledgeable the students are about environmental conservation.

At secondary school level, students are still in their learning stages and hence, research is important since the level of environmental consciousness among learners should be known. It is important to conduct the study since schools play an important role in the creation of environmental consciousness among students. Environmental conservation education is learned through classroom instructions and school activities. According to UNESCO (2023), education promotes learners' environmental awareness. It is also necessary to conduct the study because learners may vary in terms of environmental awareness depending on different factors such as educational background or environmental programs. This will help teachers and schools to enhance environmental consciousness education.

An additional reason for conducting the study is that students can influence other members of the society once they become environmentally aware.

➢ *Statement of the Problem*

The problem of the present study can be formally stated as "Environmental Awareness among secondary school student in Mairang, Eastern west Khasi Hills District, Meghalaya."

➢ *Objectives of the Study*

- To find out the level of Environmental Awareness among secondary school students.
- To find out the significant difference in Environmental Awareness among secondary school students based on gender.
- To find out the significant difference in Environmental Awareness among secondary school students based on school management.
- To find out the significant difference in Environmental Awareness among secondary school students based on Class.

➢ *Operational Definition*

- *Environmental Awareness*

Environmental awareness refers to the extent of knowledge, attitudes, and practices related to environmental protection among students.

- *Secondary School Students*

Secondary school students refer to students studying in classes IX and X in selected secondary school of Mairang.

➢ *Hypothesis of the Study*

- H_{01}: There is no significant difference in environmental awareness between male and female secondary school students in Mairang
- H02: There is no significant difference in environmental awareness between male and female secondary school students in Mairang
- H03: There is no significant difference in environmental awareness between class IX and class X secondary school students in Mairang.

➢ *Delimitation of the Study*

The study is limited to selected secondary school students in Mairang.

II. REVIEW OF RELATED LITERATURE

The literature review plays a crucial role in any research process since it allows the researcher to comprehend the previous efforts and findings made by other researchers on the same subject matter. In this chapter, the researcher collects and studies information from books, journals, research papers, reports, and other academic sources related to the research problem. By reviewing earlier studies, the researcher gains clear knowledge about the concepts, methods, and findings connected with the topic. The main purpose of the review of related literature is to provide a background for the present study. It helps the researcher know about the topic has developed over time and what conclusions have already been made by different researchers. It also helps to avoid repeating the same work and instead focus on new or less studied areas.

In the present research on environmental awareness among secondary school students, the review of related literature focuses on understanding the concept of environment and environmental awareness, the importance of environmental education, and earlier studied conducted among school students.

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- *Studies on Environmental Awareness Among Students Conducted Abroad*

Lopez & Palacios (2024) conducted a study on the effects of a project-based learning methodology on environmental awareness of secondary school students in Spanish. The study aimed to examine the effectiveness of Project-Based Learning (PBL) in improving environmental awareness among secondary school students. The sample was conducted with a group of secondary school students in a Spanish educational setting. A mixed-method approach was applied using a single-group pretest-post-test design. The findings showed a statistically significant improvement in students' environmental awareness after the implementation of the Project-Based Learning approach.

Acibuca & Kaya (2024) conducted a study on the environmental awareness and attitudes of university students. The study aimed to investigate into the degree of environmental awareness and knowledge as well as the perception of university students regarding environmental issues and sustainability. A total of 403 university students from various provinces of Turkey with an average age of around 22 participated in the study. Interview were conducted to acquire data on student perceptions of environmental problems, sources of environmental information, and opinions about environmental education. Many of the participants perceived environmental problems and had knowledge about natural resources consumption. Results revealed a high level of interest in training programs related to the environment. This indicates that education can help increases environmental awareness.

Panzo, Gois & Mendes (2022) conducted a study on the environmental awareness on solid waste management practices: a case study in Angolan secondary schools. The study aims to evaluate the environmental awareness among secondary-school students in Angola and to examine the environmental education programs implemented in the two curricular cycles. The research sample was conducted with students from secondary schools located in the four largest provinces of Angola. The investigation used a case-study approach, gathering quantitative data from student questionnaires and qualitative insights from interviews with school and waste-management officials to analyse environmental awareness and education practices. The results indicate that students exhibit moderate electricity and water consumption habits, with 40% displaying appropriate environmental attitudes. However, there is a knowledge gap regarding the health effects of solid-waste disposal in urban dumpsites, especially among children and adolescents living nearby.

Osunji (2021) investigated the relationship between consciousness about environmental education concepts in secondary school chemistry curriculum and attitude of students toward environment. The objective of the study was to examine how awareness of environmental-education concepts in the secondary school relates to the attitudes of chemistry students toward the environment in Kwara state. The sample consisted of 400 senior secondary science students selected from 16 senior secondary schools, using a combination of simple random sampling and stratified proportionate sampling. The method employed a descriptive survey design. Data collected were analysed with mean, standard deviation, one-way ANOVA, and Pearson product-moment correlation. The findings showed that students' environmental consciousness significantly influences their attitude toward the environment, and that persistent environmental attitudes are rooted in sufficiently knowledge of environmental cause and effects.

Zachariou, Voulgari, Tsami, Bersimis (2019) conducted a study on exploring the attitudes of secondary education students on environmental education in relation to their perceptions on environmental problems: The case of the prefecture of Viotia. The study aimed to examine secondary school students' attitudes toward environmental issues and environmental education. The research sample was conducted with 1,059 secondary school students from the Viotia prefecture in Greece, an industrialised and socially diverse region. Data were gathered using a survey method. The results showed that students' perceptions of environmental education were significantly associated with their level of awareness of environmental issues. It was also found that students who had greater awareness of environmental problems were more willing to take in environmental education activities. The findings suggest useful implications for improving and planning environmental education policies.

Ali (2015) conducted a study on the influence of school location on environmental awareness level among secondary school students in Terengganu, Malaysia. The objective of the study was to examine how the location of a school influences environmental awareness among secondary school students. The sample selected 590 secondary-school students from six schools in Terengganu district through random sampling. The researcher used descriptive statistics and an independent sample t-test to analyse the data and assess the influence of school location on environmental awareness. The finding revealed that secondary school students in Terengganu exhibit a low level of environmental awareness, and the school's location has no significant effect on their environmental awareness level.

Rasak, Kamarudin, Toriman, Wahab & Saad (2014) conducted a study on the relationship between knowledge and attitudes towards environmental education among secondary school students in Malaysia. The study aims to assess the influence of environmental education programs incorporated in the Malaysian school curriculum and to examine how these programs affect students' understanding and behaviour regarding environmental protection. The research sample was conducted using secondary students from schools in Malaysia, comprising science stream and non-science stream students. Statistical analysis method was employed in assessing the state of environmental education in the curriculum as well as the effect of exposure to environmental information in increasing the student awareness and attitudes towards environmental matters. The finding indicated that environmental education enhances the environmental

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awareness of the students; however, it is unable to influence their attitudes towards environmental conservation.

Ali, Endut, and Embong (2017) conducted a study on the environmental awareness of secondary school students in Kano State, Nigeria. The purpose of the study was to measure the level of environmental awareness among students and to identify whether factors such as ethnic background, type of school, and school location affected their awareness. A sample of 1,200 senior secondary students was chosen through simple random sampling. The data collected data were analysed using descriptive and inferential statistical techniques, including mean, standard deviation, and one-way ANOVA. The results revealed that the students' overall environmental awareness was at low level. It was found that environmental awareness differed significantly based on ethnic background, school type, and location.

Hashemzadeh (2016) conducted a study on the environmental awareness, attitudes, and behaviour of secondary school students and teachers in Tehran, Iran. The study aimed to explore the present situation of environmental education in Iranian secondary schools by examining students' and teachers' perspectives. The sample participants included 337 ninth-grade students and 12 secondary school teachers from six schools in Tehran. Data were collected through questionnaires, individual interviews, and focus group discussions, and analysed using SPSS and NVivo software. The findings showed that the students had a fairly good understanding of environmental issues, especially local problems that affect their daily lives, such as air pollution.

Altin, Tecer & Kahraman (2014) conducted a study on the environmental awareness level of secondary school students in Bal1kesir, Turkey. The objective of the study was to examine students' awareness of environmental issues and their participation in environmental activities. The study also aimed to find out how factors such as family, school, and media influence environmental awareness. The study was carried out using the survey method. The sample consisted of senior secondary school students selected from three schools with different socio-economic and demographic backgrounds, including students from six classes. The result revealed that the students had a high level of environmental awareness. It was also found out that the family, school, and media play an important role in developing environmental awareness among secondary school students.

Aminrad, Zakariya, Hadi & Sakari (2013) conducted a study on the relationship between awareness, knowledge and attitudes towards environmental education among secondary school students in Malaysia. The study aimed to examine the relationship between environmental awareness, environmental knowledge, and attitudes among secondary school students. The sample included 470 form four students (around 16 years old) from secondary school in Kajang, Selangor. A survey approach was used, and data were collected through a questionnaire consisting of 48 items. Pearson analysis was applied to study the relationships among the variables. The findings indicated a significant but weak relationship between environmental awareness and knowledge, while a stronger relationship was found between environmental awareness and students' attitudes toward environmental issues.

Hassan, Noordin & Sulaiman (2010) carried out the status on the level of environmental awareness in the concept of sustainable development among secondary school students in the sub urban area in the district of Hulu Langat Selangor, Malaysia. The study sought to evaluate the extent of environmental awareness regarding sustainable development among secondary school students and differences with regard to gender, academic stream, and school location. A sample of 340 form four and form five students from urban and suburban schools in the Hulu Langat district were selected for the study. The study used a survey method with a Likert-scale questionnaire. Data were analysed using descriptive statistics, t-test, and Pearson correlation through SPSS. The results showed that the students had a high level of environmental awareness. Significant differences were found in favour of female students, science stream students, and urban school students. A weak positive relationship was also observed between environmental awareness and sustainability-related attitudes, values, and practices.

Said, Yahaya & Ahmadun (2007) conducted a study on the environmental comprehension and participation of Malaysian secondary school students. The goal of the research was to examine secondary school students' environmental comprehension, awareness, knowledge, and their participation in sustainable consumption habits. The investigation used a self-administered questionnaire with 306 secondary students randomly chosen from four schools in Johor, Malaysia. The method used in the study was an empirical, exploratory, descriptive, survey employing a self-administered questionnaire. The study revealed that students were aware of environmental issues but only moderately concerned; few could define environment relationally. Adoption of sustainable consumption principles was limited, and nature-based experiences were rare. Environmental education increased consciousness but did not substantially change behaviour or daily practices.

- *Studies on Environmental Awareness Among Students Conducted in India*

Pribaka & Lenka (2025) conducted a study on the environmental awareness among secondary school tribal students of Rayagada District, Odisha. The study aimed to examine the level of environmental awareness among tribal students studying at the secondary level in this district. A descriptive survey research design was adopted for the study. The respondents included 100 students chosen randomly from ten government secondary schools. Based on the results obtained, it can be noted that 73% of the students exhibited moderate environmental awareness, 15% of the students exhibited high environmental awareness, while 12% of the students displayed low environmental awareness. The results shows that there is a need for improvement of the environmental education program, especially in rural and tribal religions.

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Das, Hasan & Baidya (2025) conducted research on environment consciousness of secondary school students of Uttar Dinajpur district, West Bengal. The objective of the research was to study whether there is any difference in environment consciousness of students based on their gender, religion, caste, and profession of their father. For data collection survey method was used. The sample consisted of 150 students of class IX and X enrolled in government secondary schools of the district. To analyse the data, statistical techniques such as the t-test and ANOVA were applied to determine differences among the selected demographic variables. The findings revealed that there was no significant difference in environmental awareness among secondary school students with respect to gender, religion, and caste.

Dutta (2024) conducted a study on environmental awareness among elementary school level students in Padum Pare district of Arunachal Pradesh. The study aimed to examine the level of environmental awareness among elementary school students in Padum Pare district of Arunachal Pradesh. Moreover, it aimed at establishing if there is any disparity in terms of environmental awareness among individuals due to gender, place and type of institution administration. The study subjects comprised of 200 students from class VIII with equal number of boys and girls. These students were randomly selected from elementary schools in Padum Pare district. A survey method was used for the study. Statistical approaches like mean were used to analyse data in order to establish any disparity between subjects in relation to gender, place and type of institution administration. The findings revealed that students in general had average levels of environmental awareness with a mean score of 68.04. there was no notable disparity between boys and girls in terms of environmental awareness. On the other hand, there were disparities in terms of student environmental awareness from urban and rural areas as well as from public and private institutions.

Pradhan & Panda (2024) study was based on the level of environmental awareness of students enrolled in elementary schools. The aim of this study was to assess the environmental awareness of elementary school students. For this study, a total of 120 students for class VIII belonging to different schools situated within the Jharsuguda Sadar Block were taken as respondents. Students belonging to rural and urban areas were included in this study. Descriptive survey method was adopted to carry out the study. Percentages and t-test techniques were employed for analysing data. The results obtained through the study show that 48.33% students from rural areas had an average or lower level of environmental awareness. However, almost 66.7% of urban eighth-grade students exhibited an average level of environmental awareness. A comparison of the two groups indicated that the level of environmental awareness is statistically different amongst rural and urban eighth-grade students.

Wetsah & Khieya (2022) An analysis of the level of environmental awareness among secondary school students of the Chakhesang tribe in Phek district, Nagaland. The study was conducted to examine the level of environmental awareness among secondary school students of the Chakhesang tribe in Phek district, Nagaland. A sample size of 1,000 secondary school students was used for the study. Descriptive and qualitative designs were used to conduct study. It was found out that students had very high levels of environmental awareness concerning environmental degradation as well as the consequences like deforestation, shifting cultivation, and health problems. Also, high levels of environmental awareness on air pollution, and diseases related to climate change were identified. The knowledge of noise pollution was observed to be moderately high. Moreover, only few students knew how to dispose of waste appropriately.

Bashir, Umar, Bashir, Kuchey & Bhat (2022) conducted a study of Environmental Awareness, Attitude and participation among secondary school students of district Kulgam. The purpose of this study was to evaluate the levels of environmental awareness, attitude, and participation in environmental activities among secondary school students of district Kulgam, considering differe3nces based on school types and gender. The sampling technique used in this study involved selecting 200 students of secondary schools from six private schools and six government schools located in the vicinity of district Kulgam. The researcher design used in this study involved conducting a survey using a questionnaire prepared by the researcher. Data obtained from this survey shows that there is gender variation in environmental awareness and attitude among male and female students.

Gummadi, Latha & Rao (2020) conducted a research study that examine the degree of environmental awareness among secondary school students in Guntur district. The objective of the study was to examine the level of environmental awareness among secondary school students and the extent to which this concept helps in solving environmental issues through education. In the process, a sample size of 240 secondary school students was chosen randomly from six different schools in Guntur district of Andra Pradesh. The normative survey approach was adopted for this study. Analysis of the data collected was done using descriptive statistics such as mean, standard deviation, and significant tests. Results showed that there is no significantly high environmental awareness levels, and differences in the levels were found with regard to gender and place.

Saranya & Suthakar (2018) A research was carried out by Saranya & Suthakar (2018) on awareness regarding environment among undergraduate students at college level in Vellore district. This research was carried out in order to analyse awareness levels and differences amongst undergraduate college students in Vellore district. The sample consisted of 296 undergraduate students who were randomly selected from various colleges located in Vellore district. A survey research design was used for investigation. The collected data were analysed at the 0.05 and 0.01 levels of significance. The results indicated that male students showed slightly higher environmental awareness compared to female students. Students studying in English-medium institutions. Science group students obtained higher mean scores than arts

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group students. In addition, students from urban areas displayed better environmental awareness than students from rural areas.

Bhat (2017) conducted a study of environmental awareness among secondary school students in relation to caste, class of study in Anantnag district. The study aimed to examine the environmental awareness of secondary school students and to determine whether caste and class level have any influence on their environmental awareness. A sample study included 150 secondary school students selected from 18 high school in Anantnag district. The collected data were analysed using statistical techniques such as the t-test and ANOVA. The results showed that both caste and class of study had a significant effect on the environmental awareness of secondary school students at the 0.05 level of significance.

Dhanya & Pankajam (2017) carried out a study on environmental awareness among secondary school students. The main objective of the study was to assess the level of environmental awareness among secondary school students in Coimbatore district, Tamil Nadu. The researchers used the survey method for the investigation. A sample of 300 secondary school students was selected from six government and private schools located in and around Coimbatore district, Tamil Nadu. The students were chosen through a simple random sampling technique. The results of the study indicated that there was no significant difference in the level of environmental awareness among the secondary school students.

Sindhu & Singh (2014) carried a study of awareness towards environmental education among the students at secondary level in Gurgaon district. In this research, the objective is to determine how much the students are aware of environmental education and the attitudes they hold toward sustainable living, and thereby help create enlightened citizens to initiate social, economic, and political processes for improving the environmental status. A sample study is conducted in which a number of students are assessed in order to find out the extent of environmental awareness of those students. This assessment will help understand the degree of awareness the students have about environmental problems and the environmental education process in general. It has been found that most of the environmental problems are the result of ignorance of and mismanagement of the resources.

Singh (2011) conducted a study on environmental awareness among secondary school students in India. The main objective of the study was to examine the purpose of environmental education in school, which is to acquaint and sensitize students to environmental problems and concerns, and to inculcate healthy personal and social attitudes and behaviours toward the environment. For the purpose of the study, a sample of 109 students was selected randomly from four schools-two schools affiliated with the Central Board of Secondary Education and two schools affiliated with the Board of High School and Intermediate Education Uttar Pradesh. Out of the total sample, 50 were female students and 59 were male students. The results of the study revealed that there was no significant difference in the level of environmental awareness between male and female students belonging to General, Other Backward Classes (OBC), and Scheduled Castes (SC).

Mondal & Mete (2010) conducted a study on a comparative study of environmental awareness among secondary school students in relation to gender and residential background. The study aims to assess the level of environmental awareness among secondary school students living in rural and urban areas. The sample consists of 1000 secondary school students from West Bengal. A self-constructed situation-based questionnaire was administered to collect data, and the data were analysed using statistical techniques such as two-way ANOVA and t-test. The results show that urban boys exhibit greater environmental awareness compared with rural boys, whereas no significant difference in environmental awareness is observed between boys and girls.

- *Studies on Environmental Awareness Among Students Conducted in North- East, India*

Rajkhowa (2025) conducted a study on the environmental awareness among students in the Sivasagar district of Assam. The aim of the research is to investigate how people perceive and feel about environmental issues, with the goal of identifying ways to improve responsible environmental behaviour and attitudes, especially concerning less obvious problems like biodiversity loss. The study focused generally on students as the learners who gain environmental knowledge through educational institutions. The research involved an analytic and descriptive methodology, whereby the research sought to assess how schools promote environmental education using interdisciplinary techniques, practical education, and value-based education. According to research results, environmental education allows students to comprehend environmental problems. In addition, the research found out that incorporating environmental education at an early age could produce environmentally conscious citizens.

Sahidullah (2021) A study on Environmental Awareness among High School Students. The objective of the study was to assess the extent of environmental awareness among high school students and to find out whether there were any significant differences between male and female students as well as between students attending schools in Assamese medium and those attending English medium schools. 160 high school students from the Majuli district of Assam were selected randomly as participants in the study. Descriptive research design was used by the researcher. The collected data were analysed by using statistical measures like mean, standard deviation, and t-test. It was found that environmental awareness of high school students was above average. Significant differences were found between male and female students where male students had comparatively higher levels of environmental awareness. Another difference found was the students studying in Assamese medium schools had a higher degree of environmental awareness than students studying in English schools.

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Tariang & Kharbirymbai (2018) A study investigated the environmental awareness of higher secondary school students in NEHU, Shillong. This study was carried out with with an aim of assessing the degree of environmental awareness among higher secondary school students and investigating whether there is any difference in terms of awareness levels according to gender and type of area they live in. The study was carried out among a sample of 973 higher secondary students in the district of East, Khasi Hills, Meghalaya. Data was collected using the survey method. Findings of the study revealed that a majority of students (81.8%) had high environmental awareness.

Ghosh (2014) The study undertaken was analyse of environmental awareness among secondary school students of Golaghat district of Assam and attitude toward environmental education. The aim of this study is to find out the extent of environmental awareness and the attitude toward environmental education among secondary school students of Golaghat district of Assam. The participants involved in this study included 200 secondary school students of Golaghat district; 100 boys and 100 girls. The methodology used for conducting the research is descriptive survey technique, collected for analysis. The results of the study were statistically analysed using z-test and Karl Pearson's coefficient of correlation.

➢ *Research Gaps*

The review of the literature reveals that many studies have been carried out on the subject of environmental awareness among students in various countries, states, and regions of India. Various variables including gender, school management, locality, caste, and class level have been studied by previous researchers regarding environmental awareness. But the conclusions of these researchers are not consistent in view of the fact that sometimes significant differences were found among groups and sometimes no significant differences were found among them.

Though few studies have been done in North East, still there is very little amount of research done specially in the secondary schools of Mairang in Meghalaya, Eastern West Khasi Hills district of India. To be more specific no recent study could be located which had studied the subject of environmental awareness of secondary school students in Mairang according to gender, school management, and class level.

Therefore, there is a need for research on environmental awareness among secondary school students of Mairang in order to ascertain levels and also find out if there are any significant differences among the students due to gender, school management, and class levels.

III. METHODOLOGY

The methodology part of a research paper describes the scientific method utilized during the research process as well as for achievement of its objectives. It describes the process in a clear manner indicating the steps taken and processes followed in gathering and analysing data thereby making the study both reliable and valid. The section entails the discussion on the research design employed, the sample or population selected for data collection, data collection procedures such as surveys, interviews or experiments, and finally the analysis techniques employed. This part explains the choice of the method based on its applicability to the research objectives. Besides, it makes replication of the study easier since the process is clearly described by the author. All in all, it forms the basis of any scientific study.

➢ *Resarch Design*

The research design can be defined as the overall scheme of conducting research work that determines the procedures of doing research work. It defines what the researcher wishes to find out, the importance of the study, how the data are going to be gathered, and how it is analysed. In others words, it refers to an overall framework that enables the researcher to do his/her research in a systematic and planned manner. A good research design enables the researcher to save time and eliminate any sort of confusion and makes sure that the results are reliable.

➢ *Population of the Study*

The population of the study refers to the complete group of individuals, objects, or elements that a researcher wants to investigate. It includes all members that share certain characteristics related to the research problem. According to C.R Kothari, population means "the entire set of cases or elements about which the researcher wishes to make generalisations".

The population of the present study consists of all Secondary Schools in Mairang seven schools and the total number of students in these Schools are 1043.

Table 1 Population of the Study

Sl. no	Type	Class IX		Class X		Total
		Male	Female	Male	Female	
1	Govt.Aided	188	273	147	224	801
2	Private	55	75	32	49	211
		243	348	179	273	1043

Source: Official Records from Concerned School

➢ *Sample of the Study*

The Researcher used Stratified Random Sampling Technique for the present study. The sample of the study consisted of 280 Secondary School Students from Government Aided and Private schools in Mairang. The detailed distribution of the sample is shown in Table 2.

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Table 2 Sample of the Study

Sl.no	Type	Class IX		Class X		Total
		Male	Female	Male	Female	
1	Govt.Aided	49	71	38	58	216
2	Private	17	21	11	15	64
						280

➢ *Determination of Sample Size:*

Using the Krejcie and Morgan's (1970) formula, the sample size for a population of 1043 is:

$$S = \frac{\chi^2 N \times P(1-P)}{d^2(N-1) + \chi^2 \times P(1-P)}$$

$$= \frac{3.841 \times 1043 \times 0.5\,(1-0.5)}{0.05^2 \times (1043-1) + 3.841 \times 0.5(1-0.5)}$$

$$= \frac{3.841 \times 1043 \times 0.25}{0.0025 \times 1042 + 3.841 \times 0.25}$$

$$= \frac{3.841 \times 260.75}{2.605 + 0.96025}$$

$$= \frac{1001.54075}{3.56525}$$

$$= 280$$

Where,

- S = Required sample size
- N = Population size (here, 1043)
- □ = Chi- square value for 1 degree of freedom at 0.05 level of significance = 3.841
- P = Population proportion (assumed to be 0.5 for maximum sample size)
- D = Degree of accuracy (the margin of error, expressed as a proportion = 0.05)

➢ *Tool Used for Data Collection*

For the present study, the standardized tool Environment Awareness Ability Measure (EAAM-J) constructed and standardized by Dr. Praveen Kumar Jha (2005) was used. Dr. Praveen Kumar Jha was a Professor in the P.G. Department of Psychology, T.P. College, Madhipura, B.N. Mandal University, Madhipura, Bihar. The tool was published by National Psychological Corporation, Agra.

- *Description of the Tool*

The final form of the Environment Awareness Ability Measure consists of 51 items (43 positively worded and 08 negatively worded. The Environmental Awareness ability scale was based on the following dimensions of environment as a whole:

✓ Causes of pollution,
✓ Conservation of soil, forest, air, etc.,
✓ Energy conservation,
✓ Conservation of human health,
✓ Conservation of wild-life and animal husbandry.

- *Scoring*

The revised form of EAAM-J used a three-point scale. The scoring is as follows:

Table 3 Revised Scoring System

Sr. No.	Type of Items	Agree	Undecided	Disagree
1	Positive Items	2	1	0
2	Negative Items	0	1	2

➢ *Range of Possible Score*

The range of possible minimum and maximum score is 00 to 102.

- *Reliability of the Tool*

Three indices of reliability were determined. Split-half reliability was found 0.61; secondary it was calculated by K-R method and was found 0.84 and thirdly, it was determined by test-retest method. Two test-retest reliabilities were determined; one after an interval of three months and other of 6 months and the values were found 0.74 and 0.71 respectively. Thus, the EAAM bears an adequate degree of reliability. Reliabilities are shown in the following table:

Table 4 Reliability

K-R Method	Test-retest Method		Split-half Method
N= 100	Time gap of 3 months N= 50	Time gap of 6 months N= 50	N= 50
0.84*	0.74*	0.71*	0.61*

*Significant at 0.01 level of Significance.

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- *Validity*

To determine validity of the Environment Awareness Ability Measure Coefficients of Correlation between the scores of the present scale and Environment Awareness Scale of Tarniji was computed. The coefficient of correlation was found to be 0.83. The scale also possesses face and content validity since each item was judged by experts.

- *Norms*

Norms for Interpretation of the level of Environment Awareness have been presented in Table 5.

Table 5 Norms for Interpretation of Level of Environment Awareness Ability

Sr. NO.	Raw Score Range	z-Score Range	Grade	Level
1	99& Above	+2.01 & above	A	Extremely High
2	87 to 98	+1.26 to 2.00	B	High
3	75 to 86	+0.51 to +1.25	C	Above Average
4	59 to 74	-0.50 to +0.50	D	Average/Moderate
5	47 to 58	-1.25 to -0.51	E	Below Average
6	35 to 46	-2.00 to -1.26	F	Low
7	34& below	-2.01& Below	G	Extremely Low

➢ *Procedure for Data Collection*

- The researcher selected the secondary schools in Mairang for the study.
- Permission was taken from the school authorities before collecting the data.
- The purpose of the study was explained to the teachers and students.
- The questionnaire was given to Class IX and Class X.
- Simple instructions were given to help students answer the questions directly.
- Students were asked to answer honestly and by themselves.
- After completing the questionnaire, all the papers were collected by the researcher.
- The students' responses were scored according to the scoring key of the questionnaire to measure their level of Environmental Awareness.

➢ *Procedure of Data Analysis or Statistical Techniques Used*

- Percentage: Percentage in research refers to the use of numbers of proportions to compare the result.
- Mean: Mean is a commonly used measure of central tendency that represents the average value of a set of data. It is calculated by adding all the values together and then dividing the total number of observations.
- Standard Deviation: Standard deviation is a measure of dispersion that shows how much the values in a data set differ from the mean. It indicated how spread out the data and is calculated as the square root of the variance of the sample from which the data are drawn.
- t-test: A t-test is an inferential statistical method used to examine whether there is a significant difference between the means of two groups and to understand their relationship.

IV. ANALYSIS AND INTERPRETATION

Analysis and interpretation are important parts of research that help in understanding the data collected from respondents. Analysis means organising and examining the data, while interpretation means explaining the meaning of the results. The collected data were analysed using statistical techniques such as range, score, frequency, percentage, mean rank. These methods were used to organise and interpret the data clearly, in line with the objectives of the study and to test the stated hypothesis. The finding has been interpretated based on each research objectives are as follows:

➢ *Variable-Wise Frequency Distribution*

Table 6 Variable-Wise Frequency Distribution

Variable	Category	No. of students	Total	Percentage	Total
Gender	Male	165	280	58.93%	100%
	Female	115		41.07%	
Type of School Management	Government Aided	216	280	77.14%	100%
	Private	64		22.86%	
Class	Class IX	158	280	56.43%	100%
	Class X	122		43.57%	

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- *Interpretation:*

Table 6 shows the variable-wise frequency distribution of the sample. Out of 280 students, 165 (58.93%) were male and 115 (41.07%) were female. Regarding school management, 216 (77.14%) students belonged to government-aided schools, while 64 (22.86%) belonged to private schools. With respect to class, 158 (56.43%) students were from Class IX and 122 (43.57%) were from Class X. Thus, the majority of the respondents were male students, studying in government-aided schools, and enrolled in Class IX.

➢ *Test of Normality of Data*

The data was checked for normality. Results are shown in Table 7 and Figure 1

Table 7 Test of Normality of Data

	Shapiro-Wilk		
Environmental_Awareness	**Statistic**	**df**	**Sig.**
	.993	278	.226

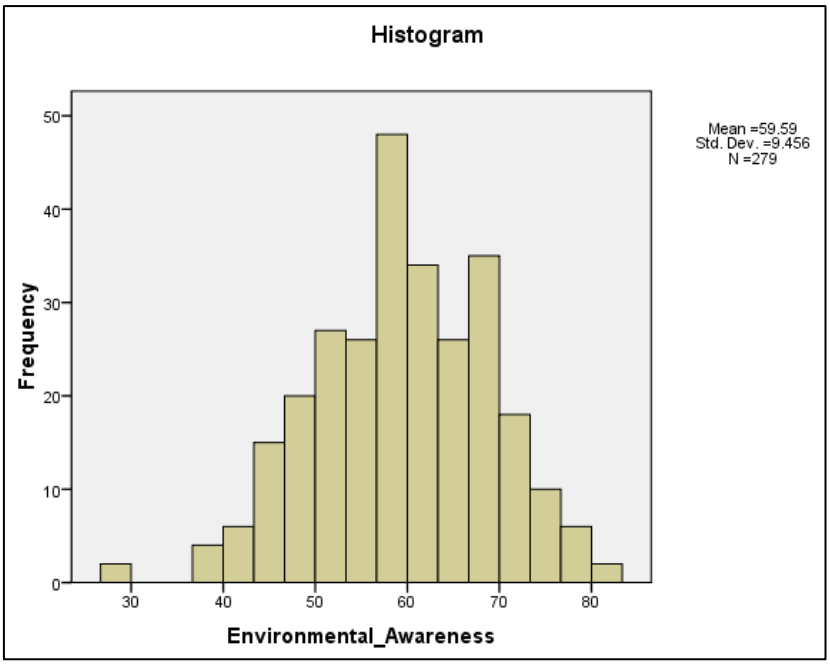

Fig 1 Test of Normality of Data

- *Interpretation:*

Table 7 and Figure 1 show the results of the Shapiro-Wilk test done to check data normality. The test showed the statistical (W) = .993, df= 278, and p= .226. Since the p-value is greater than .05, the data was found to be normally distributed.

➢ *Level of Environmental Awareness*

- *Objective 1:*

To find out the level of Environmental Awareness among secondary school students.

The level of Environmental Awareness among secondary school students was measured in general as well as in accordance to Gender and Type of school management of the students. Detailed findings and Interpretation are given below:

✓ *Level of Environmental Awareness in General*

The level of Environmental Awareness Among Secondary School Students was analysed based on the Range of Z-Score norms, Frequency and Percentage. Result of analysed is presented in the following table and figure.

Table 8 Level of Environmental Awareness

Sr. No.	Z-Score Range	Frequency	Percentage	Grade	Level
1	+2.01 & above	0	0.00%	A	Extremely High
2	+1.26 to 2.00	0	0.00%	B	High
3	+0.51 to +1.25	16	5.71%	C	Above Average
4	-0.50 to + 0.50	141	50.36%	D	Average/Moderate
5	-1.25 to – 0.51	96	34.29%	E	Below average
6	-2.00 to – 1.26	25	8.93%	F	Low
7	-2.01 & below	2	0.71%	G	Extremely Low

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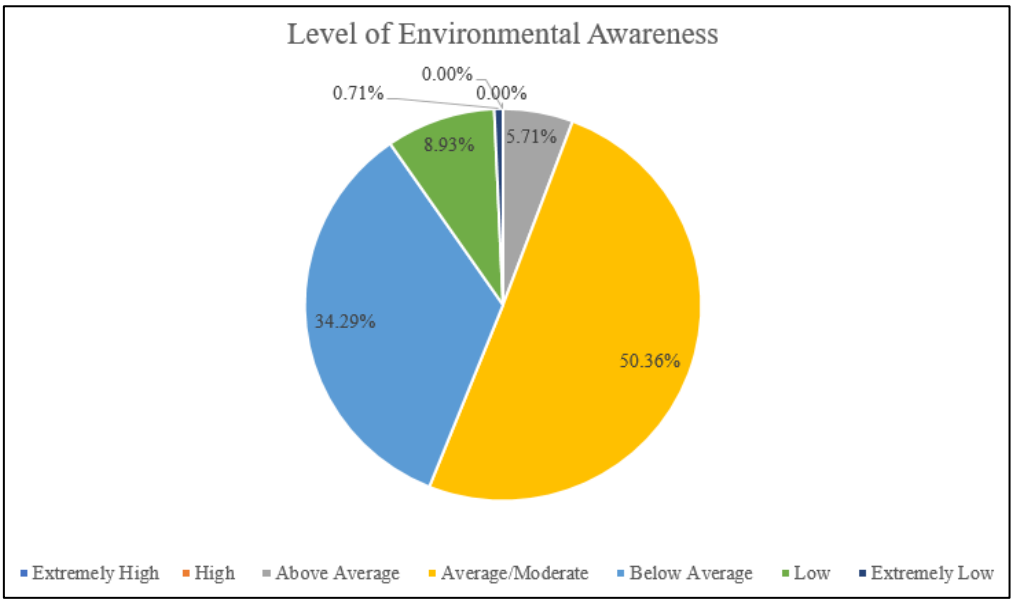

Fig 2 Level of Environmental Awareness Among Secondary School Students.

- *Interpretation:*

The table 8 and Figure 2 reveal the level of Environmental Awareness among Secondary School Students. The data shows that 141 students (50.36%) have an Average/Moderate level of Environmental Awareness, followed by 96 students (34.29%) at the below Average level. Further, 25 students (8.93%) are at Low level, and 2 students (0.71%) at Extremely Low level. Thus, it can be concluded that most Secondary School Students possess an Average level of Environmental Awareness.

✓ *Level of Environmental Awareness Based on Gender*

The level of Environmental Awareness among Secondary School Students based on Gender was analysed based on the Range of norms, Frequency and Percentage. The following table and figure illustrate the findings from the analysis.

Table 9 Level of Environmental Awareness Based on Gender

Sl. no	***Raw Score Range***	***Z-Score Range***	***Frequency & Percentage***		***Level of Environmental Awareness***
			Male (N= 165)	***Female (N=115)***	
1	99 & Above	+ 2.01 & above	-	-	Extremely High
2	87 to 98	+ 1.26 to 2.00	-	-	High
3	75 to 86	+ 0.51 to +1.25	10 (6.06%)	6 (5.22%)	Above Average
4	59 to 74	-0.50 to +0.50	92 (55.76%)	49 (42.61%)	Average/Moderate
5	47 to 58	-1.25 to -0.51	46 (27.88%)	50 (43.48%)	Below Average
6	35 to 46	-2.00 to -1.26	15 (9.09%)	10 (8.69%)	Low
7	34 & below	-2.01 & Below	2 (1.21%)	0 (0.00%)	Extremely Low

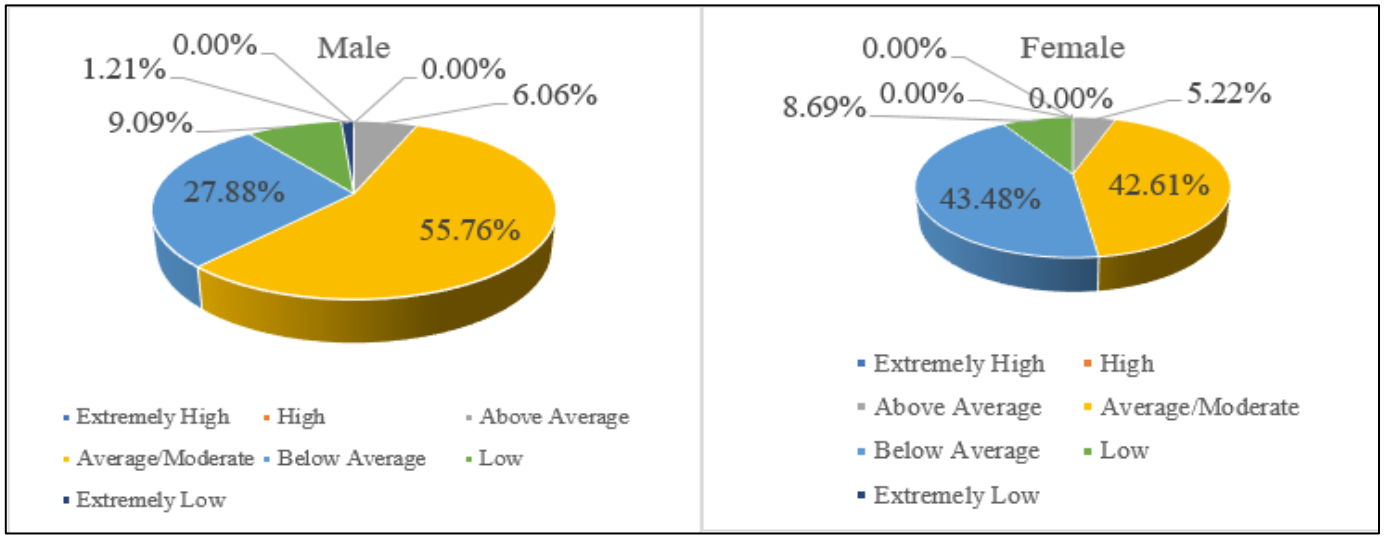

Fig 3 Level of Environmental Awareness Between Male and Female Among Secondary School Students.

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- *Interpretation:*

The table and figure 3 show the level of Environmental Awareness among male and female Secondary School Students. The majority of male students (55.76%) and female students (42.61%) fall under the Average/Moderate level of Environmental Awareness. Female students (43.48%) are higher than male students (27.88%) in the Below Average category. A small number of students are found in the Above Average level, with 6.06% males and 5.22% females. In the Low level, 9.09% of males and 8.69% of females are included. No students are found in the High and Extremely High categories for both genders. Only 1.21% of male students fall under the Extremely Low level, while no female students are in this category. Overall, the results indicate that both male and female students mostly possess a moderate level of Environmental Awareness, with male students showing slightly better awareness compared to female students.

✓ *Level of Environmental Awareness Based on School Management*

The level of Environmental Awareness among Secondary School Students based on their Class was analysed based on the standard scoring norms of the Environmental Awareness, using Frequency and Percentage. The following table and figure illustrate the findings from the Analysis.

Table 10 Level of Environmental Awareness Based on School Management

Sl. no	***Raw Score***	***Z-Score Range***	***Frequency& Percentage***		***Level of Environmental Awareness***
			Govt Aided (N= 216)	***Private (N=64)***	
1	99 & Above	+ 2.01 & above	-	-	Extremely High
2	87 to 98	+ 1.26 to 2.00	-	-	High
3	75 to 86	+ 0.51 to +1.25	13 (6.02%)	3 (4.69%)	Above Average
4	59 to 74	-0.50 to +0.50	104 (48.14%)	37 (57.81%)	Average/Moderate
5	47 to 58	-1.25 to -0.51	79 (36.57%)	17 (26.56%)	Below Average
6	35 to 46	-2.00 to -1.26	18 (8.33%)	7 (10.94%)	Low
7	34 & below	-2.01 & Below	2 (0.93%)	0 (0.00%)	Extremely Low

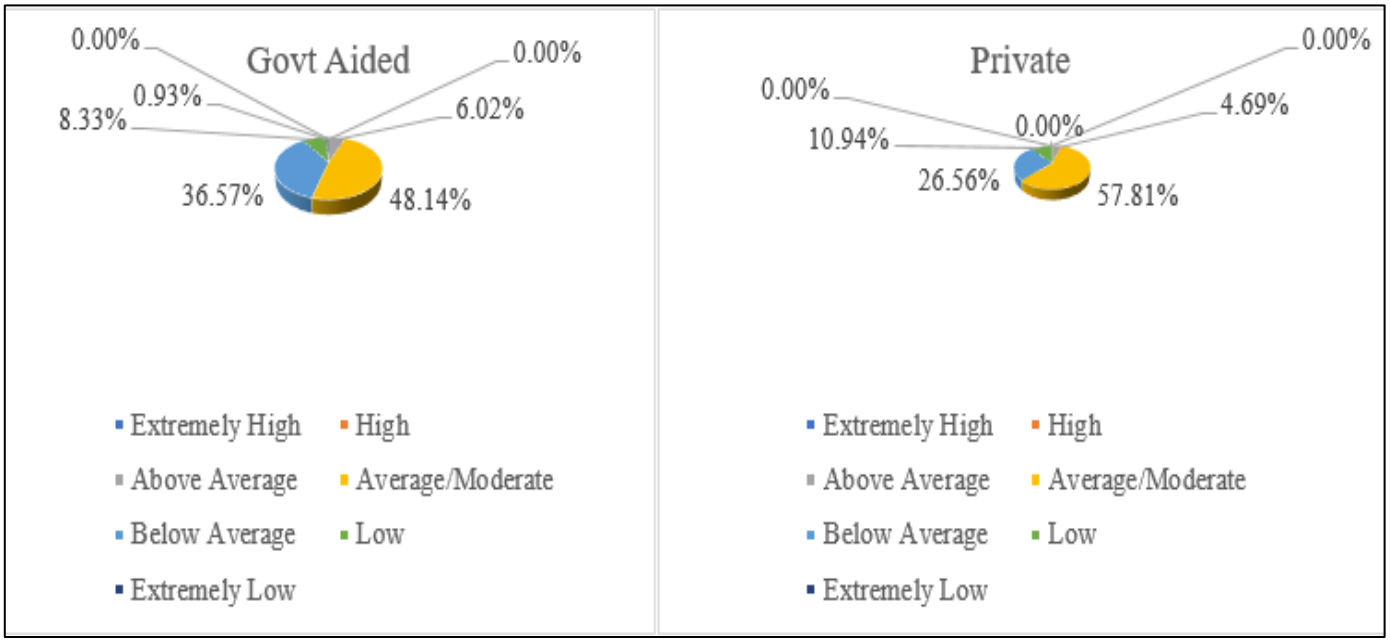

Fig 4 Level of Environmental Awareness Between Government Aided and Private Among Secondary School Students.

- *Interpretation:*

Table 10 and Figure 4 show that the majority of Private school students (57.81%) and Govt Aided school students (48.14%) are at the average level of Environmental Awareness. A higher percentage of Govt Aided students at the Below Average level (36.57%) compared to Private school students (26.56%). Further 10.94% of private school students and 8.33% of Govt Aided students fall under the Low level, while 0.93% of Govt Aided students are at the Extremely Low level. Regarding higher levels, 6.02% of Govt Aided students and 4.69% of Private school students are at the Above Average level. No students from either type of management were found at the High or Extremely High levels. Thus, Private school students show better concentration at the Average level, whereas Govt Aided students are more distributed towards Below Average and Low levels of Environmental Awareness.

✓ *Level of Environmental Awareness Based on Class*

The level of Environmental Awareness among Secondary School Students based on their Class was analysed based on the standard scoring norms of the Environmental Awareness, using Frequency and Percentage. The following table and figure illustrate the findings from the Analysis.

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Table 11 Level of Environmental Awareness based on Class IX and Class X

Sl. no	*Raw Score Range*	*Z-Score Range*	*Frequency& Percentage*		*Level of Environmental Awareness*
			Class IX (N= 158)	*Class X (N=122)*	
1	99 & Above	+ 2.01 & above	-	-	Extremely High
2	87 to 98	+ 1.26 to 2.00	-	-	High
3	75 to 86	+ 0.51 to +1.25	14 (8.86%)	2 (1.64%)	Above Average
4	59 to 74	-0.50 to +0.50	63 (39.87%)	78 (63.93%)	Average/Moderate
5	47 to 58	-1.25 to -0.51	60 (37.97%)	36 (29.51%)	Below Average
6	35 to 46	-2.00 to -1.26	19 (12.03%)	6 (4.92%)	Low
7	34 & below	-2.01 & Below	2 (1.27%)	-	Extremely Low

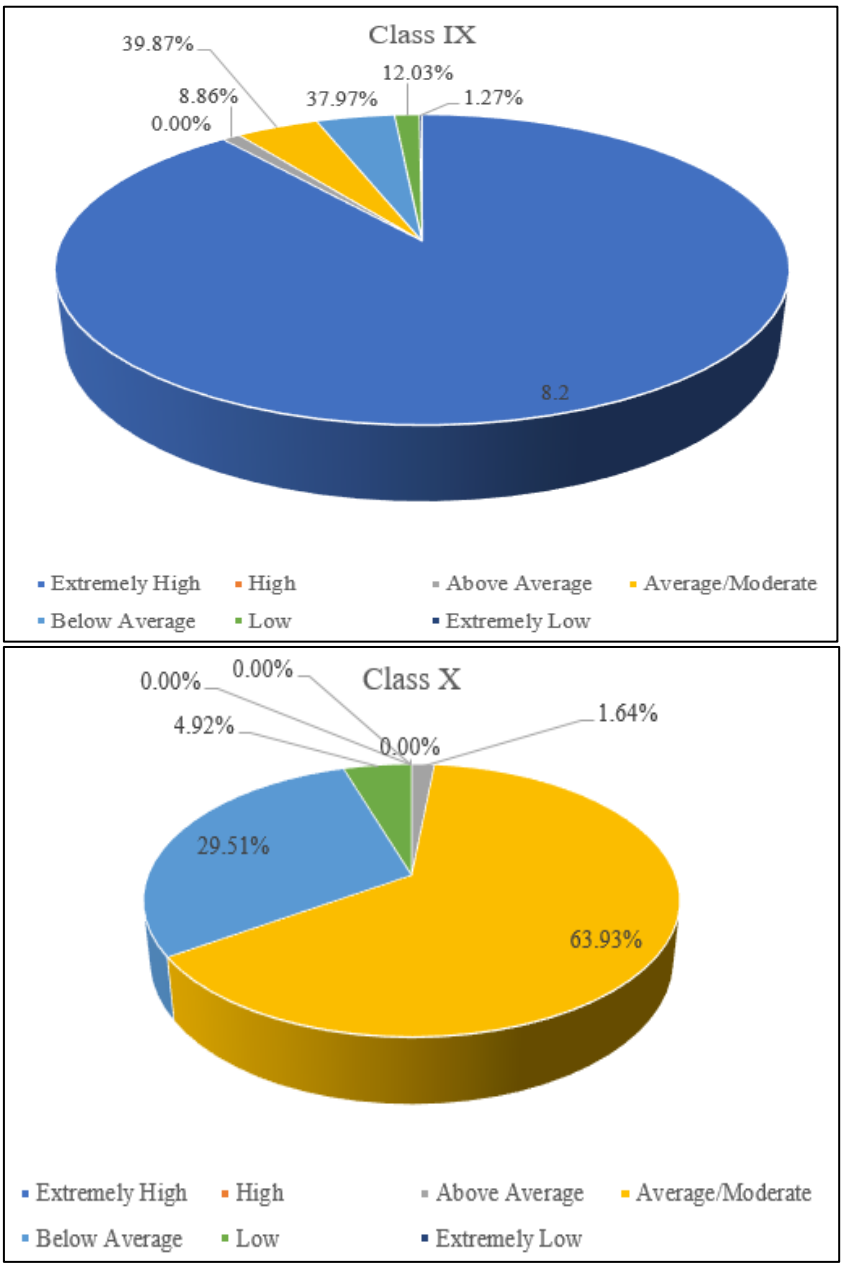

Fig 5 Level of Environmental Awareness Between Class IX and Class X Among Secondary School Students.

- *Interpretation:*

Table 11 and Figure 5 reveal that the majority of Class X students (63.93%) and Class IX students (39.87%) possess an average level of Environmental Awareness. A higher percentage of Class IX students fall under below average (37.97%) and low (12.03%) levels compared to Class X students with 29.51% and 4.92% respectively. While 8.86% of Class IX students are at the above average level, only 1.64% of Class X students reach this level. No students from either class were found at the high or extremely high levels.

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Thus, Class X students show better concentration at the average level, whereas Class IX students are more inclined towards below average and low levels of Environmental Awareness.

➢ *Objective 2:*

To find out the significant difference in Environmental Awareness among secondary school students based on gender.

For finding out the significance difference in Environmental Awareness between male and female Secondary School Students the following null hypotheses was formulated:

- H_{01}: There is no significant difference in Environmental Awareness among Secondary School Students based on Gender.

In testing the hypothesis, the data was analysed by using t-test based on Mean, SD and t-value for testing the null hypothesis set at 0.05 level of significance with 278 df= 1.97.

Table 12 Difference in Environmental Awareness Based on Gender

Dimension	Male (*n*= 165)		Female (*n*=115)		T (df=278)	p- value	Remark
	M	SD	M	SD			
Environmental Awareness	60.31	9.943	58.72	8.773	1.378	0.169	Not Significant

- *Interpretation:*

As per the above table12, it can be concluded that the mean value of environmental awareness for male students is 60.31(SD= 9.943), whereas the mean value of environmental awareness for female students is 58.72 (SD= 8.773). The t-value obtained from calculation is 1.378, and p-value is 0.169, which is higher than 0.05.

Hence, the difference in environmental awareness of male and female students is not significant statistically. Consequently, the null hypothesis (H_01) is accepted.

➢ *Objective 3.*

To find out the significant difference in Environmental Awareness among secondary school students based on school management.

In finding out the significant difference in Environmental Awareness among Secondary School Students based on School Management a null Hypotheses was formulated as follows.

- H_{02}. There is no significant difference in Environmental Awareness among Secondary School Students based on School Management.

In testing the hypothesis, the data was analysed by using descriptive statistics of Mean, Standard Deviation, and inferential statistics of Independent Samples t-test. The t-value for testing the null hypothesis was set at 0.05 level of significance with 278 df= 1.97.

Table 13 Difference in Environmental Awareness Among Secondary School Students Based on Government-Aided and Private School

Dimension	Government Aided (*n*=216)		Private (*n*=64)		T (df=278)	p- value	Remark
	M	SD	M	SD			
Environmental Awareness	59.24	9.456	61.06	9.568	1.35	.178	Not Significant

- *Interpretation:*

The Table 13 shows that the mean level of awareness of environment of government-aided schools' students was 59.24 (SD= 9.456) whereas for private schools' students was 61.06 (SD= 9.568). Even though the mean of Private schools' students is somewhat higher, yet the obtained t-value (1.35) is less than the critical value (1.97) at the significance level of 0.05. Furthermore, the obtained p-value (1.78) is also more than 0.05.

Thus, there exists no significant difference between the awareness of environment of government-aided schools' and private schools' students. Consequently, the acceptance of null hypothesis (H_{02}) suggests that school management has no influence on the environmental awareness of secondary school students of the study area.

➢ *Objective 4:*

To find out the significant difference in Environmental Awareness among secondary school students based on Class.

For finding out the significant difference in Environmental Awareness between Class IX and X Students, the following null hypotheses was formulated.

- H_{03}: There is no significant difference in the level of Environmental Awareness between Class IX and X Students.

In testing the hypotheses, the data was analysed using descriptive statistics of Mean, Standard Deviation, and inferential statistics of 't' value for testing the hypotheses at 0.05 level of significance with 278 df= 1.97.

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Table 14 Difference in Environmental Awareness Based on Class

Dimension	Class IX (*n*=158)		Class X (*n*=122)		T (df=278)	p- value	Remark
	M	SD	M	SD			
Environmental Awareness	58.44	10.57	61.24	7.65	-2.44	.015	Significant

- *Interpretation:*

As indicated by Table 14, the average of Class IX learners was 58.44 (SD=10.57), whereas that of Class x learners was 61.24 (SD=7.65). Grom this, it is evident that the level of environmental awareness among class X students is higher than that of Class IX students. The t-test value obtained is -2.44, which is larger than the critical value (1.97). In addition, the p-value (o.15) is lower than 0.05. Therefore, means that the difference in the two sets of students is statistically significant.

V. FINDING, DISCUSSSION, RECOMMENDATION AND CONCLUSION

This chapter presents the main findings of the study based on the stated objectives and hypotheses. The collected data are analysed and interpreted clearly. The findings are also compared with previous studies to identify similarities and differences, helping to provide a better understanding of the research.

➢ *Major Findings and Discussion*

The major finding and discussion of the present research are as follows:

- *Level of Environmental Awareness*

✓ *Level of Environmental Awareness in General*

The finding revealed that most Secondary School Students possess an average level of Environmental Awareness with a few numbers of students having below average level, low level, and extremely low level of environmental awareness. This finding is supported by Said et al. (2007) who found that Malaysian students were only moderately concerned, Panzo et al. (2022) who reported that Angolan students had moderate habits with only 40% showing proper attitudes, and Dutta (2024) who also found average awareness. The reason can be that the mode of teaching at schools is theoretical, involving textbooks only, lacking practical lessons such as eco clubs or field excursions which can make students aware of habits that can be helpful to improve their awareness towards environment.

✓ *Level of Environmental Awareness Based on Gender*

The analysis revealed that the majority of students, irrespective of their gender, expressed average or moderate environmental awareness, towards the environment, with some having below average level, above average, low, and extremely low level, of environmental awareness. Overall, there was slightly higher environmental awareness among boys compared to girls. These findings are supported by the study conducted by Saranya & Suthakar (2018). The main reason for such result can be that most of the teaching in schools is exam-oriented and has little connection to real-life situations. Boys have more exposure due to farming, playing, cleaning, etc., as opposed to girls who perform household chores and stay indoors.

✓ *Level of Environmental Awareness Based on School Management*

The finding revealed that most private school students and government-aided school students have average levels of environmental awareness, with fewer students showing below average, low, extremely low, and above average level. This study supported by Dutta (2024), who observed that private school students show a high level of awareness in Arunachal Pradesh, and Ali, Endut, and Embong (2017) who stated that awareness level differed significantly by school types in Nigeria. The reason was that the private schools had better facilities and many activities such as quiz competitions, whereas government-aided schools had a large number of students and fewer facilities.

✓ *Level of Environmental Awareness Based on Class*

The finding showed that most Class IX students and Class X students have average levels of environmental awareness, with a few numbers of students showing below average level and above average level. The reason is that students learn environmental topics mainly to pass exams and get few chances to do practical activities, so their knowledge stays at a basic level.

- *Gender Differences in Environmental Awareness*

The finding indicated that there was no significant difference between male and female students in Environmental Awareness based on Gender. This finding matches Mondal & Mete (2010), Das et al. (2025) who also reported no significant gender difference among students in West Bengal. On the other hand, studies that found significant differences – Tariang & Kharbirymbai (2018), Sahidullah (2021), and Bashir et al. (2022) – were done in areas where social or school factors gave boys more outdoor exposure or freedom to participate. The proper reason could be that both genders (male and female) receive the same quality of teaching and equal opportunities to learn and participate, their Environmental awareness remain the same.

- *Difference in the Level of Environmental Awareness Based on School Management*

The Finding indicated that there was no significant difference between Government Aided and Private. This result is different from Ali, Endut & Embong (2017) in Nigeria and Dutta (2024) in Arunachal Pradesh, who found that private school students had significantly higher awareness than government school students. The proper reason is that both Government Aided and Private schools follow the same syllabus, use the same textbooks, and conduct the same environmental activities like eco-clubs. Teachers also get similar training. So, students get equal learning chances. This shows that school type does not matter

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by itself. What really matters is whether students get opportunities to learn.

- *Differences in the Level of Environmental Awareness Based on Class*

The finding revealed that there is a significant difference between class IX and Class X in Environmental Awareness. The above results are consistent with those obtained by Bhat (2017), where it was revealed that the class level influenced environmental awareness. The main justification for this outcome is that while studying environmental science at Class X level, students spend two whole years learning, reading additional chapters regarding the issues of pollution, conservation, and sustainable development. Besides, Class X students are more mature and thus can comprehend complex issues related to the environment better than Class IX learners who have just started learning the subject matter.

➢ *Implications of the Study*

Based on the findings, it can be concluded that the level of Environmental Awareness amongst Secondary School Students is mostly Average/Moderate. From the results, it can be deduced that the students have certain knowledge regarding the issues of pollution, waste management, conservation of natural resources and cleanliness of surroundings. Yet, their level of Environmental Awareness is not sufficient enough to demonstrate high level of responsibilities and positive actions towards the environment. Hence, it can be said that there is a scope of improvement in the area of environmental awareness among students.

Environmental Awareness is essential due to its potential in fostering positive attitudes of the students towards the nature and environment. It creates awareness amongst the students regarding the necessity to preserve natural resources, which includes water, air, forest, wildlife, etc., for their current generations to come. The students having environmental awareness will make sure to practice good behaviour such as disposing waste properly, using minimum amount of plastic saving water and electricity, participating in cleanliness drives and other environmental preservation related activities.

Schools and Teachers have an important part to play in creating Environmental Awareness among students. Schools can ensure that the learning environment created in schools gives due importance to environmental education within and outside classroom teaching. Teachers can also support this process by incorporating issues of environment in classroom discussion and by encouraging students to think and discuss possible solution to environmental problems. Schools can conduct various activities like organizing tree planting programs, recycling drives, cleanliness, drives on the campus, awareness marches, poster competitions, seminars and talks on environmental conservation. All this would help the student go from mere theory to practice and gain environmental awareness through action-oriented approaches. Teachers can be great role models and ensure that they do whatever it takes to maintain cleanliness and promote a green approach towards life in schools. Students who see teachers taking a pro-environment approach and being clean and environmentally sensitive would be encouraged to follow suit. Schools can further promote environmental awareness through setting up of eco-clubs for students.

Parents also have a crucial part in nurturing the spirit of environmental awareness in students at home. As parents are the first socializing agents, the home environment is the right place for children to learn environmentally responsible behaviour. This can include simple yet significant practices like turning off unused electric gadgets, minimizing water wastage, preventing garbage accumulation, using fewer plastic bags, segregating the waste, and showing respect to flora and fauna. Parents can also engage their children in gardening work, cleanliness drives, and discussion about environmental issues. In this way, parents ensure that environmental protection is everybody's responsibility, not just schools.

Additionally, there is a need for the community to play a significant role in increasing environmental awareness amongst students. The community should take initiatives in organizing students in environmental crusades, cleaning drives, plantation activities, and awareness programs related to pollution control and preservation. Collaboration between community and members and educational institutes is necessary to engage students in these activities. This will help them associate what they have learned in the class with practical situations and make them responsible citizens.

Lastly, the joint efforts of schools, teachers, parents and community are essential in raising the environmental awareness of the students from a moderate to a high level. Students are bound to develop good environmental values if guided properly and motivated towards involvement in activities.

➢ *Recommendations*

Based on the findings of the present study, it was found that the overall level of Environmental Awareness among secondary school students is moderate. This mean that students have basic understanding of environmental issues such as pollution, waste management, cleanliness, conservation of natural resources, and the importance of protecting the environment. However, their awareness is not yet strong enough to reflect a high level of responsibility, deep understanding, and regular environmental practices in their daily lives. Since the level of awareness is moderate, there is a need for greater efforts from schools, teachers, parents, and society to help students improve their knowledge, attitudes, and behaviour, toward environmental protection.

- *The Following Recommendations are Suggested Based on the Overall Level of Environmental Awareness:*

✓ Since the overall Environmental Awareness of secondary school students is a moderate level, environmental education should be given more importance in the educational system. Students should not only learn environmental topics from textbooks but should also be encouraged to understand their practical importance in

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daily life. Teachers should regularly discuss important environmental issues such as air pollution, water pollution, deforestation, climate change, waste disposal, recycling, biodiversity conservation, and sustainable use of natural resources.

- ✓ There should be organized environmental events in schools like planting trees, cleanliness drives, poster making competitions, essay writing contests, quiz sessions, debate sessions, and workshops that will help the children become active participants in environmental protection. This will help the students understand environmental conservation better through practical experience rather than classroom learning alone. Schools should have environmental or eco clubs so that environmental protection is made a regular practice by the students. When children participate in environmental activities, they will develop good practices in protecting the environment.
- ✓ The study revealed that there was no statistically significant difference between male and female students in terms of environmental awareness. This reveals that both males and females have an equal level of awareness regarding environmental issues, and hence both boys and girls have an equal chance of contributing to environmental conservation. Hence, schools must continue to give both boys and girls an equal chance to engage in environmental-related activities without any bias. Educators must motivate both male and female students equally to share responsibilities in programs like garden at school, waste management, program, recycling activities, awareness campaigns, and environmental science exhibitions. Boys and girls should be encouraged equally in order to make the students realize the importance of taking responsibility. This also ensures that there will be a balance in the learning environment as well as development of environmental values among all students.
- ✓ According to the findings obtained from the study, both students of Government Aided schools and Private schools have a moderate level of environmental awareness. It means that there is no significant difference between students of both types of schools and both need more support and guidance for their environmental knowledge. As such, there should be an equal emphasis on environmental education at both types of schools. In this connection, the management of each school needs to provide students with equal opportunities for receiving environmental education. Moreover, both schools should organize awareness campaigns, field trips, nature studies, eco-clubs, and other educational programs. Instead of focusing on textbook learning, teachers should encourage their students to participate in such activities and make use of different teaching techniques. The educational authorities also need to supervise environmental education programs in schools. An equal focus on environmental education at Government Aided and Private schools will result in improved Environmental Awareness among all schools.
- ✓ It was also found that there was a significant difference in the level of Environmental Awareness between Class IX and X students. This indicates that the two classes of students do not have an equal level of awareness regarding environmental issues; thus, special attention should be provided in this respect. As regards the improvement of environmental awareness among Class IX students, there should be an emphasis put on basic environmental knowledge. Such aspects as pollution, cleanliness, and conservation of natural resources should be considered.

As for Class X students, it is important to encourage them to implement their theoretical knowledge in practice. Students should participate in awareness campaigns and other practical activities aimed at developing their environmental skills. It should also be noted that increasing the level of environmental awareness among secondary school students requires joint work of all stakeholders, including schools, teachers, parents, educational administration, and the local community. Taking into account the current moderate level of students' awareness of environmental problems, the primary task will be to enhance their knowledge and turn this awareness into daily practices.

Additionally, enhancing Environmental Awareness of the secondary school students needs sustained involvement from schools, teachers, parents, educational boards, and the whole community. With the current level of awareness being moderate, the focus should be on reinforcing students' knowledge about the environment and ensuring that this knowledge translates into daily practices. Daily practice, equal involvement, practices activities, effective school policies, and community involvement will go a long way in ensuring that the students have a greater feeling of responsibility toward the environment. This will take students from their current moderate state to a much higher level of environmental awareness.

➢ *Conclusion*

The research was conducted to assess the environmental awareness among the secondary school students. According to the findings obtained, it can be said that majority of the students have medium Environmental Awareness. That is, it can be inferred that the students are aware of many crucial environmental issues, such as pollution, cleanliness, garbage disposal, conservation of natural resources, and protection of nature. However, it appears that this awareness has not yet reached a point where it reflects the high level of responsibility and practice of eco-friendly behaviours among the students. Moreover, it can also be observed from the study that there exists no significant difference in Environmental Awareness on the basis of gender and school management type. Both males and females, students of government Aided and Private schools, were found having nearly similar level of Environmental Awareness. Nevertheless, it could be found that there exists a significant difference in Environmental Awareness according to class level, and that is why Class IX and Class X students differed in terms of their awareness levels regarding environmental issues.

➢ *Suggestion for Further Research*

As the above-stated study has been done using the sample size of 280 from only the secondary school students of Class IX and Class X in Mairang, hence it would not be

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correct to generalize the results obtained from this research to all Meghalayan students.

Thus, further research is required to attain a wider understanding of Environmental Awareness. Therefore, the following research studies are recommended:

- Further research might be conducted by considering more schools from Mairang and other adjacent areas to gain better results.
- Comparative analysis might be performed regarding the differences in Environmental Awareness between Government Aided and Private schools in Mairang.
- Further research could concentrate on not only awareness about the environment but also the students' behaviour towards the environment.
- The impact of teachers, school, and society's role in fostering environmental awareness among students in Mairang should be explored thoroughly.
- The impact of environmental education on higher secondary and college-going students may be considered.
- The researcher can conduct further research on the effectiveness of educational programs and activities in instilling Environmental Awareness amongst students in Mairang.
- Studies can also be conducted to determine the effect of the media, especially social media, on Environmental Awareness amongst students in Mairang.
- There is the possibility of comparing genders with regard to Environmental Awareness and practices of students in Mairang.
- It is also possible for research to indicate barriers to effective environmental conservation amongst students in Mairang.
- Further research can also be conducted to establish the relationship between Environmental Awareness and Academic.
- Further research may be carried out in all districts of Meghalaya to gain a wider understanding of the environmental awareness of the students.
- Research may be done to compare the level of environmental awareness among students in rural and urban areas.
- Longitudinal research may be carried out to determine the changes in environmental awareness over a longer period of time.

REFERENCES

[1]. Acibuca, V., & Kaya, A. (2024). Environmental awareness and attitudes of university students: The case of Turkiye. ISPEC journal of Agricultural sciences, 8(1) 237-246. https://doi.org/10.5281/zenodo.10852912

[2]. Ali, A. R., Endut, A., & Embong, R. (2017). Investigating the environmental awareness level of secondary school students: Effects of race, school type, and location. Journal of Science and Technology, 9(4), 30-36. https://publisher.uthm.edu.my/ojs/index.php/jst/article/download/2055/1289/7077

[3]. Altin, A., Tecer, S., Tecer, L., Altin, S., & Kahraman, B.F. (2014). Environmental awareness level of secondary school students: A case study in Balikesir (Turkiye). Procedia – Social and Behavioral Sciences, 141, 1208-1214. https://doi.org/10.1016/j.sbspro.2014.05.207

[4]. Bashir, Umar, Bashir & Kuchey, (2022). A study of Environmental Awareness, Attitude and Participation among Secondary School Students of District Kulgam 11(4). https://www.researchgate.net/publication/358501568

[5]. Bhat, (2017). A Study of Environmental Awareness among Secondary School Students in Relation to Caste, Class of study in Anantnag District. https://www.researchgate.net/publication/344683602

[6]. Claudy, et al., (2013). Understanding the attitude-behaviour gap for renewable energy systems using behavioural reasoning theory. Journal of Macromarketing, 33(4), 273-287. https://doi.org/10.1177/0276146713481605

[7]. Das, Hasan & Baidya, (2025). Environmental Awareness among Secondary School Students in Uttar Dinajpur District: A study on Demographic Differences, 11(6). https://www.researchgate.net/publication/397330585

[8]. Dhanya & Pankajam, 2017. Environmental awareness among secondary school students, 5(5), 22-26. https://www.researchgate.net/publication/346567653

[9]. Dutta, (2024). A Study on Environmental Awareness among Elementary School Level Students in Papum Pare District of Arunachal Pradesh. 9(4). https://www.researchgate.net/publication/380366264

[10]. Erach Bharucha (2005). Textbook of Environmental Studies for Undergraduate Courses. Hyderabad: Universities Press.

[11]. Ghosh, K. (2014). Environmental awareness among secondary school students of Golaghat district in the state of Assam and their attitude towards environmental education. IOSR Journal of Humanities and Social Science, 19 (3), 30-34. https://doi.org/10.9790/0837-19323034

[12]. Gummadi, Latha & Rao, (2020). A Study on level of Environmental Awareness among Secondary School Students in Guntur District. 17(9). https://www.researchgate.net/publication/351713273

[13]. Hashemzadeh, F. (2016). Environmental awareness, attitudes, and behaviour of secondary school students and teachers in Tehran, Iran (Doctoral thesis, University of Waikato). Retrieved from https://hdl.handle.net/10289/10106researchcommons.waikato.ac.nz

[14]. Hassan, A., Noordin, T.A., & Sulaiman, S. (2010). The status of the level of environmental awareness in the concept of sustainable development amongst secondary school students. Procedia-Social and Behavioral Sciences, 2(2), 1276-1280. https://doi.org/10.1016/j.sbspro.2010.03.187

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26jun1659

[15]. Intergovernmental Panel on Climate Change (2014). Climate Change 2014: Synthesis Report. Geneva: IPCC.
[16]. Ismail, Z., Samsudin, M. A., & Halim, L. (2018). Relationship between awareness, knowledge and attitudes towards environmental education among secondary school students in Malaysia. International Journal of Academic Research in Business and Social Sciences, 8(1), 132-141. https://doi.org/10.6007/IJARBSS/v8-i1/3800
[17]. Jean Piaget (1972). The Psychology of the Child. New York: Basic Books.
[18]. Joy A. Palmer (1998). Environmental Education in the 21st Century: Theory, Practice, Progress and Promise. London: Routledge.
[19]. Joy A. Palmer (1998). Environmental Education in the 21st Century: Theory, Practice, Progress and Promise. London: Routledge.
[20]. Lopez, J.A., & Palacios, F.J.P. (2024). Effects of a project-based learning methodology on environmental awareness of secondary school students. International journal of instruction, 17(1) 1-22. https://doi.org/10.29333/iji.2024.1711a
[21]. MJwbkJFfxFs00KEugene P. Odum (1971). Fundamentals of Ecology. Philadelphia: Saunders.
[22]. Mondal & Mete, (2010). A Comparative Study of Environmental Awareness among Secondary School Students in Relation to Gender and Residential Background, 4. 17-21. https://d1wqtxts1xzle7.cloudfront.net/
[23]. Osunji, O. (2021). Relationship between consciousness about environmental education concepts in secondary school chemistry curriculum and attitude of students toward the environment in Kwara state. Science Education International, 32(1), 80-84. https://doi.org/10.33828/sei.v32.i1.9
[24]. Panzo, T.L., Gois, J.C., & Mendes, J.M. (2022). Environmental awareness on solid waste management practices: A case study in Angolan secondary schools. Journal of Civil Engineering and Environmental Sciences, 8(2), 076-081. https://doi.org/10.17352/2455-488X.000055
[25]. Pradhan & Panda, (2024). Environmental Awareness among Elementary School Students. 6(2). https://doi.org/10.36948/ijfmr.2024.v06i02.16237
[26]. Pribaka & Lenka, (2025). Environmental Awareness among secondary school Tribal Students of Rayagada District, 10(7) 53-62. https://www.researchgate.net/publication/394753276
[27]. Ram Ahuja (2011). Social Problems in India. Jaipur: Rawat Publications.
[28]. Razak, S. A. A., Kamarudin, M. K. A., Toriman, M. E., Wahab, N. A., Saad, M. H. M., & Bati, S. N. M. (2019). Relationship between knowledge and attitudes towards environmental education among secondary school students in Malaysia. International Journal of Academic Research in Business and Social Sciences, 9(12) 37-49. https://doi.org/10.6007/IJARBSS/v9-i12/6664
[29]. Sahidullah, (2021). Environmental awareness among High School Students: A study in Majuli District of Assam, India. 28(1) 347-351. https://www.envirobiotechjournals.com/
[30]. Said, A.M., Yahaya, N., & Ahmadun, F.R. (2007). Environmental comprehension and participation of Malaysian secondary school students. 13(1), 17-31. https://doi.org/10.1080/13504620601122616
[31]. Sammaiah, K. (2012). Introduction to environmental awareness: Understanding the importance of environmental preservation. https://share.google/ui0
[32]. Saranya & Suthakar, (2018). A study on Environmental Awareness among College Students at Under Graduate Level in Vellore District. 4(5). https://mail.iesrj.com/upload/18.
[33]. Sindhu & Singh, (2014). A Study of Awareness towards Environmental Education among the Students at Secondary Level in Gurgaon District, 4(1). https://d1wqtxts1xzle7.cloudfront.net/36978832/
[34]. Singh, (2011). Environmental awareness among Secondary School Students, 5(2). https://indianjournals.com/article/quest-5-2-014
[35]. Tariang & Kharbirymbai, (2018). Environmental awareness of Higher Secondary School Students, 7(9). https://oldror.lbp.world/UploadedData/5223.pdf
[36]. United Nations Educational, Scientific and Cultural Organization (2021). Education for Sustainable Development: A Roadmap. Paris: UNESCO.
[37]. United Nations Environment Programme (2020). Global Environment Outlook. Nairobi: UNEP.
[38]. Wetsah & Khieya, (2022). A Study on Environment Awareness among the Secondary School Students of Phek District, 3(4). https://journals.ijramt.com/index.php/ijramt/article/view/1971
[39]. William B. Stapp (1969). The Concept of Environmental Education. Journal of Environmental Education.
[40]. Zachariou, F., Voulgari, I., Tsami, E., & Bersimis, S. (2020). Exploring the attitudes of secondary education students on environmental education in relation to their perceptions on environmental problems: The case of the prefecture of Viotia. Interdisciplinary Journal of Environmental and Science Education, 16 (1), e02208. https://doi.org/10.29333/ijese/6442ijese.com.