ATTITUDE OF COLLEGE STUDENTS OF MAMIT DISTRICT TOWARDS ENVIRONMENTAL POLLUTION: A CRITICAL STUDY.

Submitted by

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TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

CHAPTER-I

CONCEPTUAL FRAMEWORK

1.01 ENVIRONMENT

The word environment is derived from the French word 'environer' which means to encircle, around or surround. The biologist Jacob Van erkul (1864-1944) introduced the term 'Environment' in Ecology. Ecology is the study of the interactions between an organism of some kind and its environment. As given by Environment Protection act 1986, Environment is the sum total of land, water, air, interrelationships among the physical, chemical and biological components of the Environment with the focus on environmental pollution and degradation. Environment studies is a multi-disciplinary subject where different aspects are dealt with in holistic approach. The science of Environment studies comprises various branches of studies like chemistry, physics, life science, medical science, agriculture, public health, sanitary engineering, geography, geology, atmospheric science, etc. It is the science of physical phenomena in the environment. It studies the sources, reactions, transport, effect and fate of biological species in the air, water and soil and the effect of and from human activity upon these. Environmental science deals with the study of processes in soil, water, air and organisms which lead to pollution or environmental damages and the scientific basis for the establishment of a standard which can be considered acceptably clean, safe and healthy for human beings and natural ecosystems.

The Environment is about the surrounding external conditions influencing development or growth of people, animal or plants, living or working conditions etc. This involves three questions i.e., what is surrounded, by what surrounded and where surrounded. The answer to the first is living objects in general and man in particular. Human life is concerned to be main in the studies of environment. However, human life cannot exist or be understood in isolation from the other forms of life like animal life and from plant life. Environment belongs to all living beings and is thus important for all. Hence, environment refer to the sum total of conditions surround in space and time. The scope of the term "Environment" has been changing and widening and by the passage of time. In the primitive age, the environment consisted of only physical aspects of the planet earth i.e., land, water and air as biological communities. As of now, it includes social, economic and political conditions also.

1.02 COMPONENTS OF ENVIRONMENT

Environment has been classified into four major components:

Hydrosphere includes all water bodies such as lakes, ponds, rivers, streams and ocean etc. Hydrosphere functions in a cyclic nature, which is termed as hydrological cycle or water cycle.

Lithosphere means the mantle of rocks constituting the earth's crust. The earth is a cold spherical solid planet of the solar system, which spins in its axis and revolves around the sun at a certain constant distance. Lithosphere mainly, contains soil, earth rocks, mountain etc. Lithosphere is divided into three layers-crusts, mantle and core (outer and inner). Atmosphere The cover of the air, that envelope the earth is known as the atmosphere.

Atmosphere is a thin layer which contains gases like oxygen, carbon dioxide etc. and which protects the solid earth and human beings from the harmful radiations of the sun. There are five concentric layers within the atmosphere, which can be differentiated on the basis of temperature and each layer has its own characteristics. These include the troposphere, the stratosphere, the mesosphere, the thermosphere and the exosphere.

Biosphere which is otherwise known as the life layer, it refers to all organisms on the earth's surface and their interaction with water and air. It consists of plants, animals and micro-organisms, ranging from the tiniest microscopic organism to the largest whales in the sea. Biology is concerned with how millions of species of animals, plants and other organisms grow, feed, move, reproduce and evolve over long periods of time in different environments. Its subject matter is useful to other sciences and professions that deal with life, such as agriculture, forestry and medicine. The richness of biosphere depends upon a number of factors like rainfall, temperature, geographical reference etc. Apart from the physical environmental factors, the man-made environment includes human groups, the material infrastructures built by man, the production relationships and institutional systems that he has devised. The social environment shows the way in which human societies have organized themselves and how they function in order to satisfy their needs.

1.03 IMPORTANCE OF ENVIRONMENT

The environment – which includes everything from the ocean to the forests – impacts every area of life. Here are ten reasons why that's important:

1. **People depend on the environment for their livelihoods:** If you work in an office setting, you may not think about how the environment affects peoples' lives and jobs. However, billions of people depend on the environment. Take forests, for example. Over 1.5 billion people rely on forests for food, shelter, medicine, and more. If crops fail, many turn to the woods. 2 billion (or almost 27% of the world's population) earn their living from agriculture. Another 3 billion people depend on the ocean.

2. **Caring for the environment creates more jobs:** Caring for the environment could create millions of new jobs and help reduce poverty. In a report from the International Labour Organization, shifting to greener economies could create 24 million new jobs by 2030. Many fear that switching to green energy and more sustainable practices would cause more people to fall into poverty, but if green jobs take the place of old jobs, it does the opposite.

3. **Diverse environments strengthen food security:** The loss of biodiversity has many negative consequences, but weakened food security is a big one. As the world loses animal and plant species, the ones that remain are more vulnerable to disease and pests. Our diets get less healthy, as well, which increases the risk for diet-related illnesses like heart disease and diabetes. Protecting environments like the forests and oceans ensures there's food for every living thing.

4. **Many diseases come from the environment:** When humans push into the territory of other animal species, diseases spread. About 60% of human infections originate from animals. Covid-19 is most likely a zoonotic disease while diseases like bird and swine flu also come from animals. The Bubonic plague, which wiped out ⅓ of Europe, came from a bacteria carried by a flea

and spread by rats. Making sure humans have enough separation from animals protects our health.

5. **Trees clean the air:** Polluted air is a major issue in our world. 9 in 10 breathe unclean air, which impacts their health and lifespans. Health effects include developmental delays, behavioural problems, and diseases like Alzheimer's and Parkinson's. Every year, polluted air contributes to the deaths of 7 million people. Trees are an especially effective filter. They remove air pollutants like nitrogen dioxide, carbon monoxide, and sulphur dioxide while releasing oxygen.

6. **Unhealthy environments kill children:** Environmental factors account for many infant and childhood deaths every year. Issues include a lack of access to clean water and clean air. Waterborne diseases alone kill about 1.4 million kids each year. To save the lives of children, healthy environments and basic rights like clean air and water are necessary.

7. **The environment provides medicine:** The vast majority of medicines have origins in the natural world. As an example, chemicals from the Pacific yew tree led to the creation of two chemotherapy drugs. Scientists and pharmaceutical companies constantly look to the environment for new and better medicines. Unfortunately, about 15,000 medicinal plant species face extinction, so if they go, humans miss out on potentially life-saving drugs.

8. **Being in nature improves mental health:** Mental health is complex. It's the result of factors such as genetics, lifestyle, relationships, and the environment. Researchers have studied the effects of nature and green spaces on mental health for years. Many studies show a significant benefit. In a 2019 review in Current Directions in Psychological Science, researchers found that green spaces near schools encourage cognitive development and better self-control

in children. Another review from Science Advances learned that nature is associated with better happiness, well-being, and a sense of purpose.

9. **Climate change impacts the environment:** Humans drive climate change. In the 6th report from the IPCC, the authors determined that the last decade was the hottest in human history and we can now link specific weather events to human-made climate change. Climate change's effect on the environment is hard to overstate. Diseases, droughts, severe weather events, and more threaten plants, animals, and humans. If fossil fuel emissions aren't reduced immediately, the environment will become uninhabitable.

10. **Caring for the environment saves the planet:** It's challenging not to feel hopeless in the face of environmental disasters and climate change. However, we can't afford to be hopeless and there are many solutions we still have time to implement. Protecting plant and animal species, conserving healthy green spaces, and reducing emissions will make a difference. Humans can save the planet for future generations by caring for the environment.

1.04 TYPES OF ENVIRONMENTS

There are two different types of environments: Geographical Environment and Man-made environment.

1. **Geographical Environment:** It consists of all components provided by nature and hence can be called as the natural environment. It is also referred to as the physical environment as it pertains to the physical requirements of life. These physical or geographic conditions are not dependent on the existence of humans. Sometime, humans have no control over the physical conditions of the environment. It includes natural resources, the earth's surface, mountains, plains, land, water, deserts, storms, cyclones, volcanoes, oceans, climatic factors, and so on. It is also used to refer to biological situations such as complexities associated with plants and animals. The sustainability of the natural resources is known as to contribute towards the economy of a country.

2. **Man-Made Environment**: This environment is used to refer to the one created by man in order to regulate and monitor certain environment conditions. Some address it as a social cultural environment. It can further be divided into two types of environments.

    i)   **Inner Environment:** The Inner Environment: It is a social environment and it exists as long as a particular society exists. It pertains to the regulations, traditions, organizations and institutions. It involves customs and folkways which is existent in every human group. It is addressed with names such as non-material culture, social heritage etc. This heritage is essential for the social life of humans to flourish, it is known to have an influence on an individual's life. The altered form of the economic and physical environment -artificial environment, are seen as two different aspects of the man-made environment.

    ii)   **Outer Environment:** Through advancement in the field of science and technology, humans have attempted to alter conditions of their physical environment. This outer environment is as a result of these modifications which includes modern infrastructure in cities., our homes and their associated amenities, our modes of communication and transport, our resorts to conveniences and luxury, different kinds of industry manufacturing luxurious commodities, electrical appliances and so on which ultimately aims at civilization and urbanization. The inner and the outer environments are correlated and hence inseparable.

1.05 ENVIRONMENTAL POLLUTION

Environmental Pollution is not a new phenomenon, yet it remains one of the greatest threats to the health and well-being of humanity and one of the major environmental causes of death and morbidity. For example, substances such as plastic materials, heavy metals, etc., once released into the atmosphere. By natural processes, it cannot be degraded and are harmful to living organisms. In environmental pollution, pollutants originate from a source, are transported by air or water, and are dumped into the soil by human beings.

The long-term impacts of pollution are still being felt despite global attention to the issue. Day by day, our atmosphere is becoming more and more polluted due to anthropogenic activities. It is usually due to the pollutants released into the air, water, soil, etc., through many human activities. Let us examine the different types of environmental pollution.

Environmental Pollution is the effect caused by undesirable changes in our surroundings that have harmful impacts on plants, animals, and human beings. A substance that causes Pollution is known as a Pollutant. Pollutants can be solid, liquid, or gaseous substances present in greater concentrations than in natural abundance and may produce due to human activities or natural happenings. For example, an average human being requires around 12−15 times more air than food. So, even a tiny number of pollutants in the air becomes significant compared to similar levels in food.

Pollutants are generally grouped under two classes:

(a) **Biodegradable pollutants:** Biodegradable pollutants are broken down by the activity of micro-organisms and enter into the biogeochemical cycles. Examples of such pollutants are domestic waste products, urine and faucal matter, sewage, agricultural residue, paper, wood and cloth etc.

(b) **Non- Biodegradable pollutants:** non-biodegradable pollutants are stronger chemical bondage, do not break down into simpler and harmless products. These include various insecticides and other pesticides, mercury, lead, arsenic, aluminium, plastics, radioactive waste etc.

1.06 TYPES OF POLLUTION

The following are the four main types of pollution present in our environment

I.   **Air pollution:** The disturbances caused to the composition of the air due to contamination of the atmosphere by human activities are known as air pollution. Air pollution is defined as any contamination of the atmosphere that disturbs the natural composition and chemistry of the air.

Sources of Air Pollution

- Primarily air pollutants can be caused by primary sources or secondary sources. The pollutants that are a direct result of the process can be called primary pollutants. A classic example of a primary pollutant would be the sulphur-dioxide emitted from factories

- Secondary pollutants are the ones that are caused by the inter mingling and reactions of primary pollutants. Smog created by the interactions of several primary pollutants is known to be as secondary pollutant.

Causes of Air pollution

1. Sulphur dioxide is emitted from the combustion of fossil fuels like coal and petroleum. Carbon monoxide is produced due to incomplete burning of fossil fuels. Nitrogen oxides are produced mainly by automobiles, aircraft, thermal power stations and factories.

2. Carbon dioxide is largely released into atmosphere by burning of fossil fuels. It is also emitted by volcanic eruptions.

3. Ammonia is a common by product from agriculture related activities. Use of insecticides, pesticides and fertilizers in agricultural activities emit harmful chemicals into the air.

4. Industries release large amount of carbon monoxide, hydro carbons, organic compounds and chemicals into the air depleting the quality of air.

5. During mining process dust and chemicals are released into the air causing air pollution.

Effects of Air pollution

1. Toxic gases like sulphur dioxide and carbon monoxide affect the respiratory system and cause bronchitis, asthma and lung cancer. Sudden leakage of toxic gases from chemical and gas plants causes loss of life like we have seen in the case of Bhopal gas tragedy.

2. Air pollution severely affects weather and climatic conditions of a region. Air pollutants have impact on humidity, clouds and rainfall.

3. Global warming is caused due to the increase in concentration of certain gases like carbon dioxide, nitrogen oxides, and methane and chlortoluron carbons in the air.

4. Harmful gases like nitrogen oxides and sulphur oxides released into atmosphere during the burning of fossil fuels combine with water droplets. Then they fall on the ground in the form of acid rain.

5. Ozone exists in earth's stratosphere and is responsible for protecting humans from harmful ultraviolet rays. Earth's ozone layer is depleting due to the presence of chlortoluron carbons and hydro chlortoluron carbons in the atmosphere.

Solutions for Air Pollution

1. People must be encouraged to use more and more public modes of transportation to reduce pollution.

2. Gaseous pollutants can be removed by spraying water, filtration or absorption.

3. Burning of fossil fuels is to be reduced as far as possible.

4. Engines of automobiles are to be redesigned to reduce emission of toxic gases. Emission test for vehicles is to be made compulsory.

5. The industrial areas should be located at certain safe distance from the residential areas.

6. There should be green belt around town ships, industrial areas and villages.

7. Steps should be taken to prevent forest fires. It is also important to check deforestation.

8. The height of smoke chimneys should be high enough to dilute the smoke.

9. Electrical energy is to be efficiently used because large amount of fossil fuels is used to produce electricity.

10. Use of alternate sources of energy like solar and wind energy must be encouraged.

II.	**WATER POLLUTION:** Water pollution involves any contaminated water, whether from chemical, particulate, or bacterial matter that degrades the water's quality and purity. Water pollution can occur in oceans, rivers, lakes, and underground reservoirs, and as different water sources flow together through the water cycle the pollution can spread.

Sources of Water Pollution: There are various classifications of water pollution. The two chief sources of water pollution can be seen as Point and Non-Point.

- **Point** refers to the pollutants that belong to a single source. An example of this would be emissions from factories into the water.
- **Non-Point** on the other hand means pollutants emitted from multiple sources. Contaminated water after rains that has travelled through several regions may also be considered as a non-point source of pollution.

Causes of Water Pollution

1. Natural sources of water pollution are soil erosion, landslides, volcanic eruptions and decomposition of plants and animals. The brown and dirty water is the result of mud mixed in the water due to soil erosion.

2. Urban sources of water pollution include domestic effluents and sewage water. Sometimes sewage water flows into nearby rivers, tanks or lakes.

3. Industrial sources of water pollution include the effluents generated from industries such as paper, chemicals and patron chemicals, oil refineries, metal works, distilleries, textiles etc.

4. Agricultural sources of water pollution include excessive use of fertilizers, pesticides and insecticides.

5. When the acid rain falls it contaminates water bodies including streams, rivers and lakes.

Effects of Water Pollution:

1. Consumption of highly contaminated water can cause injury to the heart and kidneys.

2. Polluted water is greatly responsible for several water borne diseases like cholera, typhoid, diarrhoea, dysentery etc.

3. Toxins within water can harm aquatic organisms breaking a link in the food chain.

4. Use of polluted water from rivers, lakes and ponds for irrigation affects food quality.

5. Highly polluted water decreases the fertility of the soil and also kills useful micro – organisms.

Solution for Water Pollution

1. The drinking water sources must be kept clean.
2. Provision must be made to establish sewage treatment plant.
3. Industries should not be allowed to discharge their effluents into the water bodies without treatment.
4. There should be a ban on the disposal of dead bodies into water bodies.
5. Use of pesticides in agriculture is to be minimized.

III. **SOIL POLLUTION:** Soil, or land pollution, is contamination of the soil that prevents natural growth and balance in the land whether it is used for cultivation, habitation, or a wildlife preserve. Soil pollution refers to anything that causes contamination of soil and degrades the soil quality.

Main Causes of Soil Pollution

1. Human activities have led to acidification of soil and contamination due to the disposal of industrial waste like heavy metals, toxic chemicals, dumping oil etc.
2. Lack of crop rotation and intensive farming gradually decreases the quality of soil causing degradation of land.
3. Disposal of plastics, cans, electrical goods like batteries cause an adverse effect on the soil due to the presence of harmful chemicals.
4. Use of chemical fertilizers, inorganic fertilizers, pesticides will decrease the fertility of the soil and alter the structure of the soil.
5. The storage of waste products may leak into ground water.

Effects of Soil Pollution:

1. Soil pollutants can cause cancer, skin diseases and central nervous system disorders in human beings. For example, high concentration of lead or mercury in the soil can affect functioning of kidneys and liver.
2. Crops and plants grown on polluted soils can accumulate poison and become unfit for human consumption.
3. Soil pollution contributes to air pollution by emitting toxic particles and foul gases into the atmosphere. It can also lead to water pollution if the toxic chemicals and materials reach the ground water.
4. When soil is contaminated with poisonous materials and chemicals, it cannot support plant life.
5. Fertility of the soil decreases once the soil is contaminated with chemicals and heavy metals or degraded due to human activities such as mining.

Solution for Soil Pollution

1. Minimum use of chemical pesticides or they can be replaced by bio-pesticides.
2. Safety measures can prevent the leakage of radioactive substances and ionizing radiations from nuclear power plants.
3. Composting solid wastes can reduce soil pollution and lead to manure production.
4. Safe disposal of non-degradable pollutants like metal containers and plastics.
5. Sewage treatment before disposal.

IV. **NOISE POLLUTION:** Noise pollution refers to undesirable levels of noises caused by human activity that disrupt the standard of living in the affected area. Noise by definition is "sound without value" or "any noise that is unwanted by the recipient". Noise in industries such as stone cutting and crushing, steel forgings, loudspeakers, shouting by hawkers selling their wares, movement of heavy transport vehicles, railways and airports leads to irritation and an increased blood pressure, loss of temper, decrease in work efficiency, loss of hearing.

Causes of Noise Pollution

1. Various industries such as iron and steel, automobiles, power plants, textiles, petroleum, fertilizers etc. involve different operations that produce noise.
2. Household gadgets like T.V., radio, music systems, coolers, washing machine, food processors generate noise.
3. Surface transport is one of the major sources of noise pollution in big cities. The horns from cars, buses, trucks, bikes and two wheelers cause a lot of noise.
4. Festivals and religious activities where public address systems are used often generate a lot of noise.
5. Construction activities where machinery is used also contribute to noise pollution.

Effects of Noise Pollution

1. The most direct harmful effect of excessive noise is physical damage to the ear and the temporary or permanent hearing loss.
2. Excessive sound levels can cause harmful effects on the circulatory system by raising blood pressure and altering pulse rates.
3. Noise Pollution can affect biological functioning of the body and result in anxiety, insomnia, hypertension and giddiness, loss of physical control etc.
4. Chronic noise may also lead to abortions and congenital defects.
5. Noise Pollution can cause psychological effects such as irritability, stress, lack of concentration and mental fatigue.

Solution for Noise Pollution

1. Factories which mainly produce noise should be established for away from residential areas.
2. Airports should be located at least 20 kilometres away from residential areas.
3. Planting green trees along the road side reduces the intensity of noise pollution.
4. Construction of sound proof rooms for noisy machines in industries must be encouraged.
5. Use of ear plugs can bring down loud noises to manageable level.

1.07 IMPORTANCE OF ENVIRONMENTAL CONSERVATION

1. **Importance to agriculture:** Agriculture relies on the environment, and so do we rely on agriculture. A country's wealth could be measured on its ability to feed its people, although not all nations can produce agriculturally. Conserving the environment, with regards to agriculture, could mean preventing soil erosion, flooding and desertification, and could help its citizen have something to eat. Unsustainable farming techniques impact natural ecosystems and make farming impossible.

2. **Importance to fishing:** The various bodies of water, like the oceans, lakes and seas are another source of essentials such as food. All over the world, communities depend on seafood and related activities. Marine conservation is therefore vital in protecting human food supplies, human activities and marine animals. It saves more animals from extinction and also feeds land animals which depend on water. Some of the major challenges affecting the oceans include overfishing and pollution.

3. **Importance to the climate:** Human activities have a direct impact on the climate and a subsequent effect on all life. Global warming, linked to greenhouse gas emissions, which is an adverse effect on the climate, results in droughts, floods, rising sea levels and cases of extreme heat and cold. Climate change is a result of human activities and has been linked to excess rainfall, extreme weather and a change in regular weather patterns. Conserving natural environments should be done to see these extreme outcomes reversed, making the world a better place. For instance, reforesting will bring about rainfall, which will facilitate agriculture.

4. **Excellent water quality:** Conservation measures ensure there is excellent-quality water for all. This, in turn, has both social, environmental and economic benefits. Economically, conservation of the environment boosts tourism, provides catch for fishing, decreases the cost of healthcare, and provides an environment for the ecotourism industry. Socially, a conserved environment decreases the prevalence of water-borne diseases, increases

the quality of water entering aquifers, helps use surface water for recreation and increases the overall quality of life. Environmentally, a conserved environment preserves the diversity of water-dependent plants and animals and preserves the various natural services of aquatic ecosystems.

5. **It leads to healthy air quality:** Again, a conserved environment provides good-quality air, which also has both social, economic and environmental benefits. Economically, it boosts tourism, decreases healthcare costs and decreases the erosion of buildings and pavements. Socially, it decreases the prevalence of circulatory and lung-related diseases and also increases the quality of life for the residents. Environmentally, it preserves water quality and preserves aquatic ecosystems and biodiversity.

6. **Preserves biodiversity:** A conserved environment preserves biodiversity, which has equal benefits to the ones mentioned above. It preserves water and land-based ecosystems, preserves energy flow throughout the biosphere, provides for natural services, preserves food webs, and boosts nature-based tourism.

7. **It protects wildlife:** Environmental conservation protects wildlife and promotes biodiversity. Maintaining a healthy and functional ecosystem helps prevent the extinction of certain animal species. If the environment is destroyed, some animals are forced out of their habitat, making it hard for them to survive elsewhere. It could also bring about human and animal conflict, which ends disastrously for both species.

8. **It protects human health:** Environmental conservation will in turn protect and improve human lives and health. If the environment is destroyed, new diseases emerge, and species that could help produce medicines are destroyed. Wild habitats are particularly important as they prevent emerging infectious diseases from jumping from animals to humans.

1.08 ENVIRONMENTAL EDUCATION

Environmental education is defined as education that helps individuals to become knowledgeable about their environment to develop responsible environmental behaviour and skills so that they can improve the quality of the environment.

Environmental education is a process that allows individual to explore environmental issues, engage in problem solving and take action to improve the environmental.as a result individuals develop a deeper understanding of environmental issues and have the skills to make informed and responsible decision.

Environmental education is a methodology in which people pick up familiarity with their surroundings and secure learning, abilities, values, experiences and passion, all of which will empower them to act separately and aggregately to take care of present and future environmental issues. It is the studies of relationship and interactions between natural and human systems. In short, environmental education is provided so that people can have a better understanding of the world around them and know how to take care of it property so that the world can be a better place. Environmental education is a complex field, it covers a variety of different topics that are related to the environment. It even has some aspects of engineering in it, which means that a person can even start to understand how they can play a role in environmental engineering. It furnishes individuals with the mindfulness required to build up organizations, comprehend NGO exercises, create participatory methodologies to urban planning, and guarantee future markets for eco-business. All are these are not only good for the economy as well, so everyone gets to benefit from the efforts of those who are going through environmental education.EE is taught in schools, communities and in centres like parks, zoos and museums.

1.09 CHARACTERISTICS OF ENVIRONMENTAL EDUCATION

The characteristics of environmental education include:

1. It is a lifelong process.
2. It is inter-disciplinary and holistic in nature and its application.
3. It is an approach to education as a whole, rather than a subject.
4. It concerns the inter relationship and inter connectedness between human natural systems.

5. It views the environment in its entirety including social, political, economic, technological, moral, aesthetic and spiritual aspect.

6. It encourages participation in the learning experience.

7. It emphasises active responsibility.

8. It uses a broad range of teaching and learning techniques, with stress on practical activities and hands- on experience.

9. It is concerned with local to global dimensions, and past/present/future dimensions.

10. It should be enhanced and supported by the organisation and structure of the learning situation and institution as a whole.

1.10 IMPORTANCE OF ENVIRONMENTAL EDUCATION

Environmental study is based upon a comprehensive view of various environmental systems. It aims to make the citizens competent to do scientific work and to find out practical solutions to current environmental problems. The citizens acquire the ability to analyse the environmental parameters like the aquatic, terrestrial and atmospheric systems and their interactions with the biosphere and astrosphere.

Importance

1. World population is increasing at an alarming rate especially in developing countries.

2. Environment is the basis of all life and therefore deserves proper care and management.

3. The natural resources endowment in the earth is limited. The methods and techniques of exploiting natural resources are advanced. The resources are over-exploited and there is no foresight of leaving the resources to the future generations. The unplanned exploitation of natural resources leads to pollution of all types and at all levels.

4. The pollution and degraded environment seriously affect the health of all living things on earth, including man.

5. The people should take a combined responsibility for the deteriorating environment and begin to take appropriate actions to save the earth.

6. Education and training are needed to save the biodiversity and species extinction.

7. The study enables the people to understand the complexities of the environment and need for the people to adapt appropriate activities and pursue sustainable development, which are harmonious with the environment.

8. The study motivates students to get involved in community action, and to participate in various environment and management projects.

9. If the environment is threatened on a continuous basis, numerous problems which would constitute a danger to human existence could arise.

10. The environment is part of our cultural heritage which should be handed down to prosperity.

11. Some resources of the environment are not easily replaceable and should be managed on a sustainable basis, to prevent the extinction of certain components of the environment such as plants and animals.

12. There is need to enhance the sanity and aesthetic quality of our environment in order to promote healthy living.

13. The environment is part of nature and needs to be preserved for its own sake. It is a high time to reorient educational systems and curricula towards these needs.

14. Environmental education takes a multidisciplinary approach to the study of human interactions with the natural environment.

15. Environmental study is a key instrument for bringing about the changes in the knowledge, values, behaviours and lifestyles required to achieve sustainability and stability within and among countries.

Environmental education deals with every issue that affects an organism. It is essentially a multidisciplinary approach that brings about an appreciation of our natural world and human impacts on its integrity. It is an applied science as it seeks practical answers to making human civilization sustainable on the earth's finite resources.

1.11 BRIEF PROFILE OF MAMIT DISTRICT

Mamit is one of the districts of Mizoram in India, the population of Mamit in 2023 is 120,046 (estimates as per Aadhar uidai.gov.in Dec 2023 data). Literate people are 60,191 out of 32,977 are male and 27,214 are female. People living in Mamit depend on multiple skills, total workers are 39,339 out of which men are 24,016 and women are 15,323. Total 26,937 Cultivators are dependent on agriculture farming out of 16,765 are cultivated by men and 10,172 are women. 1,963 people works in agricultural land as labour, men are 1,111 and 852 are women. Mamit sex ratio is 927 females per 1000 of males. The district has a total area of 3,025 sq. km., 41 sq. km is urban and 2984 sq. km is rural.

Mamit is the least urbanised Districts of Mizoram with 17.25 % of Total Population i.e., out of 86364 only 14,899 people are living in urban areas. Against the State level Sex Ratio of 976, Mamit district comprises of 927 sex ratio which is the lowest among all eight District in the State. In terms of Literacy rate Mamit District is the second least Literacy Rate with 84.9 out of all Eight District of the State. West Phaileng village is the most populated Village with population of2,1,309 while Saitlaw with a population of Only 59 persons is the smallest village in the District. Against a total Population of 94.4 % Scheduled Tribes in the State, The Scheduled Tribes Population of Mamit is 95.0 %.

Rural areas are lacking proper health facilities. One-tenth of the villages of district Mamit have a PHC and only 1.2 per cent have MCW centre. Health facilities are very inadequate and none of the sample village has a PHC, hospital/dispensary, maternal and child care centre, and family planning clinic. Accessibility to health facilities is not satisfactory. Development and welfare orientation organizations are lacking in most of the villages.

There are two colleges in Mamit District

1.12 GOVT. MAMIT COLLEGE

The Govt. Mamit College was established under the patronage of local enthusiasts including local leaders, Village Council members and local educated persons longing for higher education. It was opened with a few students on 1st April 1983 by the then SDO (Civil) Pu R.Selthuama.

In the beginning, the College was known as Kaichhunga College, christened after Kaichhunga, an enthusiast in higher education from Aizawl who generously donated a sum of Rs. 40000/- (Rupees forty thousand), then a big amount, to run the college. Later it was renamed as Mamit College in March 1987.The College was run solely on the financial contributions made by the local people, imminent persons and Village Council leaders till the College was upgraded to Deficit Status in April 1993.

At present, the college has 158 students and was recently accredited B+ Grade by NAAC.

1.13 GOVT. ZAWLNUAM COLLEGE

Govt. Zawlnuam College is a college in Zawlnuam, Mamit district of Mizoram. The college is affiliated to Mizoram University. The College has 84 students at present Zawlnuam College was established in the year 1986, provincialized in 2007. It got NAAC accreditation "B" Grade in 2022.

Govt. Zawlnuam College is the only institution of higher education in the North West corner of Mizoram bordering Tripura and Assam. Located in the tranquil area surrounded by lush green landscape, the College was established in January 14, 1986. A place far distant from the state capital Aizawl, the founder of this college felt the necessity of an institution of higher education in this part of the state. Since then, this institution has remained a center of quality learning and academic exchange and already gained a reputation of academic excellence by gaining higher positions in academic matters among the colleges of Mizoram. The motto of the college is "Ever Progressing".

1.14 LITERATURE REVIEW

Ültay, E. (2022) conducted a study to determine and interpret the metaphorical perceptions of primary school pre-service teachers towards environmental pollution. The "phenomenology" research design was used in this study. The study group of this research consists of a total of 372 primary pre-service teachers. Data were collected using semi-structured forms to determine the metaphorical perceptions of primary school pre-service teachers. The pre-service teachers were asked to complete the sentence, "Environmental pollution is like... because....". At the conclusion of multiple comparisons, by the relation degree between environmental pollution and its metaphors, it was determined that significant difference was in favour of the 2nd year between the 2nd and 4th years and in favour of the 3rd year between the 3rd and 4th years. As a result of the research, it was discovered that the majority of the metaphors produced by the pre-service teachers were in the "human" and "harmful/dangerous/uncomfortable situations" categories. Furthermore, the study discovered that as the year level increased, the number of related metaphors about environmental pollution decreased.

Dolenc Orbanic, N. & Kovac, N. (2021) conducted a study to assess and compare pre-service preschool and primary school teachers' environmental awareness, attitudes, and behaviour, as well as their opinions about environmental education. The data were collected using a questionnaire. Results showed that students have a relatively high level of environmental awareness and mostly demonstrated a positive attitude towards nature and its protection. The research showed no significant differences in the responses of students of both programs in general, which indicates that the course contents have a less significant influence on students' awareness, behavior, and attitudes. According to the findings, there is a need for an improved course within the teacher training program, especially with the implementation of more innovative teaching methods and activities to increase students' environmental literacy.

Duran, M. (2021) conducted a study to determine the perceptions of preschool children on environmental pollution. A qualitative research method was employed in the current research. The data of the study were collected by semi-structured interview and drawing techniques and the obtained data were analysed with a descriptive analysis method. The sample consisted of 67 children between 3 and 6 years of age, attending the kindergarten of different schools located in Giresun city centre. It was observed that the 3-year-old group emphasized germs and 4- and 6-year-old groups emphasized air and sea pollution. In terms of information sources, the 3- year-old group usually stated their mother, while the groups of 4, 5, and 6-year-olds stated both their mothers and fathers. The children had difficulty in expressing the factors that cause air pollution verbally in the interviews, but in their drawings, they were able to reveal their air pollution perceptions more easily and concretely.

Recepoglu, S. (2021) conducted a study to determine the opinions of secondary school students about environmental problems by using the cartoons drawn by the students. The study group of the research consists of 28 students studying in primary education second grade in the 2020-2021 academic year. The research is a case study conducted with a qualitative research approach. The findings of the research were analysed by content analysis. According to the results of the research, the students stated that the most important environmental problem was pollution. Students stated that environmental pollution, air pollution, garbage problem, wastes, water pollution, deforestation, depletion of natural resources were the first among environmental problems. According to the other finding of the study, the students mostly mentioned the individual responsibilities that people should fulfil in solving environmental problems.

Osuji, O (2021) conducted a study aimed to investigate the relationship between consciousness about environmental education (EE) concepts in senior secondary school chemistry curriculum and the attitude of Nigerian chemistry students toward the environment. The study utilized a descriptive survey design using simple random sampling and stratified proportionate sampling techniques. A sample of 400 senior secondary school science students from the 18 senior secondary schools participated

in the study. Two structured questionnaires "Students Attitude to Environment Questionnaire" (SAEQ) and "Students Consciousness toward Environment Questionnaire" (SCEQ) were developed by the researcher. The findings from the study revealed that the student environmental consciousness influenced their attitude toward the environment and that students' continuous exhibition of attitude toward the environment was rooted in their inadequate consciousness or knowledge of the causes and effects of environmental problems. As a result of this research, it is recommended that the Ministry of Education updates the curriculum of senior secondary school managing EE content.

Özonur, M. (2021) conducted a study to measure the level of awareness of prospective teachers pertaining to environmental issues. The "Awareness Scale for Environmental Issues", which consists of 44 items with a 3-point Likert type scale, was used as the data collection tool for this study. Survey items were grouped into 6 factors. Results suggest that the general awareness level of environmental issues among prospective teachers was above average. Also, when the data were analysed by academic year and department of study, results indicate a significant difference between prospective teachers' level of awareness regarding environmental issues.

Çalis, D. & Yildirim, H.I. (2020) conducted a study to determine the effect of prediction, observation, explanation supported project based environmental education (POESPBEE) on the attitudes and behaviors levels of eighth grade students compared to teacher-centered environmental education. The study used a quasi-experimental research design including pre-test, post-test and control group. The study group included 62 students, 34 of whom were in the experimental group and 28 of whom were in the control group. Attitude Scale toward Environment and Behavior Scale toward Environment were administrated as pre-test, post-test and follow-up test to evaluate the attitude and behavior levels of the students in the experimental and controll groups toward the environment. The study found that the POESPBEE provided a significant development on students' attitude and behavior; however, teacher-centered environmental education could not provide a significant development on the students. Based on this result, it can be claimed that the methods

like the POESPBEE, which can change individuals' attitudes and behaviors toward the environment in positive way, should be used in environmental education.

Gamira, D. (2020) analysed the level of environmental awareness for Advanced level students at three secondary schools in Masvingo Urban. The study purposively sampled 20 students. Data has been generated through Environmental Awareness Test (EAT), questionnaire and interview. The study revealed that environmental knowledge for advanced level learners is exceptionally high as indicated in their responses for EAT. Despite their higher level of environmental knowledge, their environmental participation has been only restricted to school boundary due to external influences like shortage of resources and economic factors that limit environmental participation.

Kalayci, S. (2020) conducted a study to determine cognitive structures about environmental pollution of pre-service science teachers and their perceptions of the most important environmental pollution in their lives. Data was obtained from 33 pre-service science teachers. In this research, both quantitative and qualitative research methods were used together. Data is collected with word association test, open-ended questions, and drawing technique. The data obtained were analysed using descriptive analysis and content analysis methods. According to the data obtained from the word association test, environmental pollution was put into four categories. These categories are 'sources of pollution', 'types of pollution', 'consequences caused by pollution' and 'those affected by pollution'. The pre-service teachers drew mostly air pollution and then water and soil pollution in their drawings. Similarly, pre-service teachers wrote mostly air and water pollution as the most important environmental pollution. The majority of the pre-service teachers were seen to have the perception that humans cause environmental pollution. However, it was determined that some pre-service teachers hardly mentioned the extent of pollution over other living things.

Nyberg, E. et.al. (2020), conducted a study to investigate attitudes towards nature and the environment among 1,109 teachers and student teachers in Sweden and France, using the 2 factor Model of Environmental Values (2-MEV). The results imply that in both Sweden and France, teachers and student teachers hold a prevailingly eco-centric attitude, as opposed to an anthropocentric attitude, which possibly indicates a predominantly positive approach towards the environment and environmental education. Comparisons between the countries show, however, that the Swedish teachers and student teachers hold a more anthropocentric attitude than the teachers and student teachers in the French sample.

Önal, N.T. (2020) conducted a study to determine the self-efficacy beliefs and attitudes of pre-school teacher candidates towards environmental education and to examine the relationship between these two variables. The research was conducted based on an exploratory sequential mixed-methods design. In the study, quantitative data was collected using the attitude scale towards environmental issues, and a self-efficacy scale for environmental education, while qualitative data was collected through semi-structured interviews with 35 teacher candidates. As a result, it was found that the self-efficacy beliefs and attitudes of pre-school teacher candidates in environmental education were moderate. In addition, it has been found that there is a positive relationship between self-efficacy beliefs in environmental education and in attitudes towards environmental issues.

Özer-Keskin, Melike; Aksakal, Esma (2020) examined the environmental literacy levels and environmental pollution images of 7th grade pupils in primary education. The study was conducted with 76 pupils in four classes of a public secondary school in the city of Ankara in the 2018-2019 academic year. 35 (46.1%) female and 41 (53.9%) male pupils participated in the study. The Environmental Literacy Scale, the Environmental Sensitivity Scale, the Environmental Behaviour Scale, and the Cognitive Skills Interview Form developed by Sontay, Gökdere, and Usta (2015) were used in the study. In addition, the pupils were asked to draw environmental pollution themed pictures in order to explore their images of environmental pollution.

Benzer, S. et.al. (2019) conducted a study aimed to examine the effects of educational films on the second-grade elementary school teacher candidates' attitudes and awareness towards environmental problems. In this study, two pre-existing groups were randomly assigned to experimental and control groups, so the study was designed according to the pre-test post-test control group quasi-experimental design. Participants from whom data were gathered were identified through purposive sampling. The awareness scale towards environmental problems and the attitude scale towards environmental problems were used as data collection tools in the study. According to the results there was a significant difference between the awareness scale mean post-test scores in favor of the experimental group. Also, the attitude scale mean post-test scores of the teacher candidates were compared and there was no difference between the attitudes mean scores of the teacher candidates.

Danielraja, R. (2019) conducted a study with a sample of 180 students from Standard XII using environmental awareness scale for assessing the significance difference in the mean scores of environmental awareness. The results indicated that there was a significant difference in the mean scores of Environmental awareness between the students belonging to science group and arts group, there existed significant difference in the mean scores of Environmental awareness between the students belonging to science group and vocational group, there existed no significant difference in the mean scores of Environmental awareness between the students belonging to vocational group and arts group. There existed no significant difference in the mean scores of Environmental awareness between the students in terms of gender and in terms of types of institution.

Punzalan, C.H. et.al (2019) conducted a study to identify the level of awareness of the grade 8 Filipino students in urban and rural school contexts based on the seven environmental themes. It also aimed to determine its implications in teaching science. This descriptive quantitative study used purposive sampling. An Environmental Awareness Questionnaire (EAQ) was deployed using a sample of 150 students from two urban private schools and 150 students from one rural public school. From the conducted research, the analysis revealed that the students from urban schools have

high level of environmental awareness while the students' rural schools expressed very high level of using descriptive statistics. However, no significant difference was identified between the students' environmental awareness using z-test statistical analysis, which was then further supported by the values of standard deviation from two sample groups. Students situated in urban area manifested environmental awareness are greatly influenced by the fact that they are directly benefiting from the environment they live in.

Buldur, A. & Ömeroglu, E. (2018) conducted a study to determine the level of awareness and attitudes towards environment of pre-school children's and their teachers' and to examine the relationship between them. This study was based on correlational research model. The study group consisted of 26 pre-school teachers working in kindergartens and primary schools in a province, and 208 children in the 5-6 age groups in which these teachers entered their classes. In this study, "Environmental Awareness and Attitude Scale for Pre-school Children" was used to determine the awareness and attitudes of pre-school children towards the environment. The "Attitudes towards Environmental Problems Scale" was used to determine the attitudes of pre-school teachers' to the environmental problems and the "Awareness Scale for Environmental Problems" was used to determine teachers' awareness of environmental problems. As a result of the study, it was determined that pre-school children's attitudes towards environmental problems are high but their awareness about environmental problems is moderate. On the other hand, it was determined that pre-school teachers' attitudes towards environmental problems were moderate and their awareness of environmental problems was generally high. Finally, it was determined that a moderately significant relationship was found between pre-school children's and their teachers' attitudes towards environmental problems, while there was a weak relationship between children's and their teachers' awareness of environmental problems.

Altunoglu,D.B. et.al (2017) conducted a study on secondary school students perceptions of environmental risk perceptions and their attitudes towards the environment. The study was conducted on 1003 secondary school students from Ankara, Turkey. Survey method is used in this study which is descriptive research. To determine the state of the student's environmental risk perception the Environmental appraisal inventory (EAI) was used. New Ecological Paradigm (NEP) scale was used to determine student attitudes towards the environment. Multivariate analysis (MANOVA) has been used to determine whether class, school type, and gender make a difference in the risk perception. The relationship between environmental risk perception and environmental approaches were determined by the Pearson correlation coefficient. In the MANOVA test, it was determined that the gender, school type, and class levels showed a significant difference in terms of scores obtained from the EAI scale.

Raman, A.R. (2016) conducted a study to examine the attitudes and behaviour of Ajman University of Science and Technology (AUST) students towards the environment according to their gender and college. The research was based on a descriptive approach. The sample consisted of (375) students (230 males and 145 females) from different colleges (Law, Information Technology, Mass Communication and Humanities, Engineering, Dentistry and Pharmacy). The Attitudes and Behaviour Scale Towards the Environment (ABSTE) was used to investigate students' attitudes and behaviour towards the environment, and a questionnaire was used to evaluate the environmental science course. Results revealed wide differences in the environmental attitudes and behaviours between the undergraduate students enrolled in environmental sciences and courses and others who did not study the course yet. Findings also showed that females have higher positive environmental attitudes and behaviour than males. Students of Dentistry and Pharmacy colleges have higher positive environmental attitudes and behaviours than students of Law and Information Technology or Mass Communication and Humanities colleges. Engineering students have the least positive environmental attitudes and behaviours. The results generally assert the importance of environmental education in university.

Koc, I. & Kuvac, M. (2016) conducted a study to determine pre-service science teachers attitudes towards environment and to investigate whether their environmental attitudes differ in terms of gender and grade level. A total of 197 pre-service science teachers participated in the study. Personal Information Form and the Environmental Attitude Inventory (EAI) developed by Milfont and Duckitt (2006) were utilized as data collection tools in the study. The data were analysed using the PASW Statistics 18 (SPSS Inc.). According to the results, pre-service science teachers displayed moderately favourable attitudes towards environment. Furthermore, a significant gender difference favouring female pre-service teachers was found in term of total and environmental movement activism, environmental threat, and support for population growth policies dimensions of EAI. In addition, according to the grade level, significant differences were found in favour of senior pre-service teachers in total and human utilization of nature, and support for population growth policies dimension of EAI. Results were discussed based on the findings obtained from the study.

Olufemi, A. C. et.al. (2016) compared the levels of awareness, knowledge and attitudes (AKA) about environmental pollution of secondary school students from two South African provinces. The purpose was to determine the levels of AKA between students living under different environmental conditions. Data were analysed through computing descriptive statistics followed by unpaired t-tests. Statistically significant differences were established between students from the two provinces with regards to all the environmental variables tested, where students from Mpumalanga province had higher mean scores than their counterparts from Gauteng. Students from both provinces identified newspapers as the most important source of information on environmental pollution.

1.15 RATIONALE OF THE PROJECT

The environment that surrounds us have protected human life and have helped it. the protection and conservation of our environment is a concept that even animals are aware of. We, as humans are well aware of the harmful effects that could take place if the environment becomes destroyed. However, even though we are all aware of the importance of the environment, humans still need to be taught that we have to and need to conserve and protect our environment. Due to this, many awareness programs are held on measures that can be taken to conserve the environment. Environmental studies as a subject have been introduced in all levels of education in India. This has helped in creating awareness among the students. The present study attempts to assess the attitude of college students towards environmental pollution. Positive environmental attitude are attitudes favourable to the preservation of environment and such attitude can improve the quality of environment, while negative attitudes are attitudes which are not favourable to the environment and such attitude can be harmful to the environment. College students make a huge impact on the society as well as their younger peers. If their attitude towards environmental pollution is not favourable it could be detrimental to the environment as a whole. As such it is necessary to understand their attitude.

1.16 STATEMENT OF THE PROJECT

The present study was taken up to find out the level of attitude of college students of two colleges within Mamit District i.e., Govt. Zawlnuam College and Govt. Mamit College towards environmental pollution. A comparison of level of attitude between the two colleges will also be analysed. The problem under investigation is stated as:

"Attitude of College students of Mamit District towards Environmental Pollution: A critical study."

1.17 OBJECTIVES OF THE PROJECT

1. To find out the level of attitude of college students in Mamit District towards environmental pollution.
2. To find out the level of attitude of college students in Govt. Zawlnuam College towards environmental pollution.
3. To find out the level of attitude of college students in Govt. Mamit College towards environmental pollution.
4. To find out the level of attitude of Female college students in Mamit District towards environmental pollution.
5. To find out the level of attitude of Male college students in Mamit District towards environmental pollution.
6. To compare the level of attitude of college students in Mamit District towards environmental pollution.
7. To compare the level of attitude of college students in Mamit District towards environmental pollution w.r.t gender.

1.18 HYPOTHESES OF THE PROJECT

1. There is no significant difference in the level of attitude of college students of Mamit District towards environmental pollution.
2. There is no significant difference in the level of attitude of college students of Mamit District towards environmental pollution w.r.t gender

1.19 DELIMITATION OF THE PROJECT

1. The present study is delimited to only college students of Mamit district.
2. The present study is subjected to only descriptive studies.

CHAPTER-II

2.01 POPULATION AND SAMPLE

A research population is also known as a well-defined collection of individuals or objects known to have similar characteristics. All individuals or objects within a certain population usually have a common, binding characteristics or traits.

The population of the present study consist of all College Students of Govt. Zawlnuam College and Govt. Mamit College

Total No. of students at Govt. Zawlnuam College – 85
Total No. of students at Govt. Mamit College – 158

Simple Random sampling method was used to collect samples.

Table 2.01: Sample distribution

Govt. Zawlnuam College		Govt. Mamit College	
Male	**Female**	**Male**	**Female**
15	15	15	15
Total- 30		Total -30	
Grand Total- 60			

2.02 SOURCES OF DATA

Primary data was collected by the researcher by visiting the colleges in the population and asking the respondents to answer the questionnaire from the tool used

Secondary data was collected from reference book and the internet.

2.03 TOOLS USED

The details of the tools are: -

Name of the tools: - ENVIRONMENTAL POLLUTION ATTITUDE SCALE.

Author Name: Prof. (Dr.) M. Rajamanickam

Publisher: - National Psychological Corporation

2.04 SHORT DESCRIPTION OF THE TEST: -

The scale is named as Environmental Pollution Attitude Scale. It is planned to include all aspects related to the environmental pollution. One hundred statements were collected from various sources like books, journals, articles, speeches of eminent scholars in this field, information from environmental pollution control boards and so on. The contemporary literature was mostly explored in collecting the ideas in preparing the statement for this attitude scale. There were 50 positive statements and 50 negative statements. As far as possible the statements were mainly referred to the environmental pollution. These 100 statements were cyclostyled and sent to 30 persons who were experienced in designing psychological test materials and they were asked to state whether the statements truly expressed opinions, certain statements were omitted by way editing the statements. There were 45 statements remained after carefully editing.

The 45 statements were printed and bound into a booklet from and distributed among 500 persons, aged 22 to 50 years of both employed and students. The scale is designed on the pattern of Likert scale technique. Therefore, under each statement five possible responses like, strongly agree, agree, undecided, disagree, and strongly disagree were given. The persons were asked to read each statement. Some of the ideas given in the statements may be agreeable and some may be disagreeable. Whatever idea is expressed in the statement, the person is asked to express his/her feeling by underlining any one of the responses given under each statement. Out of 500 persons only 455 returned the questionnaire after answering. The questionnaires were scored according to the procedure. The strongly agree response of the favourable statement received 5 points, agree 4, undecided 3, disagree 2 and strongly disagree 1.

Similarly for the negative statements the strongly agree response was given 1 point, agree 2, undecided 3, disagree 4 and strongly disagree 5.

The idea of this type of scoring is that the high score is to indicate the favourable attitude towards the environmental pollution. This is accepting the pollution. The low score is to indicate the unfavourable attitude towards the environmental pollution. The total score of all the items constitutes the individual's score.

Tools description: -

Thus, the final form of Environmental Pollution Attitude Scale consists of 30 statements. All the 30 statements are referring to some aspect of environmental pollution. There are 15 positive statements toward the environmental pollution and 15 negative statements against the environmental pollution. The positive statements express that there is environmental pollution and the negative statements express that there is no environmental pollution. In every statement one idea about environmental pollution for or against is expressed. Under each statement five responses such as strongly agree, agree, undecided, disagree and strongly disagree are provided. The participant has to express his opinion about the idea given in each statement by underliving any one of the five responses with which he/she agrees. The responses may be assigned with scores according to the procedures as given in the key. The total score of all the statements constitutes the individuals score. The high score indicates the pro-attitude toward the environmental pollution and the low score indicates the anti-attitude toward the environmental pollution. In other words, the high score indicates the favourable attitude toward the pollution and the low the unfavourable attitude towards environmental pollution.

Table 2.02: Serial number-wise Distribution of Items

Sl. No	Types of Items	Serial Numbers	Total of Items
1	Favourable (Positive)	1,2,5,6,8,10.11,13,15,17,19,21,24,26,30	15
2	Unfavourable (Negative)	2,4,7,9,12,14,16,18,20,22,23,25,27,28,29	15
Grand Total of Items			30

Reliability: -

The reliability of the scale was determined by the split-half method. The scale was divided into two halves and each half was treated as separated test. The statements were numbered from 1 to 45. The odd numbered items were made into a scale and the even numbered items were made into another scale. Thus, we have 22items in each scale. The 45th items were added in both the scales making both with 23 items. The scores of the items were correlated. The product moment coefficient of correlation was used. The correlation coefficient was 66. It was felt that the correlation coefficient (66) was low. Therefore, the items were again scrutinized. The items which were having more responses of 'undecided' were dropped from the sale. Finally, we had 30 statements. The scores of these statements were correlated and the correlation coefficient was found to be 72. The 't' test was used to the correlation coefficient to see the level of significant of the 'r'. It was significant at 0. 01 level. Since the correlation between the two halves was significant at 0.01 level the reliability of the scale was worked out by applying the Spearman-Brown formula to the coefficient of correlation (0.72). The significance of the reliability was tested with 't' test. The 't' test value 33.46 was significant at 0.01 level.

Validity: -

The validity of the scale or the instrument is another prerequisite for a measuring instrument apart from reliability. There are several forms of validity, used to test the consistency of a scale. Validity is inferred from the test scores. The question is how faithfully the scores represent the area of measurement and also to what extend it is related to another or some other scale of similar types. Therefore, the validity is determined with the extensity of the scale in measuring a variable to the level of another scale which measures the same variable significantly. The scale is supposed to reveal the characteristics that a person is presumed to possess. In other words what the trait is supposed to be present in a person should be revealed by the scale. Therefore, validity may be defined as the characteristics of a scale that measure for what purpose it is intended for. When a criterion scale is not available to judge the validity of a scale the intrinsic validity can be tried. The intrinsic validity is also called as the index of reliability (Guilford, 1954). The formula to be used to determine the intrinsic validity is the square-root of its reliability. Thus, the validity of this scale is:

V=√R=√.84=.92. This significance of the validity was tested with a 't' test to see the level of significance. The formula was $r\sqrt{N-2}/\sqrt{1-r^2}$. The t-value 51.72 was significant at 0.01 level. Therefore, the validity was significant at 0.01 level.

Norms: -

On the basis of the statistical results, z-Score Norms have been developed and the same have been presented.

Table 2.03: Norms for Interpretation of the Level of Environmental Pollution Attitude is shown as: -

Sl. No	Range of z-Score	Grade	Level of Environmental Pollution Attitude
1	+2.01 & above	A	Extremely Positive
2	+1.26 to +2.00	B	Highly Positive
3	+0.51 to +1.25	C	Above Average positive
4	-0.50 to +0.50	D	Average
5	-1.25 to -0.51	E	Negative
6	-2.00 to -1.26	F	Highly Negative
7	-2.01 & above	G	Extremely Negative

Scoring procedures: -

The investigator after collecting all the test booklets should scrutinize the answers given by the participant. If any of them did not answer all of them, such questionnaire may be discarded. Then the investigator can score the items with help of the scoring system given in table 4.

Table 2.04: Scoring System

Type of Items	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Favourable (Positive)	5	4	3	2	1
Unfavourable (Negative)	1	2	3	4	5

2.05 COLLECTION OF DATA

Data collection is essentially an important part of research process. For the present study, data were collected through personal visits to the selected colleges and through personal approach to the different students. They were handed over with the questionnaire and were requested to give honest answers after they were made aware that the results of the questionnaire would be kept confidential.

2.06 ORGANIZATION OF DATA

Keeping the objectives of the project in view data was collected and organized accordingly. Data organization was done with the help of tables and pie charts.

2.07 ANALYSIS OF DATA

The data collected by the researcher was analysed quantitatively using descriptive statistics like t- test, frequency, mean and percentage.

CHAPTER -III

3.01 ANALYSIS OF DATA

Data collected was analysed with the help of tables and pie charts. Data was organised based on the objectives of the project and different tables were constructed for each objective. Data analysis was done with the help of percentages and comparison of data was done with the help of t-test.

3.02 INTERPRETATION OF DATA

There are seven levels of Attitude towards Environmental Pollution given in the scale. The highest level is "Extremely Positive" which indicates that the student has a very high level of appreciation for environmental pollution, "Highly Positive" indicates that the students has a relatively high appreciation for environmental pollution, "Above Average Positive" indicates that the students has slightly high level of appreciation for environmental pollution, "Average" indicates that the students has a typical appreciation, "Negative" means having a low appreciation for environmental pollution, "Highly Negative" means having a high level of rejection for environmental pollution and lastly, "Extremely Negative" means that the students has an absolute rejection for environmental pollution.

A positive attitude indicates that students are aware of the environmental problems and are willing to take steps to solve problems related to the environment. A negative attitude implies that students are not aware of environmental issues and problems and are not willing to take steps for its improvement.

An analysis of data collected with the help of the research tools and interpretation of result its beings presented in the following.

OBJECTIVE NO. 1: To find out the level of attitude of college students in Mamit District towards environmental pollution.

Table 3.01: Level of attitude of college students of Mamit District towards Environmental Pollution: -

Sl.No.	Grade	Level of attitude	No. of students	% of students
1	A	Extremely Positive	0	0%
2	B	Highly Positive	1	1.67%
3	C	Above Average Positive	18	30%
4	D	Average	39	65%
5	E	Negative	2	3.33%
6	F	Highly Negative	0	0%
7	G	Extremely Negative	0	0%

Total no. of college students=60

Table 3.01 shows that out of 60 college students 0 (0%) of the students have extremely positive attitude towards environmental pollution, 1(1.67%) of the students having highly positive attitude towards environmental pollution, 18(30%) have above average positive attitude towards environmental pollution, 39(65%) have an average attitude towards environmental pollution, 2(3.33%) have negative attitude towards environmental pollution, 0 (0%) highly negative attitude towards environmental pollution, extremely negative attitude towards environmental pollution.
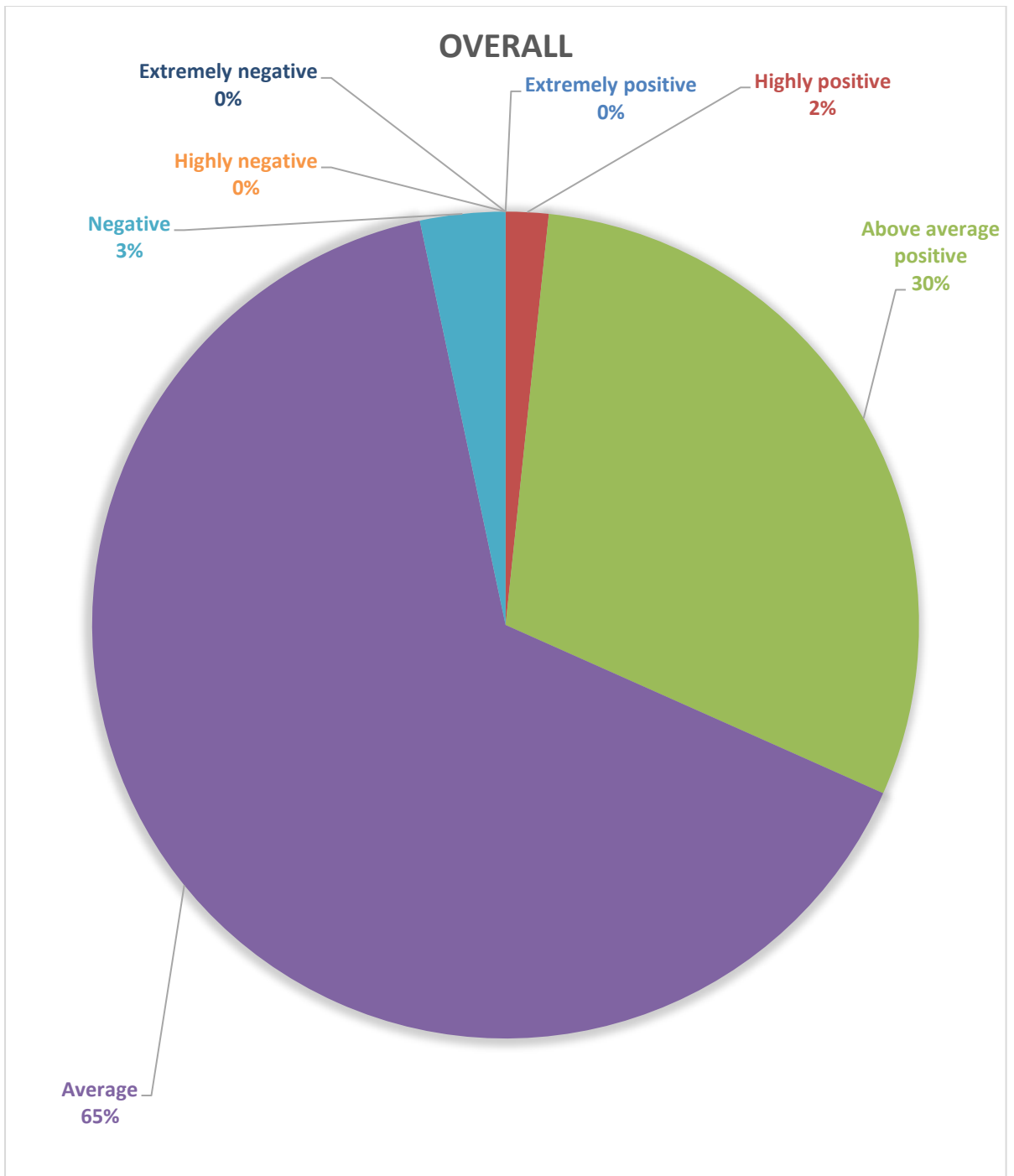
Fig 3.01: Level of attitude of college students of Mamit District towards Environmental Pollution.

OBJECTIVE NO. 2: To find out the level of attitude of college students of Govt. Zawlnuam College towards environmental pollution.

Table 3.02: Level of attitude of college students of Govt. Zawlnuam College towards Environmental Pollution.

Sl.No.	Grade	Level of attitude	No. of students	% of students
1	A	Extremely Positive	0	0%
2	B	Highly Positive	1	3.33%
3	C	Above Average Positive	11	36.67%
4	D	Average	18	60%
5	E	Negative	0	0%
6	F	Highly Negative	0	0%
7	G	Extremely Negative	0	0%

Total no. of college students=30

Table 3.02 shows that out of 30 college students of Govt. Zawlnuam College 0%(0%) of the students have extremely positive attitude towards environmental pollution, 1 (3.33%) of the student has highly positive attitude towards environmental pollution, 11(36.67%) have above average positive attitude towards environmental pollution, 18(60%) have an average attitude towards environmental pollution, 0(0%) have negative, highly negative and extremely negative attitude towards environmental pollution.
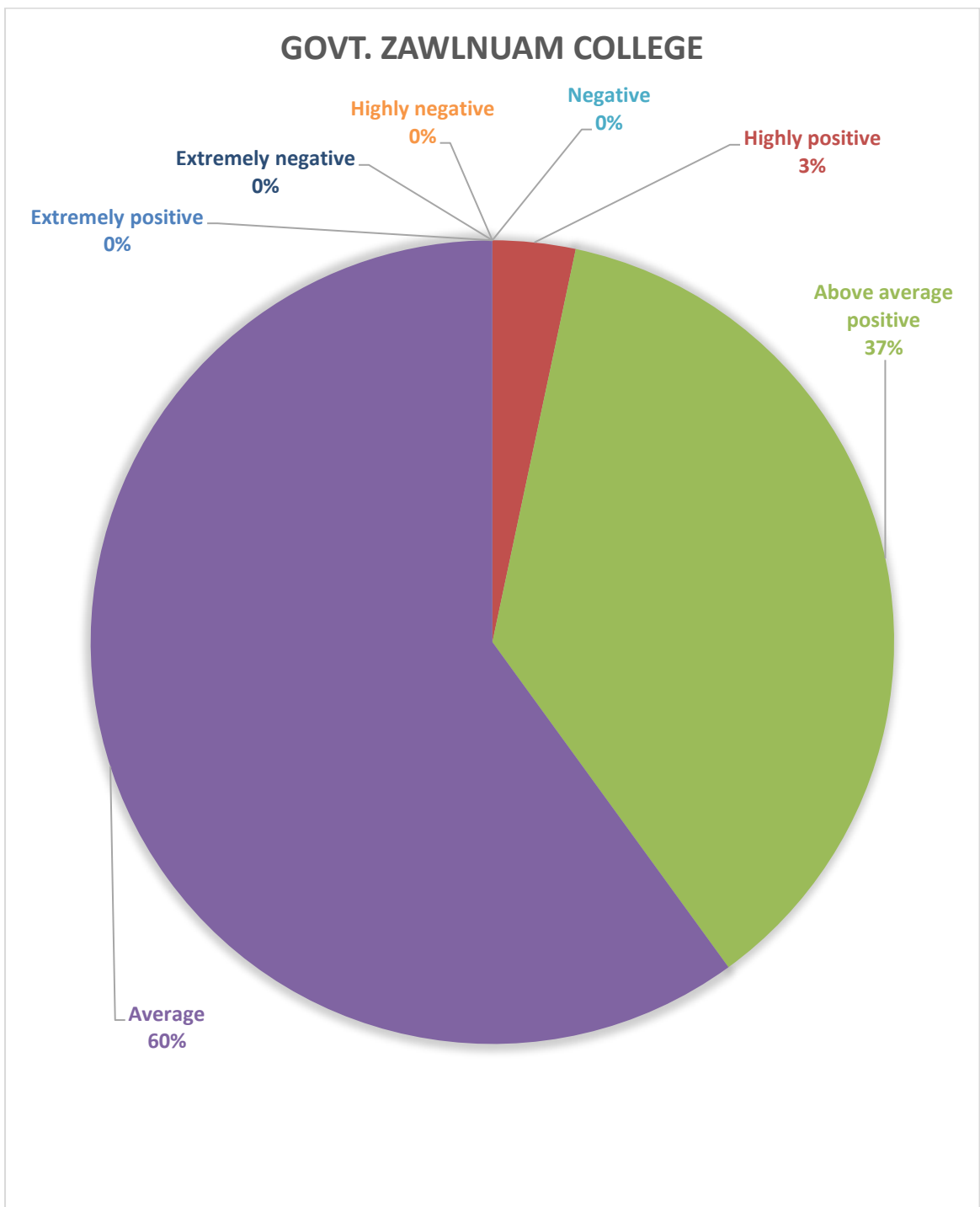
Fig 3.02: Level of attitude of college students of Govt. Zawlnuam College towards Environmental Pollution.

OBJECTIVE NO. 3: To find out the level of attitude of college students of Govt. Zawlnuam College towards environmental pollution.

Table 3.03: Level of attitude of college students of Govt. Mamit College towards Environmental Pollution.

Sl.no.	Grade	Level of attitude	No. of students	% of students
1	A	Extremely Positive	0	0%
2	B	Highly Positive	0	0%
3	C	Above Average Positive	7	23.33%
4	D	Average	21	70%
5	E	Negative	2	6.67%
6	F	Highly Negative	0	0%
7	G	Extremely Negative	0	0%

Total no. of college students=30

Table 3.03 shows that out of 30 college students of Govt. Mamit college 0(0%) of the students have extremely positive and highly positive attitude towards environmental pollution, 7(23.33%) have above average positive attitude towards environmental pollution, 21(70%) have an average attitude towards environmental pollution, 2(6.67%) have negative attitude towards environmental pollution and 0 (0%) highly negative and extremely negative attitude towards environmental pollution.
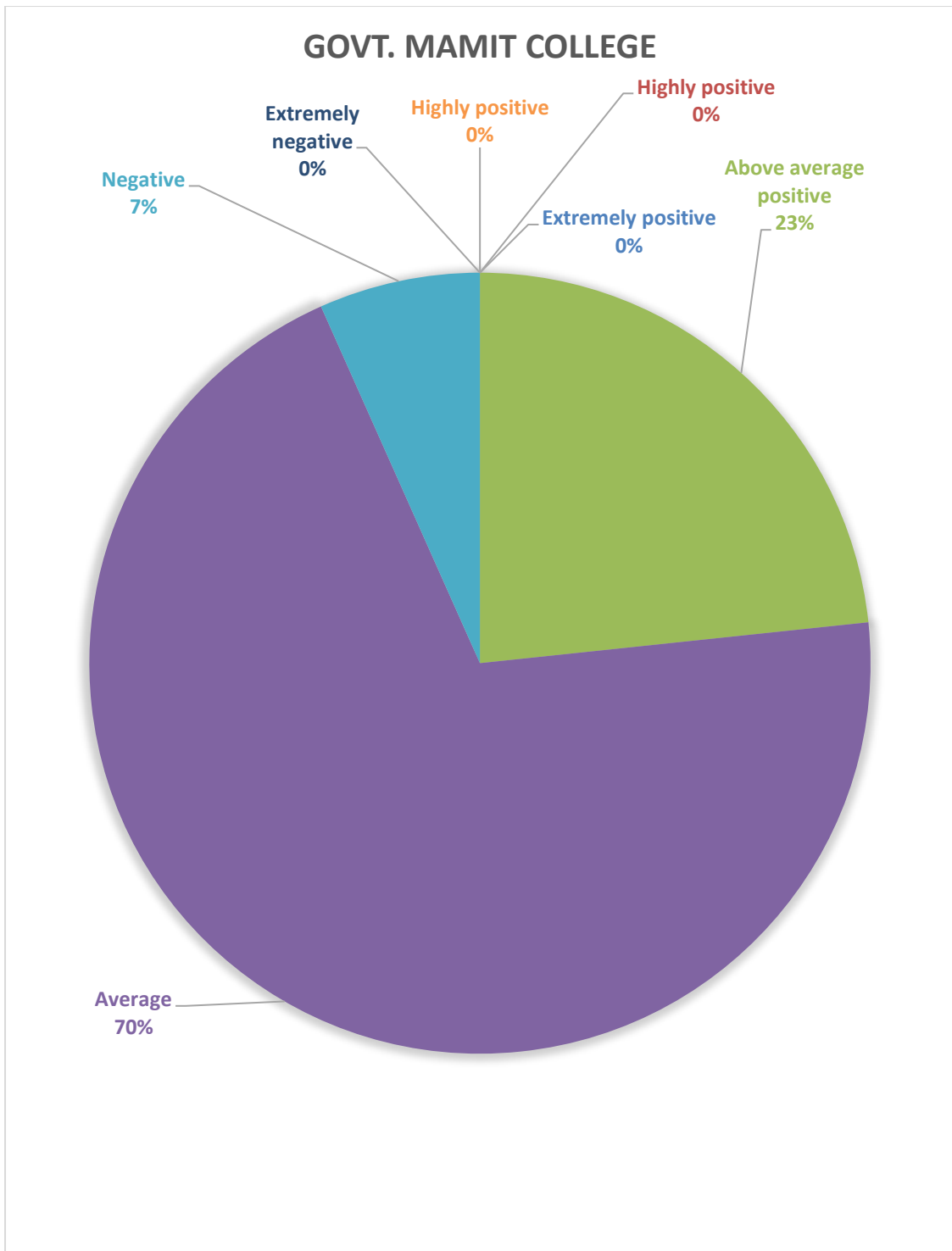
Fig 3.03: Level of attitude of college students of Govt. Mamit College towards Environmental Pollution.

OBJECTIVE NO. 4: To find out the level of attitude of Male college students towards environmental pollution.

Table 3.04: Level of attitude of Male college students of Mamit District towards Environmental Pollution:

Sl. No	Grade	Level of attitude	No. of students	% of students
1	A	Extremely Positive	0	0%
2	B	Highly Positive	1	3.33%
3	**C**	Above Average Positive	8	26.67%
4	D	Average	21	70%
5	E	Negative	0	0%
6	F	Highly Negative	0	0%
7	G	Extremely Negative	0	0%

Total no. of college students=30

Table 3.04 shows that out of 30 male college students 0(0%) of the students have extremely positive attitude towards environmental pollution, 1(3.33%) of the students having highly positive attitude towards environmental pollution, 8(26.67%) have above average positive attitude towards environmental pollution, 21(70%) have an average attitude towards environmental pollution, 0(0%) have negative, highly negative and extremely negative attitude towards environmental pollution.

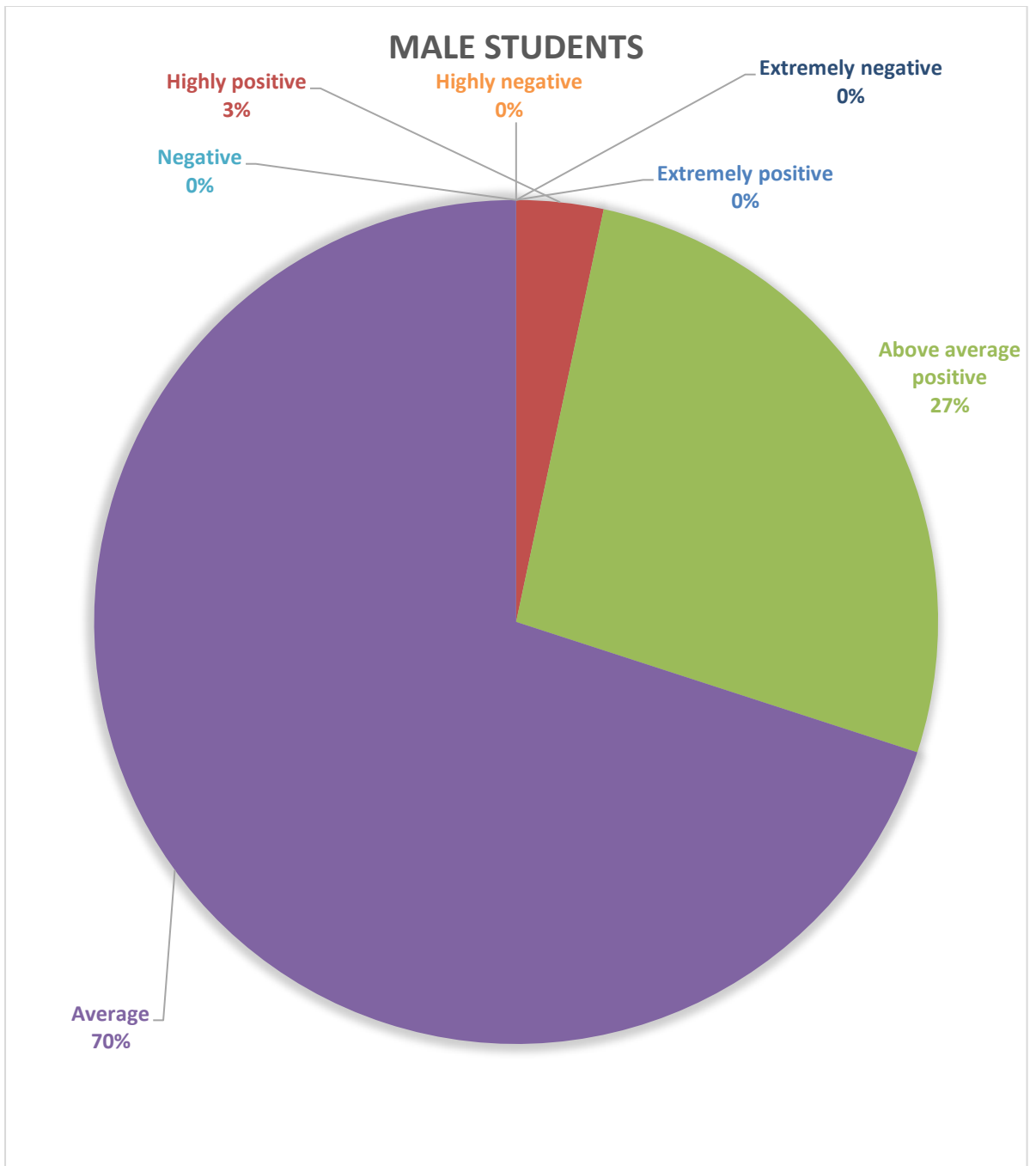**MALE STUDENTS**

Highly positive
3%

Highly negative
0%

Extremely negative
0%

Negative
0%

Extremely positive
0%

Above average
positive
27%

Average
70%

Fig 3.04: Level of attitude of Male college students towards Environmental Pollution.

OBJECTIVE NO. 5: To find out the level of attitude of Female college students towards environmental pollution.

Table 3.05: Level of attitude of Female college students of Mamit District towards environmental pollution: -

Sl. No.	Grade	Level of college	No. of students	% of students
1	A	Extremely Positive	0	0%
2	B	Highly Positive	0	0%
3	C	Above Average Positive	10	33.33%
4	D	Average	18	60%
5	E	Negative	2	6.67%
6	F	Highly Negative	0	0%
7	G	Extremely Negative	0	0%

Total no. of college students=30

Table 3.05 shows that out of 30 female students 0(0%) of the students have extremely positive attitude towards environmental pollution, 0(0%) of the students having highly positive attitude towards environmental pollution, 10(33.33%) have above average positive attitude towards environmental pollution, 18(60%) have an average attitude towards environmental pollution, 2(6.67%) have negative attitude towards environmental pollution and 0 (0%) have highly negative and extremely negative attitude towards environmental pollution.
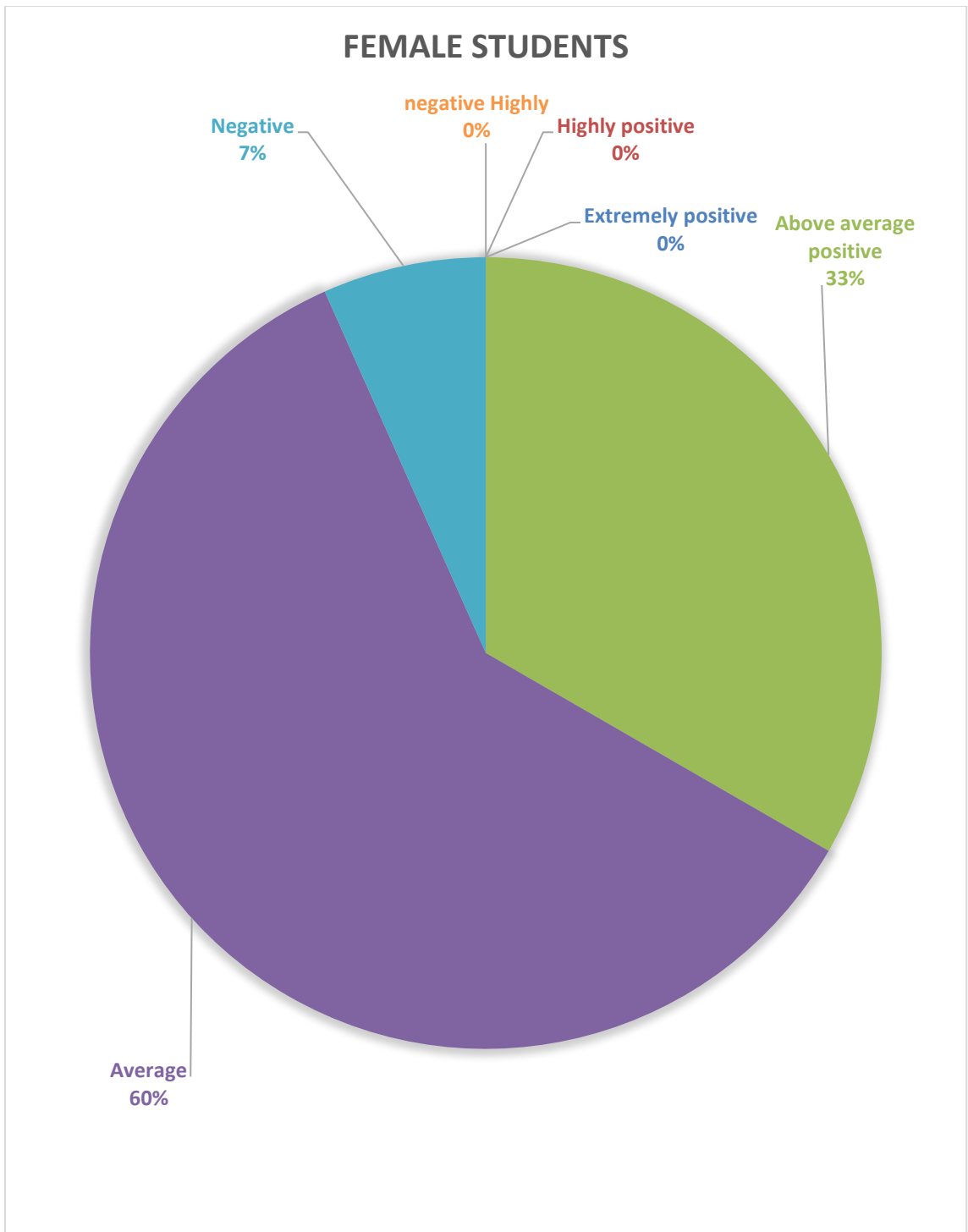
Fig 3.05: Level of attitude of Female college students towards Environmental Pollution.

OBJECTIVE NO 6: To compare the level of attitude of college students in Mamit District towards environmental pollution.

Here we have the null hypothesis: *There is no significant difference in the level of attitude of college students of Mamit District towards environmental pollution.*

Table 3.06: Comparison of attitude of College Students of Mamit District towards Environmental Pollution.

	N	M	SD	SED	t-value	df	Level of significance	
Zawlnuam	30	96.85	6.9	1.90	2.03	58	0.05	0.01
Mamit	30	93	7.8				2.00	2.66

df	Required t-value		Calculated t-value	Interpretation	Conclusion
	0.05	0.01			
58	2.00	2.66	2.03	Calculated t-value is more than the required t-value at 0.05 level less than the required t-value at 0.01 level	Null hypothesis is rejected at 0.05 level and retained at 0.01 level

Table 3.06 shows that the mean score of Zawlnuam and Mamit college students were 96.85 and 93 with SD 6.9 and 7.8 respectively. The calculated t value 2.03 was less than the table value of t at 0.05 and less than the table value at 0.01 level. Thus, the null hypothesis "*There is no significant difference in the level of attitude of college students of Mamit District towards environmental pollution.*" was rejected at 0.05 level but retained at 0.01 level. This implies that there are no differences in attitude of college students of Mamit District towards environmental pollution.

OBJECTIVE NO 7: To compare the level of attitude of college students in Mamit District towards environmental pollution w.r.t. gender.

Here we have the null hypothesis: *There is no significant difference in the level of attitude of college students of Mamit District towards environmental pollution w.r.t. gender.*

Table 3.07: Comparison of attitude of Male and Female college Students of Mamit District towards Environmental Pollution.

	N	M	SD	SED	T value	df	Level of significance	
Male	30	96.35	8.15	1.45	1.62	58	0.05	0.01
Female	30	94	7.5				2.00	2.66

df	Required t-value		Calculated t-value	Interpretation	Conclusion
	0.05	0.01			
58	2.00	2.66	1.62	The calculated t-value is less than the required value at 0.05 and 0.01 level	Null hypothesis is retained.

Table 3.07 shows that the mean score of male and female were 96.35 and 94 with SD 8.15 and 7.5 were respectively. The calculated t-value 1.62 was less than the table value of 't' at 0.05 and 0.01 level. Thus, the null hypothesis "*There is no significant difference in the level of attitude of college students of Mamit District towards environmental pollution w.r.t. gender*" was retained. This implies that there are no differences in attitude of male and female towards environmental pollution.

CHAPTER-IV

4.01 RESULTS

After analysing the data, the following findings were obtained

- Out of 60 college students of Mamit District the highest percentage of students i.e., 65 % (39) have an average attitude towards environmental pollution. None of the students were found to have extremely positive or extremely negative attitude towards environmental pollution.

- Out of 30 college students of Govt. Zawlnuam College, the highest percentage of students i.e., 60% (18) an average attitude towards environmental pollution. None of the students were found to have extremely positive or extremely negative attitude towards environmental pollution.

- Out of 30 college students of Govt. Mamit college, the highest percentage of students i.e., 70% (21) have an average attitude towards environmental pollution. There were no students with extremely positive or extremely negative attitude towards environmental pollution.

- Out of 30 male college students of Mamit District, the highest percentage of students i.e., 70 % (21) have an average attitude towards environmental pollution. There were no students with extremely positive or extremely negative attitude towards environmental pollution.

- Out of 30 female college students of Mamit District, the highest percentage of students i.e., 60% (18) have an average attitude towards environmental pollution. There were no students with extremely positive or extremely negative attitude towards environmental pollution.

- On comparing the level of attitude, it was found that there were no significant differences in the level of attitude of college students of Mamit District towards environmental pollution.

- On comparing the level of attitude of college students of Mamit District w.r.t gender it was found that there were no significant differences in the attitude of college students of Mamit District towards environmental pollution w.r.t. gender.

4.02 DISCUSSION OF RESULTS

The major findings of the study show that out of 60 College students of Mamit District, 65 % (39) students have an average attitude towards environmental pollution. Some of the students i.e., 30% (18) have an above average attitude towards environmental pollution. No students were found to have extremely positive, highly negative and extremely negative attitude towards environmental pollution. This indicates that most of the students have average attitude towards environmental pollution.

From the 30 college students of Govt. Zawlnuam College, majority of the students i.e., 60% (11) of the students were found to have an above average attitude towards environmental pollution. Some of the students i.e., 36.67% (11) have an above average attitude towards environmental pollution. No students were found to have extremely positive, highly negative and extremely negative attitude towards environmental pollution. This indicates that most of the students have average attitude towards environmental pollution.

From the 30 college students of Govt. Mamit College, majority of the students i.e., 70% (11) students were found to have an average attitude towards environmental pollution. Some of the students i.e., 23.22% (7) have an above average positive attitude towards environmental pollution. No students were found to have extremely positive, highly negative and extremely negative attitude towards environmental pollution. This indicates that most of the students have average attitude towards environmental pollution.

Based on the above findings it can be concluded that most of the college students in Mamit District have Average attitude towards environmental pollution.

The level of attitude towards environmental pollution of Female and Male college students was also analyzed. Out of 30 female students it was found that most of the students i.e., 60% (18) female students have an average attitude towards environmental pollution. Some of the students i.e., 33.33 % (10) have an above average positive attitude towards environmental pollution. No students were found to

have extremely positive, highly positive, highly negative and extremely negative attitude towards environmental pollution.

Out of 30 male students it was found that most of the students i.e., 70% (21) male students have an average attitude towards environmental pollution. Some of the students i.e., 26.67% (8) have an above average positive attitude towards environmental pollution. No students were found to have extremely positive, highly negative and extremely negative attitude towards environmental pollution.

Based on the above findings it can be concluded that most of the college students of Mamit District are aware environmental pollution and are willing to take steps towards conserving and improving the environment.

The current study compared the level of attitude of college students of Govt. Zawlnuam College and Govt. Mamit College towards environmental pollution. The null hypothesis "*There is no significant difference in the level of attitude of college students of Mamit District towards environmental pollution*" was retained. This implies that there is no difference in the level of attitude of college students of Govt. Zawlnuam College and Govt. Mamit College towards environmental pollution.

The current study also compared the level of attitude of college students of Govt. Zawlnuam College and Govt. Mamit College towards environmental pollution based on gender. The null hypothesis "*There is no significant difference in the level of attitude of college students of Mamit District towards environmental pollution w.r.t. gender.*" was also retained. This implies that there is no difference in the level of attitude of college students of Govt. Zawlnuam College and Govt. Mamit College towards environmental pollution w.r.t. gender.

Based on the above findings it can be concluded that there are no significant differences in the attitude of college students of Mamit District towards environmental pollution.

4.03 EDUCATIONAL IMPLICATIONS

- The finding can help in assessing the level of environmental awareness among students.
- The finding may help in framing school curriculum from environmental point of view.
- The level of attitude of students towards environmental pollution can suggest us the activities that could be planned to promote sensitivity towards ecological sensibilities.
- The causes of environmental pollution should be brought to the notice of the students so that remedial measures can be taken.
- With regards to creating more awareness about the environment, the education process has to play a more practical role.
- The subject of environmental education should be included as compulsory subjects in the curriculum. It should be made more effective in institutions.

4.04 SUGGESTIONS FOR IMPROVEMENT

The following suggestion were some up by the researcher

- Voluntary agencies must be actively involved in the task of environmental improvement. For this purpose, financial resources may be made available to such established agencies.
- It is suggested that syllabus and textbooks on environment should be reviewed and modified from time to time whenever required.
- Inculcate good environmental habits in their children.
- Creating awareness about environmental law to general public is indeed as important as are very survivals.
- Encourage direct public participation from the citizen to develop environmental awareness and to prepare action plans.
- Extensive afforestation campaigns should be launched in the interest of environmental protection.
- It is suggested education department should introduced environmental education as a compulsory subject in teachers training syllabus.

4.05 LIMITATIONS OF THE PROJECT

The present study had the following limitations

1. The present study could be conducted only among colleges students of Mamit District due to time and financial constraints.
2. The present study was limited to only descriptive statistics.

SUMMARY

The present study was conducted to find out the level of attitude of college students of Mamit District towards environmental pollution. The population of the study included all college students of Mamit District i.e., 243 students. Simple random sampling method was used to collect sample of 30 students each from two colleges within Mamit District i.e., Govt. Zawlnuam College and Govt. Mamit College. Environmental Pollution Attitude Scale developed by Prof. (Dr.) M. Rajamanickam was used to collect data. Findings of the study indicate that most of the college students of Mamit District have average level of attitude towards environmental pollution. No student was found to have extremely positive or extremely negative attitude towards environmental pollution. Comparison of attitude of college students was analyses using t-test and it was found that there are no significant differences in the level of attitude of college students of Mamit District towards environmental pollution. It can be concluded that most of the college students of Mamit District are aware environmental pollution and are willing to take steps towards conserving and improving the environment.

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